SECOND INTERNATIONAL SCIENTIFIC CONFERENCE ON IT, TOURISM, ECONOMICS, MANAGEMENT AND AGRICULTURE

ITEMA 2018

November 8, 2018
Graz University of Technology
GRAZ, AUSTRIA
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CONFERENCE PROCEEDINGS

Association of Economists and Managers of the Balkans
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SECOND INTERNATIONAL SCIENTIFIC CONFERENCE
ITEMA 2018

Recent Advances in Information Technology, Tourism, Economics, Management and Agriculture

CONFERENCE PROCEEDINGS

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PREFACE

Association of Economists and Managers of the Balkans headquartered in Belgrade – Serbia, and Graz University of Technology from Graz – Austria, organized Second International Scientific Conference on Recent Advances in Information Technology, Tourism, Economics, Management and Agriculture - ITEMA 2018 in Graz on November 8, 2018 at the Graz University of Technology.

The aim of the ITEMA 2018 conference was to bring together the academic community (experts, scientists, engineers, researchers, students and others) and publication of their papers with the purpose of popularization of science and their personal and collective affirmation. The unique program combined presentation of the latest scientific developments in Information Technologies, Tourism, Economics, Management and Agriculture, interactive discussions and other forms of interpersonal exchange of experiences.

The conference theme was discussed in following sections:

1. Information Technology,
2. Tourism,
3. Economics,
4. Management,
5. Agriculture.

The Conference Proceedings of ITEMA 2018 conference has **146 papers double peer reviewed** on more than **1.100 pages.** The ITEMA 2018 Book of Abstracts has additional **86 abstracts presented at the ITEMA 2018 conference.**

Besides that, **79 papers** accepted for ITEMA 2018 conference have been accepted for publication in conference partner journals also, namely:

1. **Public Sector Economics** is double blind peer-reviewed scientific journal published by the Institute of Public Finance, which seeks theoretical, empirical and policy-oriented contributions analysing the role and functioning of the public sector at macroeconomic, sectoral and microeconomic levels, in both advanced and emerging market economies. Articles published in Public Sector Economics are indexed in: SCOPUS (Elsevier), DOAJ (Directory of Open Access Journals, Lund University, Sweden), EconLit (American Economic Association's electronic database), HRČAK (Portal of Scientific Journals of Croatia), IBSS (International Bibliography of the Social Sciences, ProQuest, Cambridge, UK) and RePEC (Research Papers in Economics).

2. **Acta Turistica** is an international scientific journal published by the Department of Tourism, Faculty of Economics & Business, University of Zagreb, Croatia. The journal is regularly listed in the Web of Science – Emerging Sources Citation Index (ESCI), SCOPUS, C.A.B INTERNATIONAL, LORETO Thesaurus, CIRET – Centre International de Recherches et d'Etudes Touristique, EBSCOHost, EconLit – American Economic Association, ProQuest and JSTOR. Acta Turistica is a bilingual (Croatian and English) scientific journal and it has been published twice a year since its first issue in 1989. It includes categorized scientific and professional papers adopting

interdisciplinary approach ranging from tourism economics, tourism and hospitality management, tourism sociology, anthropology, tourism and hospitality marketing, tourism geography, tourism development, etc. It is aimed at fostering scientific debate of various theoretical and pragmatic issues in tourism, both in Croatia and worldwide, thus searching for better solutions in the field based on scientific research and argument.

3. **Journal of Innovative Business and Management** is published by DOBA Faculty, Maribor (Slovenia) and referred in international scientific journal bases DOAJ, EconPapers, ResearchGate and RePec. It has been published since 2009 and since then it has been attracting more and more interest among the readers, who predominantly come from academia and business practice. The journal is intended for economists, teaching staff, the wider professional public from the field of business and social sciences, researchers, students and academics, who need up-to-date information and innovative ideas from the field of international business management, governance, organization, marketing, business administration and modern forms of business education in their line of work.

4. International Scientific Journal **Turizam** is published by the Faculty of Sciences, Department of Geography, Tourism and Hotel Management, University of Novi Sad, Serbia. Conceptual framework of the journal is oriented towards contemporary trends in tourism, hotel management and gastronomy. The journal is available in the following journal databases and repositories: Index Copernicnus, Directory of Open Access Journals (DOAJ), ResearchBib, MIAR, Directory of open access scholarly resources (ROAD), CIRET's Data bases on the tourism, leisure, outdoor recreation and hospitality industry, SCIndex – Serbia Citation Index and Google Scholar.

5. **Serbian Journal of Engineering Management** is a new scientific journal, published by the School of Engineering Management and Society of Engineering Management of Serbia. This international journal is dedicated to the wide scope of themes in engineering management and industrial engineering and is published semi-annually. The papers are presented in English, Serbian and other former Yugoslavian languages.

6. **Central European Journal of Geography and Sustainable Development (CEJGSD)** is an open access international scientific and peer-reviewed journal. Starting with 2018, CEJGSD publishes relevant academic research papers in geography, sustainable development and other related areas. It is published in 2 issues per year (in June and December) and the language of publication is English.

7. **Balkans Journal of Emerging Trends in Social Sciences (Balkans JETSS)** - new scientific journal, published by the Association of Economists and Managers of the Balkans. Aims and scope are economics, management, law and tourism. After publication of first issues of the journal, Balkans JETSS will be submitted for indexation in all relevant scientific databases: SCOPUS, EBSCO, DOAJ, Google Scholar, etc.

Participation in the conference took a total of **468 researchers with the paper** representing:

- 20 different countries,
- 84 different universities,
- 62 eminent faculties,
- 2 scientific institutes,
- 16 colleges,
- various ministries, local governments, public and private enterprises, multinational companies, associations, etc.

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INFORMATION AND COMMUNICATION TECHNOLOGIES AS THE MANAGEMENT FACTOR IN THE DIGITAL ECONOMY DEVELOPMENT

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Abstract: *The article is focused on the analysis of the information and communication technologies use in economic activity. Every day global economic relations experience fundamental changes. It becomes more difficult to identify even the simplest connections between phenomena and objects. New economy transition implies that digital technologies and services become the key factors of this activity. Economic relations' transition into digital reality, based on the digitized data movement through communication channels of information networks, has become objective and inevitable. The methodology: description, analysis, synthesis, generalization, formalization, structural and functional approach, justification, modelling. Conclusions: Firstly, since digital reality is a system, the basic concept of digitalization is a digital platform, which is an information and communication environment, where all the necessary hardware and software, including a complex of services, are concentrated. Secondly, formation of digital platforms is a consequence of the digital transformation [1]. This process is associated with the development of a new economic management model. Currently, market relations naturally rush from program-target to program-forecast. Prime examples of platform solutions implementation are online platforms such as Uber and Airbnb. Thirdly, since all platforms are based on information and communication technologies, the communication is carried out instantly and in a simplified manner. Digital platform is a natural evolutionary directed modification of business structures. As a general rule, the government does not stimulate business development of platform solutions. However, it should be borne in mind that the political will must simultaneously encourage and simplify the digital platforms formation in business environment [2]. Fourthly, an analysis of the digital platform concept suggests that it is an important source of open data that are relevant to state economic policy building. In addition, thanks to digital platforms, there are opportunities for analytics, forecasting and the creation of multifunctional services in the field of economic relations management. Theoretical and practical significance: This study clarifies the methodology for the information and communication technologies development in economic activity, allows to estimate the subjects' collaboration as well as the digital platforms' formation in the digital transformation of the economy.*

Keywords: *economic activity, digital economy, digital platform, information and communication technologies, software, information networks.*

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INTRODUCTION

Currently, the world community has entered into the stage of global change. All the spheres of life - the economy, science, education and security acquire new content that will be available to humanity in radically different forms. The reason for these changes was the introduction of digital technologies, and the phenomenon of the transition of most significant processes into the digital reality, based on the digitized data movement through the information technology communication channel.

The economy digitization is becoming the key element of modern life, filling its various niches, manifesting previously unknown prospects for the “non-biological mind” formation with its superiority over the human brain functionality and creativity, free from the human limitations.

Continuously the communication technologies shrink the space and time, change the labor exploiting and capital accumulating practices, as well as the very nature of the reproduction processes.

DIGITAL ECONOMY AS A CONSEQUENCE OF INFORMATION AND COMMUNICATION TECHNOLOGIES DEVELOPMENT

Experts note that the digital economy creation is the necessity associated with the progress in such areas as microelectronics, information technology and telecommunications, digital currency instruments and other components of the term “digital economy” [3].

This concept, applied in 1995 at the University of Massachusetts by the American scientist Nicholas Negroponte [4], was generated by the intensive development of information and communication technologies. Operations in the field of the Internet and mobile communications were developed first of all, so they can be called “the basic technologies of the digital economy”. However, as a result of expanding the information and communication technologies’ capabilities, these processes have become the basis and predetermined the development vector of such industries as manufacturing, healthcare, education, financial services, and transport.

The peculiarity of the economy of the new order is represented by the digital, voluminous and multi-sectoral data, while the advantage of accelerated economic development are those countries whose economies are based on the most advanced electronic technologies and services, including “big data” analysis technologies and forecasting technologies. Even though, despite of the accelerated regulatory and legal consolidation of such concepts as the digital economy, information and communication technologies, end-to-end technologies, digitalization, still remain blurred and are interpreted differently [5].

Foreign countries can be divided into 4 groups in the terms of digitalization:

- In the first group are the United Kingdom, Japan, Singapore, Hong Kong. All these countries show the highest level of digital development and rapid growth rates;
- In the second group are Australia, South Korea, Western European countries and Scandinavia. These countries have maintained rapid growth, but they are now reducing the level of investment;
- In the third group are Russia, India, China can potentially become leading;
- The fourth group constitute the countries of Africa and South America. They are characterized by the development low level.

The content of the world relations is undergoing cardinal changes daily. It becomes more difficult to identify even the simplest connections between phenomena and objects. Modern economic conditions require the formation and development of the world economy as a high-tech and innovative system in order to ensure the meaningful growth rate and the competitiveness of products in domestic and foreign markets.

The simple proof of the above are the similarities and differences of the real person and his image in the Internet space. The more information is stored in such a device as the smartphone the less work is done by the person. The integration of virtual processes in real life leads to the creation of a new hybrid world. This world is a system where the satisfaction of the basic needs of the real world is possible only through the use of information and communication technologies and digital infrastructure. In the other words, all operations related to household requests require the inclusion of digital applications. Consequently, more complex social relations will soon be based primarily on information and communication technologies.

At the moment, there is no consensus on what the digital economy is and what role modern information and communication technologies play in its administration. In the Russian Federation, the definition is approved by the Presidential decree of May 9, 2017 No. 203 “On the Strategy for the Information Society Development in the Russian Federation for 2017–2030” [6].

Digital economy refers to economic activity, where the key production factor is the digital data, processing large amounts of data and using analysis results which, compared to the traditional forms of management, can significantly improve the efficiency of various types of production, technologies, equipment, storage, sales, goods delivery and services.

This concept proves that the digital economy is one of the hybrid world subsystems. In other words, the digital economy is a management system. The main feature of this system is the impossibility of meeting the commercial and non-commercial needs of society without high-tech analysis and information use. Systems for the information use are communication technologies, which are based primarily on financial infrastructures and digital government platforms.

III. DIGITAL PLATFORMS ARE THE ECONOMY TRANSFORMATION TOOLS

The basic concept of digitalization is the definition of the digital platform, which is information and communication environment that includes all the hardware and software necessary to meet public needs, including the complex of services. That is, the digital platform is a platform for the modern information concentration and communication technologies, which are intermediaries between the needs of individuals and legal entities. This platform is designed to support automated processes and accelerated consumption of digital services.

The digital platform in the broad sense is a system that allows legal entities, individuals and the state to manage partnerships, to enter transactions, provide services and interact with each other in any other way without intermediaries, using cognitive technologies.

The digital platforms formation is a consequence of the economy digital transformation. This process is associated with the new economic management model development. Currently, market relations naturally rush from the program-target to the program-forecast. This hybrid type of economy is mainly based on such a phenomena as electronic transaction and electronic commerce.

E-commerce, like classical commerce, requires the creation of specialized virtual and real platforms, which can be called digital platforms. The functional significance of the digital platform lies in the fact that it makes the integrated and effective information and communication technologies use possible. In addition, the digital platform provides the possibility of simplified and accelerated communication between the individuals and legal entities, which reduces the cost of finding interaction opportunities.

The success of the economy digital platforms is due to the interaction acceleration between traders and other participants, as well as due to the effectiveness of public administration within the platform. The digital platform as a model of subject interaction was implemented before this definition has appeared.

Prime examples of the platform solutions implementation are the online platforms such as Uber and Airbnb. These business projects were successful due to the fact that the trends of the Industry 4.0 were taken into account in their development. The term “Industry 4.0” appeared in Europe in 2011, when the German government has indicated the need for a wide application of information technologies in production [3].

Thus, the digital platform is a consequence and the necessary element of the fourth industrial revolution, which allows the individuals, legal entities and government bodies to use them in everyday life, in commercial and non-commercial activities of such innovations as the cognitive technologies, cloud solutions, Internet of things, big data, block-chains and cryptocurrencies. The digital high technology based platform creates profits through the exchange between the two or more independent groups of participants [4].

It is reasonable to say that the platforms provide the direct interaction between the manufacturers and the end users. In addition, digital platforms provide an opportunity to share projects and thus significantly increase the cooperation efficiency and to create innovative products and solutions. Platform companies are digital platforms in the narrow sense. [5].

Since all the platforms are based on information and communication technologies, the communication of participants is carried out instantly and in a simplified manner. In the other words, the digital platform performs the role of the operator that facilitates transactions immediately after a request.

The technologies that emerged in 2017 and 2018 are primarily based on cloud priorities, since at the moment this is the only way to process and analyze big data. Another important platform for the platform business is the product service format and flexible payment format. These features allow to increase the rate of new opportunities introduction in the markets. In addition to commercial platforms, there are state-owned digital platforms, which are the combination of government bodies and non-profit organizations that have introduced information and communication technologies into their community management process.

IV. CONCLUSION

As a rule, there are experimental models of the local digital platforms that correspond to these characteristics, but the technology development should lead to a single digital space where each subject can satisfy any need. Each of the participants in this space will be an element of the global digital ecosystem. In the formation of digital platforms, it is important that the conditions for their implementation meet the requirements of the information and communication technologies functioning [6].

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A FRAMEWORK BASED ON OPEN-SOURCE TECHNOLOGIES FOR AUTOMATED CHURN PREDICTION IN NON-CONTRACTUAL BUSINESS SETTINGS

Milan Mirković[3]
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Danijela Gračanin[5]

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Abstract: *Predicting customer churn has become increasingly important for companies competing in contemporary markets, as modern technologies keep tipping the scales of power and influence into the hands of customers. Hence, devising and executing retention campaigns targeting the population that is at the risk of being "lost" can make a big difference to the financial performance of a company. In this paper, we present a framework based on open-source technologies that makes evaluation of different churn definitions in a non-contractual business setting easy, in terms of resulting model performance. In particular, we propose an automated approach to feature engineering, model creation, model evaluation and model selection that should enable companies to quickly assess the effects of choosing a particular interval of inactivity as a churn definition period on the potential value of planned retention activities.*

Keywords: *Churn prediction, machine learning, framework, automation, non-contractual business setting*

1. INTRODUCTION

Technological advances have made it easy and convenient for consumers not only to make purchases anytime and anywhere, but also to compare products and services offered by different companies and make a switch from one supplier to another at the whim. This makes the competition for every single buyer more fierce than ever, and puts a lot of stress on corporate Customer Relationship Management (CRM) to keep existing customers happy and loyal – as obtaining new customers that might churn quickly is often more expensive than retaining existing customers [1]. Since buyers invariably leave at some point in their lifetime, it has become increasingly important for companies to identify those prone to leaving as soon as possible so appropriate retention activities can be taken – in hope that they can be persuaded to remain a customer. Positive effects of such campaigns can really make a difference to the financial performance of the company [2], thus it is essential to try and keep the retention rate as high as possible.

Customer churn prediction is a relatively well-explored domain that has been in the focus of researchers and industry practitioners for quite a while. However, most of the efforts have been aimed at predicting churn in industry branches where businesses operate under a subscription model, such as telecommunications [3] - [4], banking [5] or energy sector [6]. These contractual

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settings make churn flags explicit, i.e. the moment when customers churn is known precisely (e.g. they cancel their subscription or it expires on a particular date). In non-contractual business settings, such as retail, the moment of churn is not explicitly defined, as customers may make purchases at their leisure – hence a business understanding (i.e. definition) of churn has to be derived.

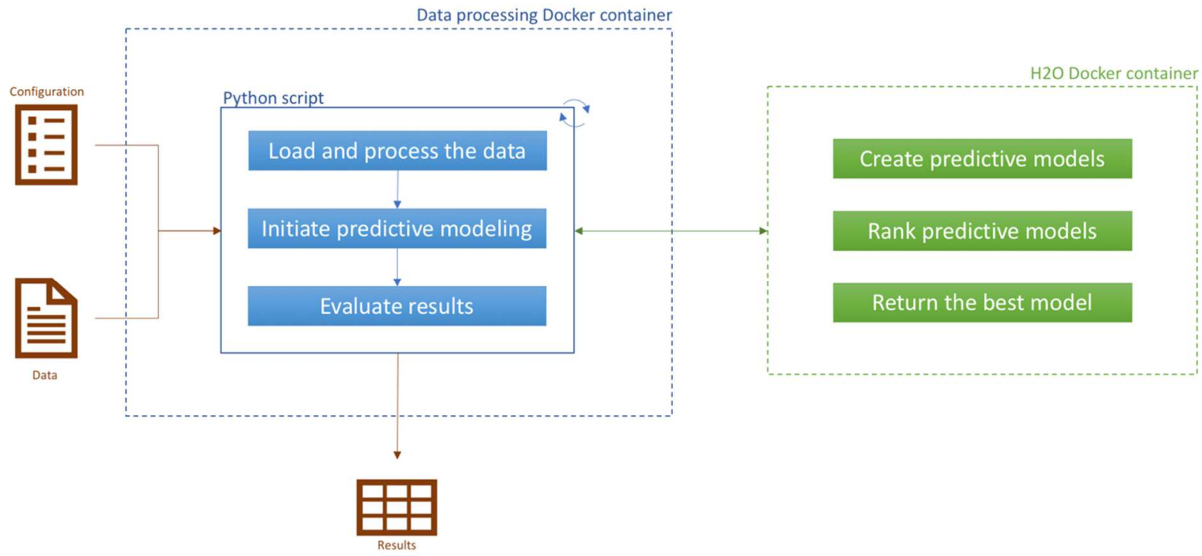
One way to do this is to define a particular period of customer inactivity (i.e. they do not make a purchase for three successive months) and then deduce from the transactional data whether a customer has churned at a particular point in time or not. Naturally, this raises the question of how to come up with a good definition (i.e. inactivity period to use for churn) and how useful the resulting models that use that definition are from a business perspective.

2. FRAMEWORK

The framework we propose in this paper treats churn prediction as a binary classification problem and allows finding a predictive model that maximizes the desired metric not only by testing the performance of different machine learning algorithms, but by manipulating the input data as well. In doing this, it sheds some light on what might be reasonable values to use for churn definition, derived from the data itself.

Two distinct Docker [7] containers are run within the framework, as shown in Figure 1. One contains the Python code that, given a set of configuration parameters (churn definition period and the number of months for calculating monthly features differences), loads the transactions data and processes it (i.e. creates features and churn labels from the raw data). It then sends the processed data to the other container – which contains a running H2O [8] instance – for predictive modeling. H2O container creates multiple predictive models based on the incoming dataset, ranks them and returns the results of the top performing one. The entire process is then repeated for the next set of configuration parameters until all are exhausted.

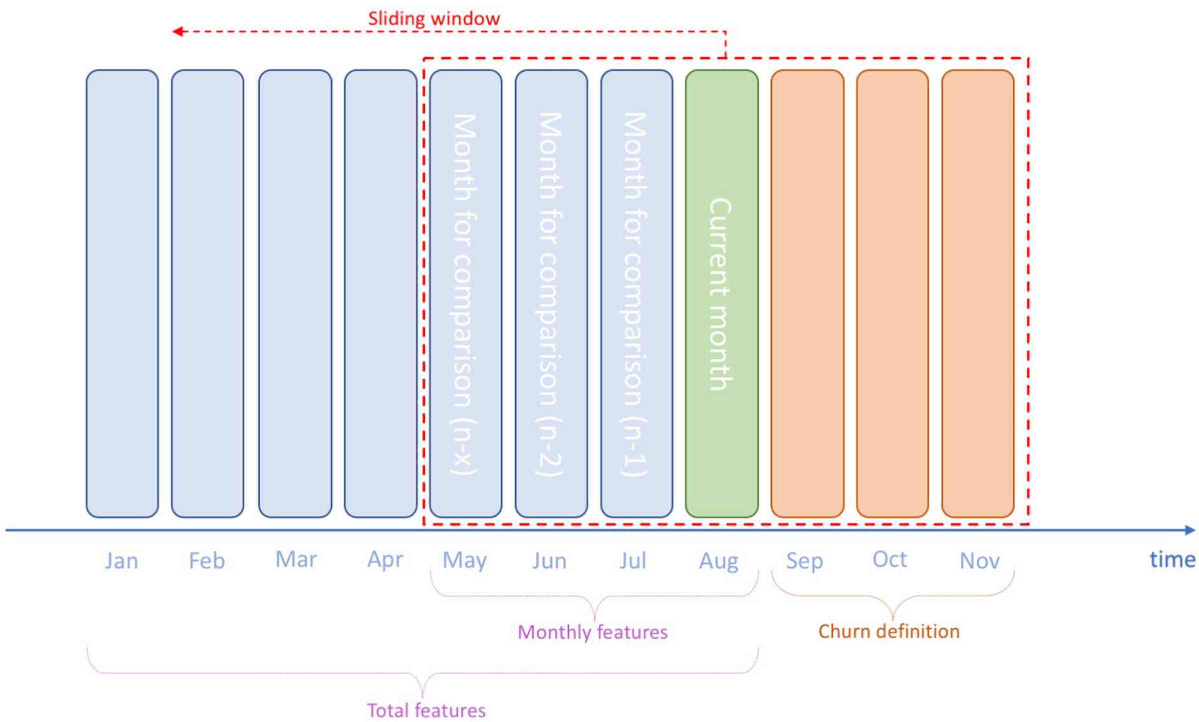
Figure 1: Framework for automated churn prediction



2.1. DATA PROCESSING

To create the dataset that is submitted to H2O for predictive modeling, a sliding-window approach is used. Window width is defined by two user-configurable parameters: churn definition period and the number of months to use for calculating differences between monthly features. In addition, cumulative features over the entire customer lifetime are added as Total features. This is illustrated in Figure 2.

Figure 2: Sliding-window approach to feature extraction



Only simple Recency, Frequency and Monetary (RFM) features are used for predictive modeling, as they require no additional information to raw transactions data (which is expected to be on the invoice-line level). They are calculated on two separate levels: monthly aggregates and totals. Months are used as units for aggregation as they present a natural cutoff point for summarization in various business processes (e.g. customers might be billed monthly) as well as for potential retention activities. Base features derived are: number of items purchased (per month and total), number of distinct items purchased (per month and total), number of purchases made (per month and total), amount spent (per month and total), average line amount (per month and total), average amount per purchase (per month and total) and days since last purchase (relative to the end of month). Additional features calculated are differences in values of base features on monthly level between a particular month and the *n*-th month prior to it (e.g. amount spent in March versus amount spent in February).

Churn flags are derived by using a certain period of customer inactivity (i.e. not making a purchase) in successive months (e.g. customer did not make a purchase in three successive months).

To keep model evaluation as close to the real-world conditions (i.e. least biased) as possible temporal splits are used to create the training and test sets, by using the latest month of processed data as the test set and all the ones prior to it as the training set.

2.2 PREDICTIVE MODELING

H2O provides automation options for the machine learning workflow, which include training and tuning of many models within a user-specified time-limit. Stacked ensembles are automatically trained on collections of individual models to produce highly predictive ensemble models – which can be ranked and the best one selected for future data scoring.

Presented framework utilizes this functionality by leveraging H2O's AutoML Interface that is passed the training data for creating predictive models and test data for ranking them. Area under receiver operating characteristics curve (AUC) is used as the main metric to determine the best performing model, as it is often used as a measure of quality of a probabilistic classifier and is close to the perception of classification quality that most people have [9].

Besides AUC, gains-charts are also constructed for every top-performing model, since they are a useful tool for evaluating the business impact of putting a particular model into production.

2.3. WORKFLOW

To provide an estimate on what might be a good value to use as a churn definition period given a transactions dataset, the framework requires two aforementioned input parameters (the maximum length of possible churn definition period and the maximum number of months for calculating differences between monthly features). Given these, two vectors containing integers ranging between one (1) and the respective parameter value are constructed, and a grid search is performed on their cartesian product (where the search criteria is the model with the highest AUC). This yields a model with the best performance with respect to the observed metric that at the same time uncovers the potential churn definition to be adopted.

Of course, care should be taken that plausible values that make business sense are passed as input parameters to the framework, as otherwise the outcome of the process might not be actionable (e.g. it might turn out that one year as a churn definition period yields the best model, but the model might actually be useless in the real world as one year could be simply too broad of a definition from the business perspective). In addition, to evaluate the potential business impact of the resulting models, gains charts should be inspected and used in conjunction with existing domain-knowledge to select the appropriate model for planned retention activities.

3. EXPERIMENT

To test the framework, we used a publicly available dataset [10] that comprises 541,909 lines present in customer transactions for a UK-based and registered non-store online retailer. Dataset spans the period between the 1st December 2010 and 9th December 2011. Each line is described by 8 variables: Invoice number, Stock code, Description, Quantity, Invoice Date, Unit price, Customer ID and Country. After filtering (removing rows with missing values and rows where quantity purchased is negative – as these are most likely product returns) and removing the Description and Country columns (as they are not used in any calculations), the dataset comprised 397,884 lines and 6 columns.

We set the framework input parameters to (3, 3), meaning that there were 9 different models constructed (using: [1, 1], [1, 2], [1, 3], [2, 1], [2, 2], [2, 3], [3, 1], [3, 2] and [3, 3] as parameter values across different runs). Ranking of models (according to the AUC obtained) is presented in Table 1.

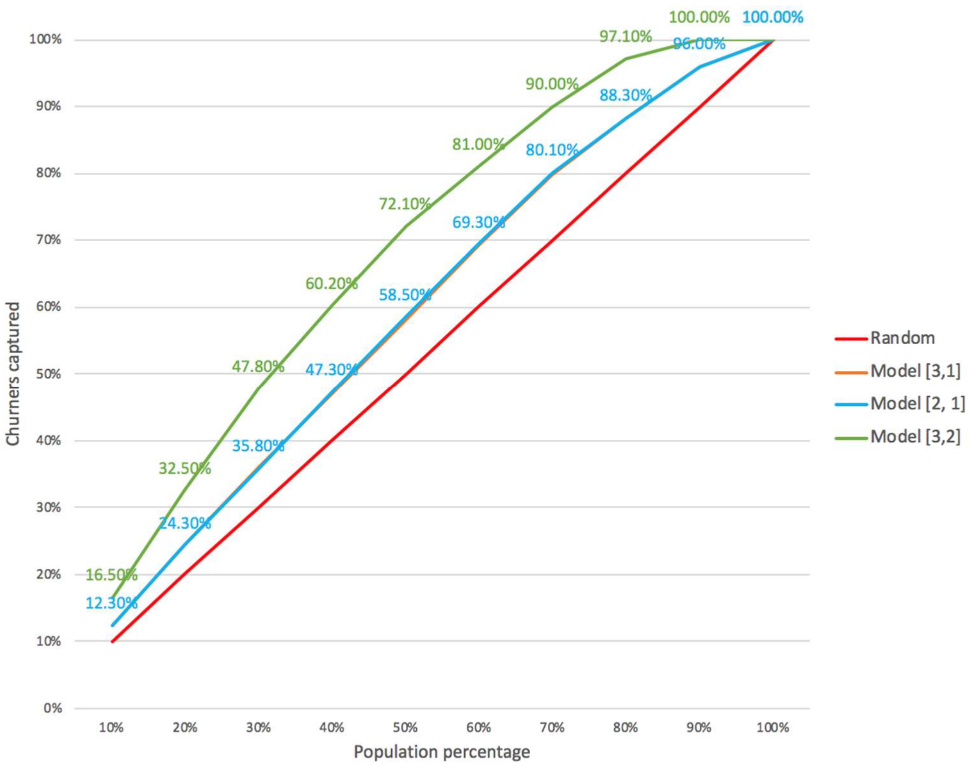
Table 1: Model ranking for the sample dataset

Model parameters ***[months for calculating differences, churn definition period]***	***AUC***
[3, 1]	0.909
[2, 1]	0.894
[3, 2]	0.891
[1, 1]	0.865
[2, 2]	0.849
[1, 2]	0.807
[3, 3]	0.792
[2, 3]	0.787
[1, 3]	0.785

According to the AUC values obtained, one or two months could be good candidates for churn definition period, and two or three months for calculating differences between monthly features might be used.

However, to see how effective would the models be if they were put into production (i.e. used to drive some retention activities, such as campaigns with special offers), gains chart was constructed for the top three performing models, and is shown in Figure 3.

Figure 3: Gains chart for the top three models



The value on the horizontal axis represents the percentage of customers to be targeted (e.g. by a campaign) while the value on the vertical axis shows the percentage of churners that would be captured by addressing the respective percentage of customers. If no model was used to make predictions on who is likely to churn, the expectation would be that a proportional percentage of churners is captured within the respective percentage of targeted customers (e.g. if a campaign was aimed at 20% of the population, it would be expected that 20% of all churners are captured within it). This expectation is labeled as “Random”.

The gains chart obtained indicates that the [3, 2] model has the highest potential business value, as it consistently captures the highest percentage of churners within every decile of the target population, when compared to other models.

4. CONCLUSIONS

Besides empowering buyers, contemporary technologies also make it possible for businesses to analyze their customers and use data-driven insights to come up with solutions that help them tailor the products and services they offer to the end-user’s liking. In this paper we presented a framework that is based on open-source technologies and that allows companies to identify not only customers who are likely to churn but to come up with plausible churn definition periods from the transactional data as well.

Experimental results show potential for this framework to be used in real-world settings, especially when scalability and extensibility are in question; the choice of technologies makes parallelization and scaling-up easy (Docker / H2O), while at the same time additional data sources can be plugged-in without too much effort (which should lead to more accurate predictive models).

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TECHNOLOGY TRANSFER AS INNOVATION DRIVER FOR GROWTH

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Abstract: *Information is essential in the daily management process at any business. It focuses on knowledge, know-how, skills and experience and is one of the main drivers of the innovation process. Companies that devote significant resources to research the market and to develop new products, processes and/or technologies are those ones that are the largest technology licensors. In the terms of Industry 4.0 there is a shift from labor-intensive and capital-intensive industries to knowledge-based and technology-based economies. As competition grows and covers not only national but also international markets, technology emerges as an important business driver in red oceans of competitive battleship. To support a long-term growth goals, new technologies and their intellectual properties could become an object of a marketing. In this case we are talking about technology transfer.*
In this paper, the subject of research will be the analysis of different ways of managing the technology transfer focusing on transfer on commercial basis. The core of the analysis is to find out the exact dependence between density of technology transfer and innovation based business success that dependence is typical for Bulgaria and Bulgarian companies. In conclusion the reference to the competitiveness level of Bulgarian economy and the calculated innovation based dependence will be presented. That will allow to state our recommendations to the Bulgarian mangers how to increase business growth and competitiveness based on the technology transfer.

Keywords: *Technology transfer, innovation business, industrial growth*

1. INTRODUCTION

Innovations, undoubtedly are appointed as a key factor for the competitiveness on national and business level. As the EC set: “Industry is the engine of innovation” [1], the innovations are the hearth of the EU Innovation policy and Innovation Strategy 2020. Furthermore, the main instrument for the implementation of ongoing Strategy 2020 (and up-coming EU Strategy 2030) is EU initiative Innovation Union [1] – [2].

There are many definitions for the innovations. However, the key words of innovations are: to be **new** (idea; product; technology; business model); to be **successful** (practically implemented; has potential for growth; added new value); to be **smart** (to lead growth; to expand markets; to develop competition). They are based on the fundamental researches as a first leg of innovation value chain [3]. In addition, a fully operated research excellence is needed to boost smart growth and competitiveness of the EU, EU member states and EU businesses [1].
European research network explores the opportunities to establish stable innovation environment for fostering a common work on projects that support digitalization (Industry 4.0

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and Industry 5.0) [4] and that promote resource efficiency and circular (regenerative) economy. The key word is **open** (shared) **information**: knowledge and know-how transfer; skills and experience leverage, as main drivers for successfully smart innovation process.

2. INNOVATIONS AND TECHNOLOGY TRANSFER

(Innovative) Companies that devote significant resources to research the market and to develop new products, processes and/or technologies are those ones that are the largest technology licensors. In the terms of ongoing stable growing Industry 4.0, and up-coming Industry 5.0, there is a shift from labor-intensive and capital-intensive industries to knowledge-based and technology-based economies. As competition grows and covers not only national but also international markets, technology emerges as an important business driver in red oceans of competitive battleship.

The best excellence business practices are based on innovations development and its successful market introduction and commercialization. In emerging markets such as electronics, biotechnology and nanotechnology (the Industry 5.0 sectors), the introduction of new products based on new technologies is essential. Even for traditional industries such as food production, textile and clothing, new technologies are needed to maintain their smart grow.

To support a long-term growth goals, new technologies and their intellectual properties could become an object of a marketing. In this case we are talking about technology transfer. Wahab, Rose and Osman [5] presented different approaches to defining the “Technology transfer”:

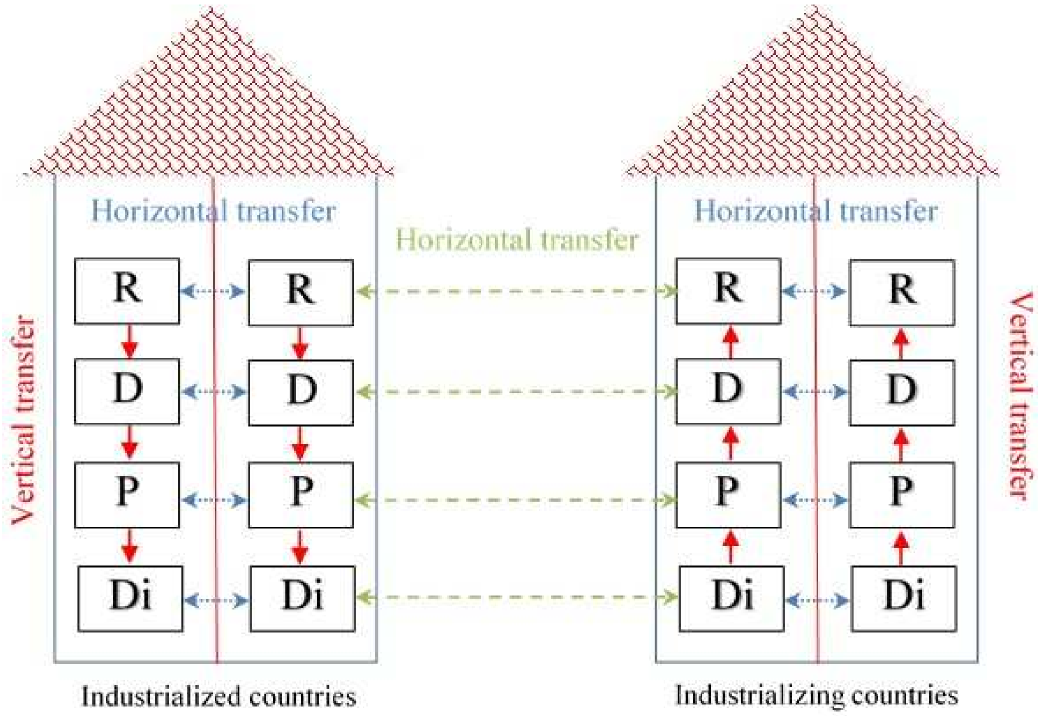
- as a process by which ideas and concepts are moved from the laboratory to marketplace (see [6] – [7]);
- as a process by which products and technologies are broaden from developed to less technologically developed countries (see [8]);
- as a process by which inventions are transferred to secondary users (see [9]).

The information and know-how transfer could be based on couple of mechanisms depending on the payment for transfer: commercial and non-commercial.

The main forms of technology transfer on a commercial basis are: license and know-how contracts, franchising, leasing, foreign direct investment etc. Non-commercial transfer is found as element of development of the innovative business environment and could be mediate through: common project research; Conference presentation; Paper publication; Informal discussion via Social networks.

Technological transfer could be found in two forms: vertical and horizontal. Vertical transfer is found from research via development and production to distribution in well-developed countries and from distribution via production and development to research in developing countries. The horizontal transfer could be found as new product/technology information exchange between two business organizations within one country or between two countries (see Figure 1) [10].

Figure 1. Technology transfer building



The main forms of commercial technology transfer (TT) are (see [11] – [14]):

- *License*: acquisition of technology know-how against a deal payment of the Intellectual Property (IP) rights.
- *Patents*: payee that is owner of exclusive rights with a patent for invention transfers those rights to another person or business organization (payer).
- *Contract of sale*: provides payment for a design, construction and assistance agreement for the initial technology to the technology know-how supplier.
- *Joint-venture Spin-off*: two or more companies merge their research resources and technology experience in the research and development, production or distribution of innovative products or technologies.
- *Delivery of technology to industry*: transferor purchasing new machinery and equipment with a high degree of technical complexity from technology transferee to produce new or high technology products and services.
- *Joint research projects*: two or more companies merge their research and development activities with research institutes or universities.

Nevertheless, the diversity of TT mechanisms and transfer mediums could not guarantee the technology transfer success. Nevertheless, the innovation success could be found by technology transfer policy based on the next 4 principles [15]:

- Introducing expert score-card for selection of the partner(s);
- Establishing long-term engagement of the partner(s);
- Accepting marketing leadership and marketing drive management to the joint venture;
- Maintaining the technology leadership and future technology innovation control.

3. BULGARIAN PRACTICE FOR INNOVATION ENCOURAGING

At the present stage of the national economic development, most of Bulgarian companies are implementing a low-priced strategy. As the greatest number of companies use obsolete technologies, methods and management approaches that lead them to direct refusal to innovate it is a challenging opportunity for introduction innovative technologies and business models in Bulgarian economy. Thus, accepting the innovation approach could be a small step for the Bulgarian entities, but it will be a great step for the competitiveness of the Bulgarian economy.

By the industrial growth policy, Bulgarian government could help the economy for enlarging the numbers of the innovative Bulgarian business than the figures from 2016th. (Table 1) [16]

Table 1. Share of the Bulgarian innovative business in 2016, %

	Innovative enterprises (total)	**Technology innovative enterprises [a]**	**Non--technolo innovative enterprises**
TOTAL, incl.:	**27.2**	**19.8**	**17.3**
Industry (codes B, C, D and E)	31.6	24.9	1
Services (codes H, J and K)	22.1	14.1	1
10 – 49 employees	20.5	15.2	1
50 – 249 employees	44.3	32.9	
above 250 employees	81.9	50.6	6

Remarks: a. technology innovation includes: product and process innovations
b. non-technology innovation includes: organizational and marketing innovations

According to the Table 1, 19.8% of all legal entities in Bulgaria have introduce technology innovation (product and/or process innovations), 17.3% - non-technology innovations (organizational and marketing innovations), and 4.95% - both.

More deeply, the Bulgarian National Statistical Office (NSI) explores the type of the product innovations. Thus, 12.8% of companies have introduced new products or services (product innovations) in 2016 that reports 24.4% of the total turnover of the Bulgarian business. 65.2% - established a new product decision for current markets, as 81.6% - just start producing new product for them, but not new for the markets. The importance of these product innovations could be given by the next figures: 6.0% of turnover is reported as result of new for the business innovative products, 2.7% – from new products for the industry and 3.3% – from new products for the enterprises.

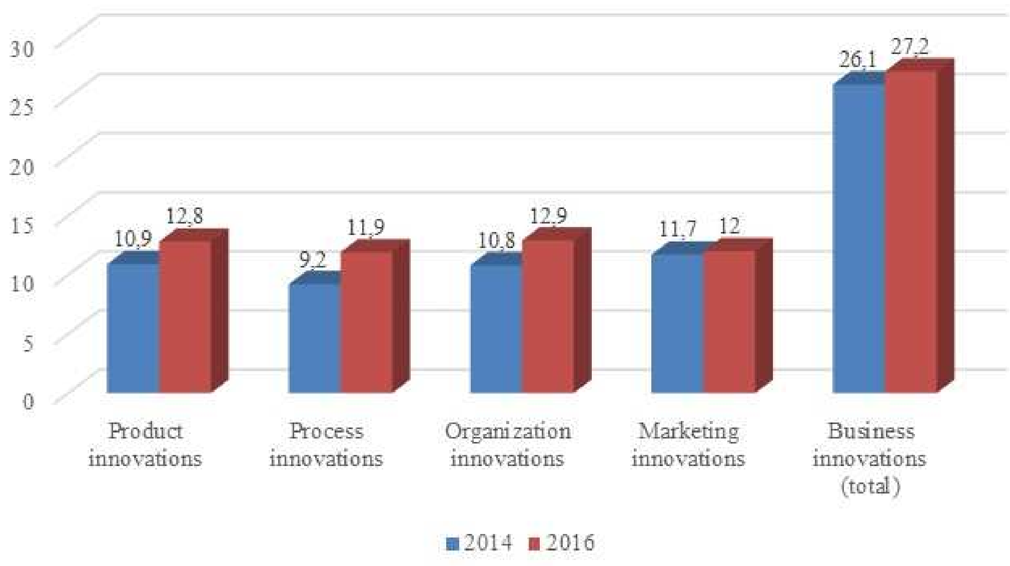
In addition, 11.6% of total companies have introduced new processes (process innovations) in 2016, as 8.1% - new main process methods and approaches, 6.4% - new supporting process methods and approaches, and 3.4% - just amended their supply chain and/or distribution process methods and approaches.

Less number of enterprises used non-technology innovations in 2016. 12.6% introduce new approaches to workplaces and employees (organizational innovations), including 9.5% with new internship methods and 8.9% with new competencies methods.

Just 12.0% of all companies have developed new marketing strategies and/or new marketing instruments (marketing innovations), as 8.4% - new advertising methods and instruments, and 5.9% - new pricing methods and instruments.

Nevertheless, we could find a slight improvement of the Bulgarian innovations between 2014 and 2016 (Figure 2) [16].

Figure 2. Share of the Bulgarian innovative business in 2014-2016, %



The reported innovations basically are developed without any cooperation. Not more than 20% of total business innovations are result of business cooperation. Respectively, as the bigger is the business than the greater number of innovations are done in cooperation. Thus, 17.8% of small enterprises combine in innovations as this figure is double: 35.8% of holding cooperate for innovating. (Table 2) [16]

Table 2. Share of the Bulgarian innovation business done in combination and cooperation in 2016, %

	2016
TOTAL, incl.:	**20.9**
Industry (codes B, C, D and E)	17.4
Services (codes H, J and K)	28.0
10 – 49 employees	17.8
50 – 249 employees	22.6
above 250 employees	35.8

4. CONCLUSIONS

Keeping innovation potential at a high level of the technology and non-technology innovations, as well as the establishing fast growing products and/or process innovations are some of the main kay factors for sustainable and competitive development of the Bulgarian economy and Bulgarian industry as well. Some of the principles that have to be introduced by the Bulgarian innovative business includes the next ones:

- Establishing employees' competencies to react to changes in the competitive environment, and to uses open strategic opportunities window through various forms of technology transfer;
- Establishing innovative business culture that explores employees' attitudes for knowledge acquisition and knowledge based development;
- Establish open networks based on national and international innovation networks, not just following supply chain added value, but based on combination and cooperation with other competitors and/or universities and research centers.

The main challenge to innovation business' development is that Bulgarian enterprises still have no business culture that is needed for the sharing economy. This is obstacle that prevents implementing common projects for introducing new production processes and new industry products. In addition, the orientation to the cooperation inside the existing supply chain networks declines the national potential for competitiveness and growth.

Exploiting the given opportunities and challenges is a priority of the Bulgarian National Strategy for Competitiveness and for the Industrial Renaissance 2020 and 2030 as well.

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CREATING THE DIGITAL TWIN WITH GENERAL PURPOSE SIMULATION MODELLING TOOLS

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Abstract: *In this contribution we present several possibilities for the use of automated modelling and simulation methods within digitalization and automation projects implementing the Digital Twin as a part of the Industry 4.0 paradigm. First part of the contribution introduces the Industry 4.0 paradigm, current state of development and its influence on the development of the simulation modelling paradigm. In the second part of the contribution we examine a case where innovative approaches and methodologies were used to realize the Industry 4.0 paradigm concepts using general purpose simulation modelling tools, facilitating research and development projects for SMEs.*

Keywords: *Simulation modelling, Industry 4.0, Digital Twin, automated modelling, manufacturing automation*

1. INTRODUCTION

The aim of this contribution is to present the evolution of the simulation modelling paradigm in connection with the Industry 4.0 paradigm and two real-life cases of the application of the new simulation modelling paradigm using off-the-shelf simulation modelling tools. The presented cases introduce methodologies and solutions which enable the automation and integration of general purpose simulation modelling tools by using data exchange standards such as XML, and the development of automation solutions using the Digital Twin concept with widely available sensor technologies.

The »Industry 4.0« term was coined by the German federal government in the context of its High-tech strategy in 2011. It describes the integration of all value-adding business divisions and of the entire value added chain with the aid of digitalization. In the "factory of the future", information and communication technology (ICT) and automation technology are fully integrated. All subsystems – including non-producing ones such as R&D as well as sales partners, suppliers, original equipment manufacturers (OEMs) and customers – are networked and consolidated into one system, the cyber-physical production system (CPPS).

While the large industrial companies are concerned with the development of standardized methodologies and architectures that would allow integration within their R&D processes and existing ERP and MES solutions [1], and the purchase or development of automation technologies is not presented as problem, the SMEs have to consider using economical, off-the-shelf simulation modelling tools and commercially available sensors to build proprietary automation solutions, which would allow them to implement selected Industry 4.0 concepts, in order to remain a competitive supplier to their (larger) business partners.
Even though Industry 4.0 standards are still developed, the manufacturing and automation technology developers already market many technologies and solutions as "Industry 4.0". But

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even without specialized vendors there are many of the building blocks necessary for implementation of Industry 4.0 ideas already available – such as digital and networkable sensors and control elements (actuators), cloud computing, (industrial) communication networks, and general purpose simulation modelling tools as presented in this paper.

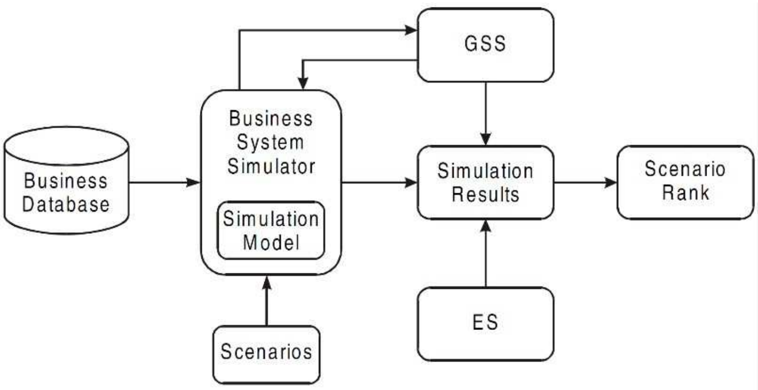
2. EVOLVING SIMULATION PARADIGM

Today, the use of simulation modelling in science and engineering is well established. In engineering, simulation modelling helps reduce costs, shorten development cycles, increase the quality of products and greatly facilitates knowledge management. A great body of scientific and professional body of literature on various aspects of simulation modelling, e.g. system dynamics, cybernetics and system theory, is available, such as [2] and [3].

Several methods have been developed for mathematical modelling of real systems. Each of them was motivated by the problem itself and the researcher in that field. Three most popular simulation methods today are System dynamics (SD) [2] [4], Discrete event simulation (DES) [5], and Agent based modelling (ABM) [6], [7]. The methods are selected depending on the complexity and abstraction level of the discussed system.

In the traditional simulation paradigm, the connectivity of a simulation model typically involves integration with a static database with business variables, a user friendly front-end and decision support tools such as online analytical processing (OLAP), or group decision support systems (GSS) [8]. The schematic of such a decision support system (DSS) is shown in Figure 1.

Figure 1: Schematic of a typical simulation modelling based DSS [8]



Increasing product variants and customizable products request more flexible production systems. The advent of the Industry 4.0 paradigm has brought changes to the simulation modelling paradigm as well. Part of the Industry 4.0 paradigm is modelling the manufacturing systems using the concept of a virtual factory or Digital Twin. Combining the real life data with the simulation models from design allows on the other side to give good predictions based on realistic data.
These three points summarize the main changes to the simulation and modelling paradigm in the change from stand-alone simulation-based decision support system to the Digital Twin:

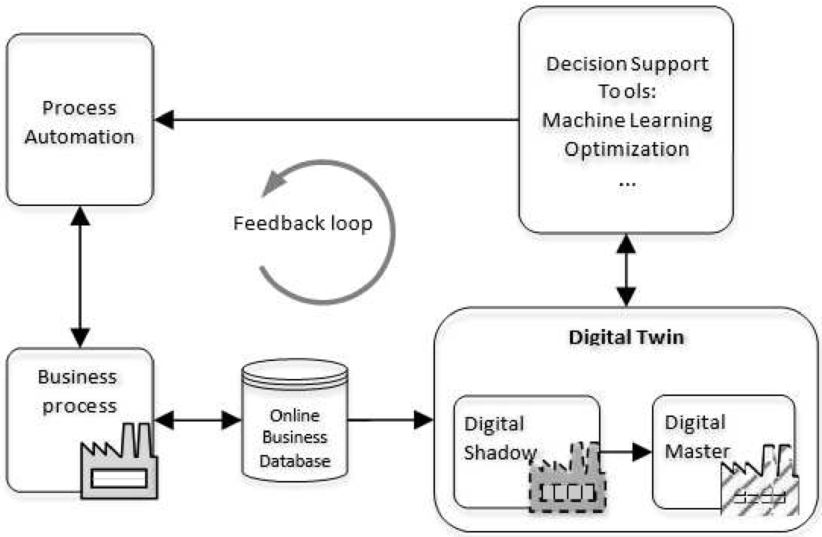
- Connectivity and integration in a wider IS (manufacturing or enterprise resource planning (MRP, ERP) is the norm,
- The system is modelled with a holistic, multi-level/resolution approach, which

includes physical modelling. Aspects of the simulation model require a high level of details and low level of abstraction,
- Modelling and modification of models is automated (data-based).

Within the Digital Twin concept every instance of an individual product or production system produces a “digital shadow”, which is the name for the structured collection of data generated by operation and condition data, process data, etc. Hence an instance of a Digital Twin consists of: a unique instance of the universal Digital Master model of an asset, its individual Digital Shadow and an intelligent linkage (algorithm, simulation model, correlation, etc.) of the two elements above [9].

Schematics of a decision support system (DSS) incorporating simulation modelling via Digital Twin is shown in Figure 2.

Figure 2: Schematic of a simulation modelling based DSS implementing the Digital Twin



In such systems, the Business System Simulator contains a Digital Twin model of the Business process. The Digital Twin is used to supply the array of decision support tools with a detailed, dynamically updated digital representation of the real-life business process (e.g. a manufacturing plant). The process data is gathered in real-time by the array of sensors and smart machines in the business process, stored in the business database and then transferred to the Digital Shadow. The Digital Master model’s operation is adjusted according to the data in the Digital Shadow, allowing on-line optimization and decision support, and control of the process automation, creating a controlling feedback loop, which is the basis of cybernetic systems [3].

3. IMPLEMENTING THE NEW PARADIGM

Implementing the new Industry 4.0 simulation modelling paradigm remains a serious challenge for researchers and companies. However, there are ways to improve the integration of models built in general purpose simulation modelling tools, automate their construction and modification, and implement such solutions without major financial investments, which is a very attractive prospect especially for the SMEs. A number of solutions have been developed for automated generation of DES simulation models corresponding to manufacturing systems, with a good overview of solutions presented in [10]. We will present a case of the implementation of the aspects of new simulation modelling paradigm, demonstrating data-driven automated simulation model construction for the development of a Digital Twin.

3.1. Automated model building using XML and Java

This case involves a novel automated DES model construction method, using the customer order data obtained with SQL queries to modify the XML (Extensible Markup Language) file containing the simulation model structure and data. The method was applied in a manufacturing process optimization project. Authors used discrete event simulation (DES) to build a model that reflects the current manufacturing processes and allows them to test optimization methods.

System optimization through modification of model structure can be performed by constructing several versions of the model and input data (i.e. scenarios) and comparing simulation results. To accelerate the development of model versions and scenarios one can construct algorithms that build or modify simulation models according to model input data. This is especially useful in cases of large simulation models and if the model variants are prepared by an algorithm, e.g. an optimization algorithm. Automated model building and modification however requires that the model structure can be modified with an algorithm, without manual interventions. [11]

Developing a static simulation model that would cover all possible (i.e. 30,000) products that may appear in client's orders is not realistic as it takes approximately 15 minutes to complete a model of a process for each product, and a model containing 30.000 processes also exceeds the memory limitations of the modelling tool used (Anylogic, http://www.anylogic.com/). Manual modifications of the simulation model can be time consuming, especially if a large set of variations of the model needs to be built. In Anylogic, simulation model is typically constructed by adding different blocks and connections to the canvas by "click and drag" technique.

Instead, a method for ad-hoc model construction for each set of open orders was developed using Java. The Java application builds the model from a model template, the database of technical procedures and the database of currently open orders. Based on the list of ordered products and technical procedures only the necessary machines are placed in the model. Anylogic stores the models as standard XML files, which allows easy manual or algorithmic modifications of the model. Anylogic XML simulation model file stores information on standard and user-defined blocks and agents, connectors between blocks, statistical monitors, input readers, output writers, etc. The data are stored as elements (nodes) and nested in a tree-like structure. An element can contain several attributes, describing type of the element and all the parameters describing element properties. The attributes can contain several lines of programming code describing how the block operates in different situations and states. [11]

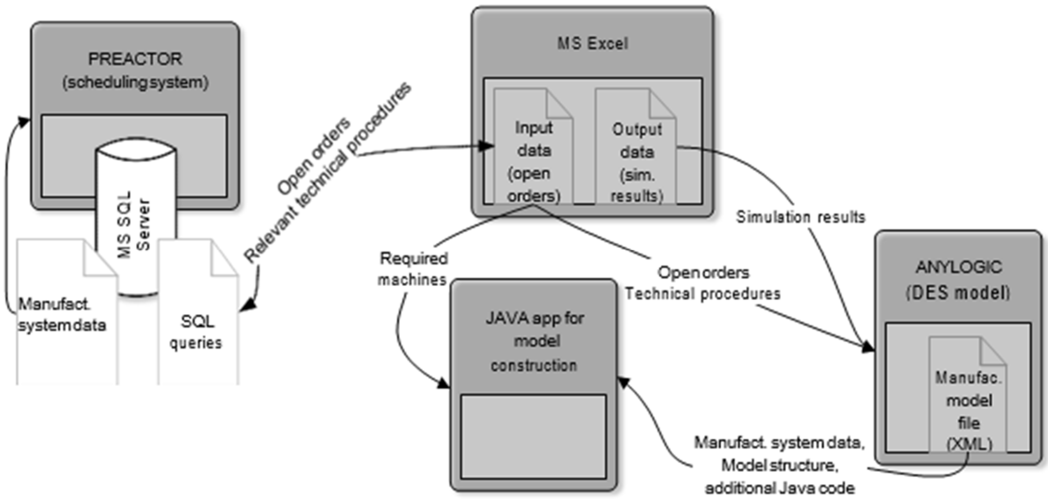
The developed Java application manipulates XML code to change data on machines and all other relevant abstract objects such as connectors, sources and sinks that are connected to the blocks of machines. Specifically, the Java application reads the blocks in the template file and copies them according to input data. A new element (block) is added to the model by the following procedure:

- find a node representing a template block in XML tree according to the searched attributes,
- copy the node and connect it to the parent of the original node,
- change the data of the copied block (name of the block, position on the canvas, properties of the block, part of the programming code, etc.).

The resulting XML structure is then saved to a new Anylogic file. Products and carts play a role of transactions in DES and are therefore constructed dynamically during simulation. The resulting modelling and simulation system, shown in Figure 3 is composed of four main elements [11]:

- Core manufacturing process simulation model in Anylogic environment.
- Java application that constructs XML Anylogic model from a template file.
- MS Excel as an intermediate input and output data storage, and analysis tool. MS SQL server database describing technical procedures and client's orders.

Figure 3. Automated DES model generation system schematic



4. CONCLUSION

The research presented in this paper includes a novel approach, that allows researchers and engineers to automate the model generation within simulation based decision support and engineering systems. The adoption of new simulation modelling paradigm in research environment requires closer cooperation with industry partners, and diversification of knowledge of researchers, in order to build integrated, multi-level models of systems. As shown by the presented case, lack of tools is not a problem, as the current generation of general purpose simulation modelling tools offers alternative integration options. As the CPPS concept involves the integration of diverse information systems and multi-level simulation models, the Industry 4.0 and Digital Twin concept present researchers with a new motivation for closer cooperation with industry and transfer of knowledge between research groups and institutes.

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THE IMPORTANCE OF SEARCH ENGINE OPTIMIZATION ON DIFFERENT LANGUAGES FOR SAAS BUSINESSES

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Abstract: *Google has become an important part of the business world nowadays. Since more and more companies are digital, the market that we used to know before has now suffered severe transformations. This is, definitely, not a bad thing, but businesses that want to survive have to keep up with the fast pace that characterizes the business world. If previously the market place was a physical space, now search engines have taken their role. The higher you rank, the more are the chances that people will choose your business to fulfill their intent. Globalization comes as a decisive factor in the equation of visibility for a business, and the variety of markets and their relevance can be considered key players in this hierarchy. Search engine optimization (SEO) comes now as a must. It is of utmost importance for a business to have a strong site but it is also essential that it is well optimized, adequately prepared to meet the users' needs, directly and effectively. A first step in getting a competitive edge now is to be user centered, to focus on the customers' current as well as future needs. In order to stay on the market, businesses have to keep up with technology and need to be innovative and intuitive, anticipating the direction of the market. For instance, because words that are much valid and market effective in one country are simply not selling in another, Software as Service businesses (SaaS) has been compelled to optimize on various languages. Canva is one example of such optimization. As their market is Google, SaaS depend extensively on their success in affecting the online visibility of a website in the search engine's results.*

Keywords: *market efficiency, online search, language optimization, business website, search engine optimization, SaaS businesses.*

1. INTRODUCTION

The emergence of the Internet in 1990 had a definite impact on the way people communicate and interact. The Internet provides the most effective communication channels among people, including emails and instant messages. The evolution of technology and the speed of information circulation have radically affected the business world and the consumer behavior.

Together with the Internet, globalization has played a key role in business development. The expansion of telecommunication systems has enabled companies and other organizations to start operating at an international scale. Globalization allowed companies to be more competitive and effective, they can become very profitable, but global competition can be

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challenging as well. You can be very profitable, but you can also fall down harshly; there's a thin line in this respect in the current business environment.

If in the past the Industrial Revolution consisted in mechanizing the processes to achieve mass production, today the successful companies are those who know how to automate production by using electronics and information technology.

2. SOFTWARE-AS-A-SERVICE BUSINESS MODEL

Software-as-a-Service (SaaS) is a software licensing and delivery model in which access to the software is provided on a subscription basis, with the software being hosted on an external cloud infrastructure, rather than having it hosted on local servers [1]. Software-as-a-Service is usually accessed through the internet, with users logging into the system using a username and password. Instead of each customer having to install the software on his device, the customer is able to access the program on a web browser.

According to Vaeksthus, the main benefits of the SaaS business model include easy administration, automatic updates and patch management, easier collaboration, global accessibility and compatibility, as all users have access to the same version of software [2]. The preeminent disadvantages of Software-as-a-Service model refer to data security and delivery speed. Because the software is externally hosted, it is more vulnerable to be accessed by unauthorized parties, compared to internally hosted software.

The Software-as-a-Service model has been primarily adopted by IT and financial businesses and tech companies whose main purpose is selling innovative, digital products. The relative advantage, the organizational strategies and the business environment evolution are also key elements which determine the success of a SaaS business [3].

A sustainable SaaS business must be designed as a multi-function operating machine which builds the product. The decision makers must understand the global market and the competition very well and use technology to always be one step ahead. They are responsible for hiring the right people, creating a strong operational process and setting the right pricing in order to build a product which delivers value and is focused on the current and the future needs of customers.

3. SEARCH ENGINE OPTIMIZATION FOR SAAS BUSINESSES

According to Techopedia, a search engine is a program that allows Internet users to search for content via World Wide Web (WWW). The user enters keywords or key phrases into a search engine and receives a list of web content results in the form of websites, images, videos or other online data [4].

Though there are lots of search engines on Internet, Google is the most developed and popular search engine used worldwide. Its highly qualitative results and convenient response time recommend it. But because it is so popular, it is not used by individuals only, but also by businesses. Software-as-a-service companies depend even more on their rank in search engines, since the product they sell is digital. If in the past one had to go to the market place to purchase what he needed, today, with access to Internet, the customers are just at one click distance from what they want and the virtual market places are search engines, in our case Google. A reason why search engines like Google are so powerful is because they work based on keywords and thus are able to fulfill the needs of their users by giving them the best choices available on the Internet for a specific search.

Google uses complex algorithms to analyze websites and to decide which results come first in Google search. Content is very important, but yet not enough for businesses to rank high with their website. Search engine optimization (SEO) plays a core role in the ranking process, by maximizing the traffic which comes to a specific website from a search engine. In order to increase their visibility on Internet, the companies like SaaS businesses use technology and the expertise of professionals with required know-how to bring their site in the first line of searching. The higher they rank, the more traffic they will drive to their website and consequently the more customers will buy from them.

Google Analytics and Search Console are two premium tools offered by Google to companies which want to see how much traffic is driven to their website from Google searches. Semrush is another great tool which businesses can use to find who their competition on their valuable keywords is. By using complex tools, companies can increase the quantitative and qualitative dimensions of the traffic driven to their website.

Search engine optimization (SEO) begins with organizing the hierarchy of the website logically, by ensuring a smooth navigation on it. The following step is making sure the content is unique and useful for your readers, and the landing pages contain the valuable keywords. Creating accurate page titles and URLs descriptions and organizing the articles by offering good definitions and lists that can potentially become featured snippets on search engines comes next. Last but not least is checking whether the “description” meta-tag is used correctly, in order to rank higher on Google [5]. All these elements affect the ranking and implicitly the sales and profits of SaaS businesses.

4. CASE STUDY - THE SUCCESSFUL STORY OF A SAAS BUSINESS: CANVA

Canva is a Software-as-a-Service company which offers high-quality graphic design tools through their website and app. The tech start-up was launched in 2012 and it has its headquarters in Sydney, Australia. Their mission is to make design easy and fun even for non-designers.

According to Elaine N. Marieb [6], almost 50% of our brain is involved in visual processing. Canva anticipated the importance of visual content for businesses, and built a platform which makes the process of creating visuals accessible to everyone. The startup which values now $1 billion [7] used the power of technology and search engines to become the no. 1 online design platform.

The aim of this study is to show how Canva leveraged search engine optimization to make their product known and loved by users all over the Globe.

The research method employed for this study is a user oriented approach that might seem rather empirical but is strategically considered for its very directness and applicability, as ultimately it proves highly general and any user friendly.

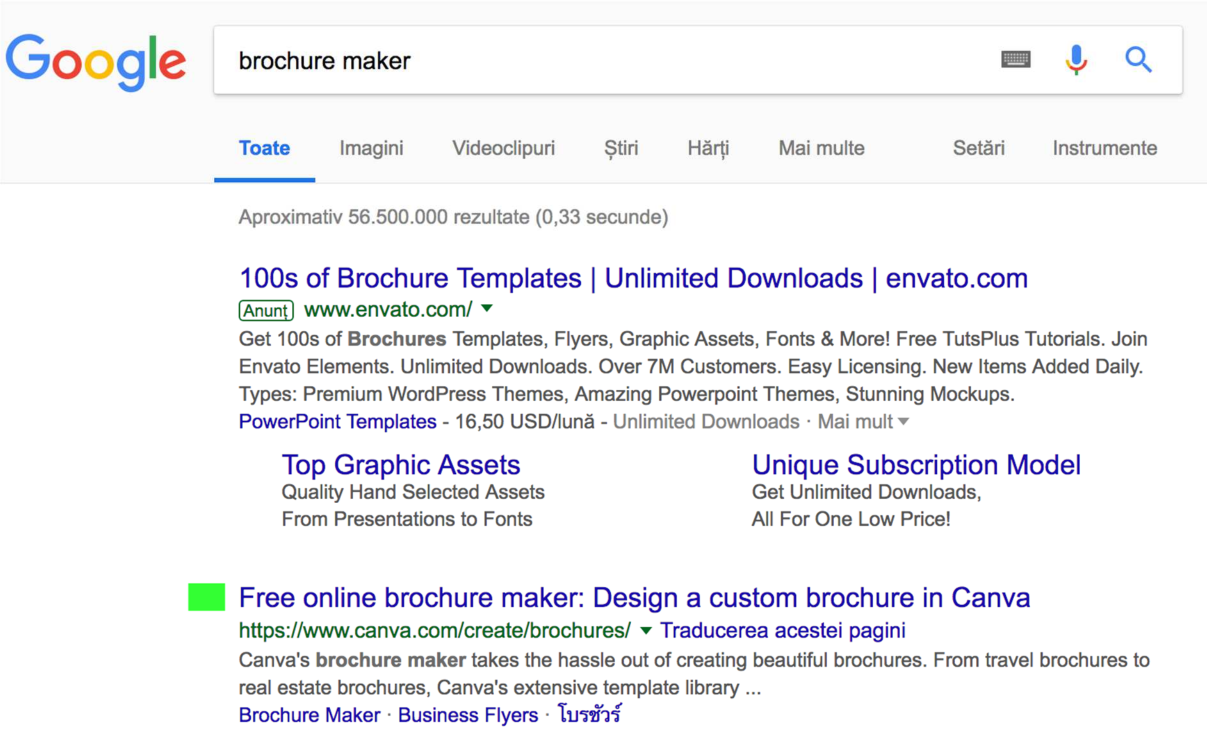
The steps of our research were as follows: first we prepared a list of keywords relevant for the business, in various languages. Then, introducing the keywords one by one in the search engine, we checked for the results returned. An analysis of the results was next conducted by noting the ranking returned for each keyword.

The keywords that we considered relevant for Canva business and therefore worth searching by the Google search engine were as follows: 'brochure maker', 'card design', 'business card', 'greeting card design', 'flyer maker', 'invitation card', 'leaflet maker', 'poster' and 'presentation design'.

We first searched the keyword 'brochure maker' on different languages, to analyze how Canva optimized their website to appear in front of their competition in Google search in different countries. We explicitly show here forward, in the next three figures, some of the results returned for this keyword.

When building a digital product and wishing to sell internationally, it is essential that the website is well optimized especially in English, the most common language used on the Internet [8]. Canva made sure they appear on the first position in Google search for their most valuable keywords, including 'brochure maker'. As seen in the example below (Figure 1), Canva's brochure page appears right after Google Paid Ads:

Figure 1: Canva's top result by search key 'brochure maker'

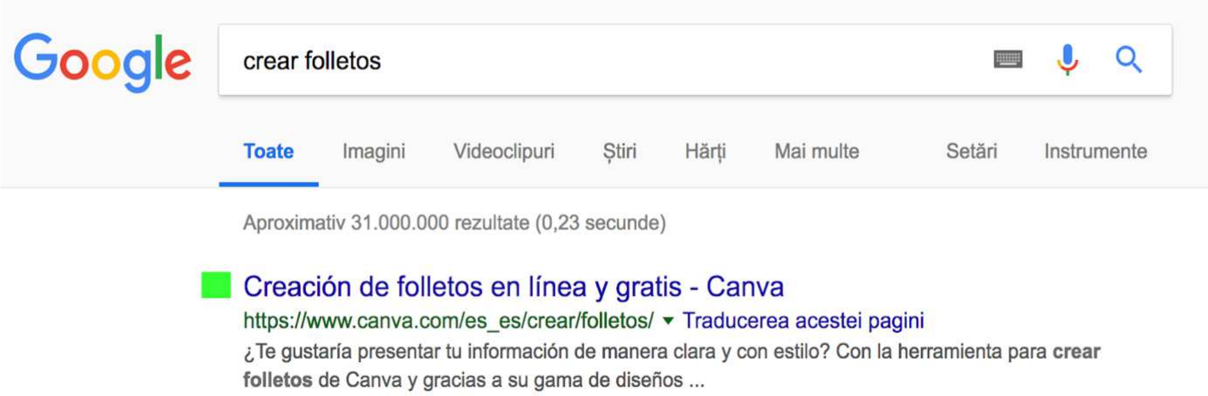


Source: own search and print screen as of 2018-11-23_19:31

Canva has translated their website in 28 languages, while the editor of the platform supports over 50 languages [9]. Because on average, the no 1 position in Google search has a click-through rate of 30%, while the third position gets only 10% of the traffic from a Google search [10], Canva has worked hard to make sure they occupy the leading position in Google for as many language as possible.

They are on the first place in Google search in several languages, mainly in the most common languages of the Internet, such as Spanish, as seen in Figure 2:

Figure 2: Canva’s top result in Spanish

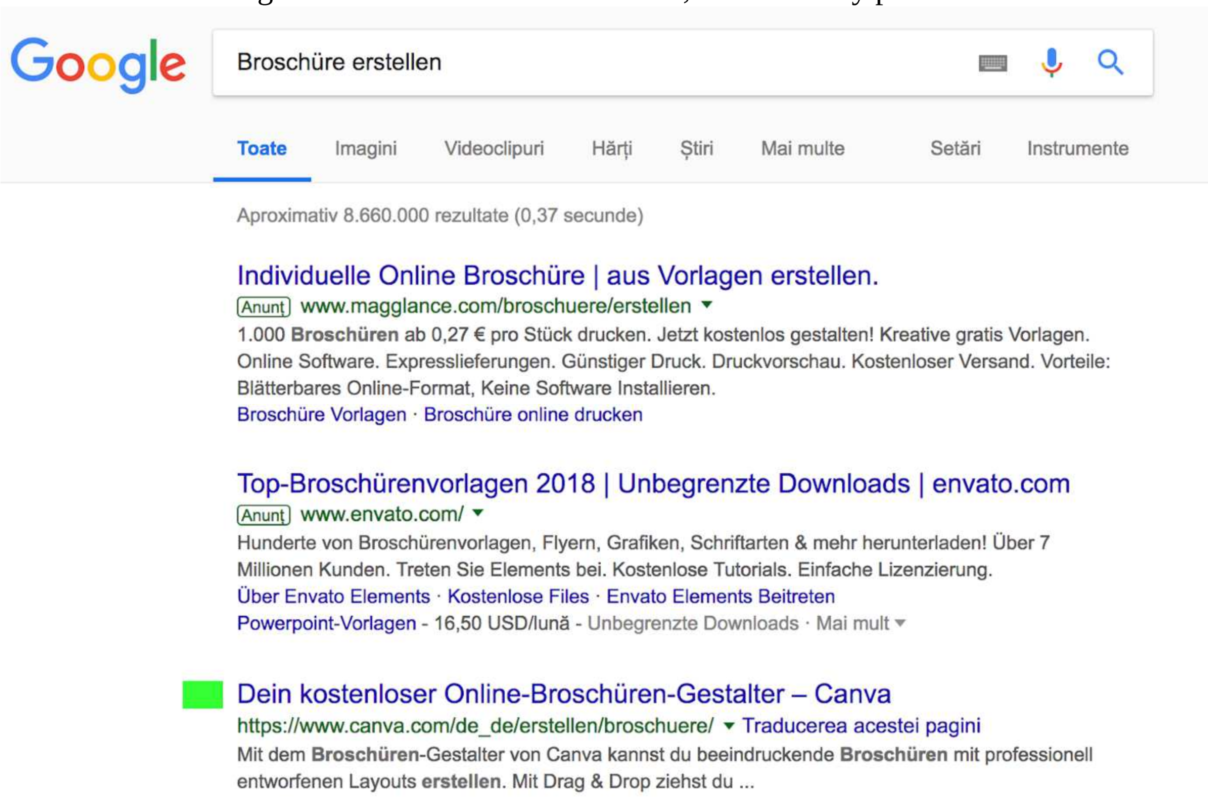


Source: own search and print screen as of 2018-11-23_19:32

However, though Canva ranks on the first place in Google search, there are some languages and keywords where the competition might be high for a specific keyword and Canva might lose some of their potential customers in front of their competitors which display paid ads for their valuable keywords. Figure 3 shows an example for German language, the search being made by the keyword 'create a brochure' (Deutsch: broschüreerstellen), where Canva’s competitors Magglance and Envato appear in Google search before Canva, because they have paid ads on this keyword.

One thing that Canva could do would be to think to pay ads on some specific keywords, to make sure they don’t lose new potential customers and implicit profits, in favor of their competition.

Figure 3: Canva’s result in German, outranked by paid ads

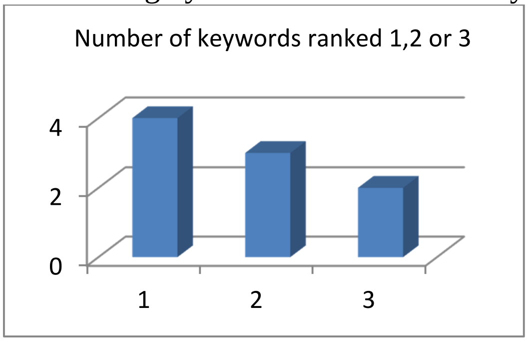


Source: own search and print screen as of 2018-11-24_15:15

Next, we performed similar analyses for the other eight keywords, of relevance for the case study. The overall result is visually presented in the last two figures.

Out of the nine keywords searched, four ranked on the first position by Google search, three returned the result of a second position among the searches, and the other two situated Canva on position three, as seen in Figure 4.

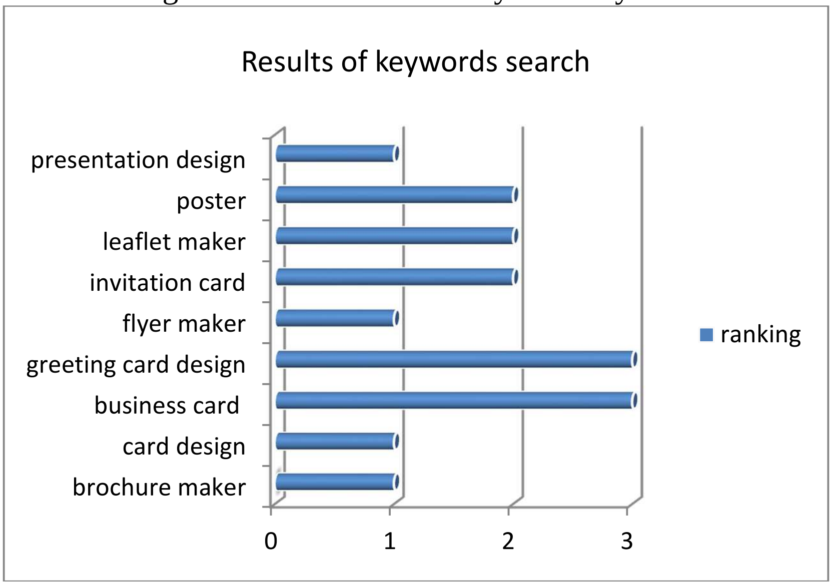
Figure 4: Ranking by most relevant search keywords



Source: own design by Excel data input and graphic generation

Thus, searches by the phrases 'brochure maker', 'card design', 'flyer maker' and 'presentation design' returned first rank results, while searches for 'leaflet maker', 'invitation cards' and 'poster' situated Canva on the second position. It came on the third place at the search by 'greeting card design' and by 'business card'. This classification is presented in Figure 5 below.

Figure 5: Results returned by each keyword



Source: own design by Excel data input and graphic generation

The results are in our view quite self-explanatory, considering the fact that, on one hand, for business cards, for instance, there ought to be other specialized applications, providing more professional templates and formal designs, and many companies offer products for and services of greeting cards own design, while, on the other hand, the most relevant words searched returned indeed the highest rank.

5. CONCLUSION

In order to have a successful SaaS business you have to make sure you keep up with the development of technology and use it to be one step ahead of your competition, to build a good and useful product by meeting the present and future needs of your customers. It is quite obvious that the higher you rank within the search engines results, the more your business can grow, i.e. users can find you more straightforwardly, sales will go up and profits shall follow.

To stay competitive nowadays, it is of utmost importance for a business to build a strong website to showcase their product and to use search engine optimizations to rank higher and strengthen their position on the virtual market.

Many businesses can follow the model of good practices that can be seen with Canva and learn from them how to build a strategy if they want to go internationally. Optimizing their websites on different languages, by having in mind their targeted countries and the customers they want to sell to, would be a vital first step.

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IMPORTANCE OF PROGRAMMING LANGUAGES FOR CHILDREN

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Abstract: *There is an innovative and interactive way of learning basic computer programming with special reference to the programming language 'Scratch', which has an advantage because it's easy and intuitive, user interface makes programming as simple as using a simple block-like interface which can later make a code. The paper will consider the existence of blocks for all important program structures which can be seen/which exist in all contemporary/new programming languages, just like blocks for advanced concepts such as events, messages/texts, delegates, applicable/Usable methods, knots and sorting stimulate creativity, imagination, interest in problem solving and basic principles of programming through creating visual, interactive and multimedia applications (games, animations, sites). They also stimulate young people to apply the knowledge that they have acquired, not only in IT and school assignments, but in all other life aspects.*

Keywords: *Programming, computer language 'Scratch', school, animation, children, technology, computers*

1. What is object-oriented programming?

Object-oriented programming is a programming paradigm that uses objects as the basis for designing computer programs and various software applications. Solving the problem of object-oriented programming paradigm is very similar to human thinking and problem solving. It consists of identifying objects and setting objects to be used in the appropriate sequence for solving a particular problem. It is about the design of objects whose behavior as a unit and in their mutual interaction solves a certain problem. Interaction between objects consists in the exchange of messages, where a specific message directed to a particular object, triggers encapsulated operations in that object, which solves a part of a generally wider and more complex problem.

In general terms, object-oriented problem solving consists of four steps:

1. Identification of the problem,
2. Identification of the objects that are necessary for its solution,
3. Identify messages that objects will send and receive from each other,
4. Creating a message sequence for objects that will solve the problems.

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2. Programming languages

Programming languages are used to facilitate communication with the computer when organizing and manipulating information, but also to accurately express algorithms. Some authors restrict the term "programming language" only to languages that can express all possible algorithms, and sometimes the term "computer language", which refers to more limited artificial languages, is used. A number of thousands of languages have been created, and new ones are created each year. Many programming languages require that the budget be specified in an imperative form [1] (for example, as the sequence of operations that must be executed), while other languages use other forms of program specifications, such as the declaration form [2] (e.g. the desired result is specified, and not how to achieve it). Some of the popular languages are:

1) Scratch is great for making games and programs that use many images; it is very easy to use,
2) Python is a language easy to learn, but it's also very powerful. It is used to coordinate programs for special effects e.g. in the film industry,
3) C ++ is used to create programs that must work very quickly, including 3D computer games and platforms,
4) Java (Java) is a popular program for making games and applications for mobile phones mainly with an Android operating system and is often used in appliances such as air conditioners,
5) JavaScript is a language used to create interactive web sites, with a drop-down menu, text that changes, but also for making games on the Internet. Although they have a similar name, they are completely different from the Java programming language.[15]

Picture 1- Scratch online

[15] Source: Private archive

3. The basic elements of the scratch project

The Scratch project is built from objects called Sprites. The appearance of a character can be changed by giving him a different costume from a library that can be accessed online via the Internet or if the software is downloaded and installed from the web address: www.scratch.mit.edu. The character can look like a person object, animal or anything else. Any picture can be used as a costume; users can draw their own drawing using the built-in drawing program "Paint Editor" or an image that is loaded from a hard disk or downloaded from a website. The characters join instructions indicating how they will move, how they will respond to other sprays, and what sound effects will follow it. A description of the behavior of a character is called a script (it is actually a program) and it is intended by placing graphic blocks one with the other in the stacks. When a double click is done on the script, Scratch executes actions specified by blocks from top to bottom. This process is actually running the program.

4. The Impact of the Use of the Scratch Programming Language for Young Adults

Several studies [3] have been made on the use of Scratch for learning programming in younger ages. In one of several studies where LOGO and Scratch programs were compared, it turned out that Logo is better for students' confidence, in greater interest in programming and better understanding of loops. Scratch showed an improvement in learning outcomes in conditional branching or repetition. The observations show that it is easier to work in Scratch. It is interesting that the students who were learning the Logo and Scratch were equal in the interpretation of loops. Logo logs for text commands, so students need to concentrate on details. This may be important to students in order to focus on important details that are usually neglected when using Scratch and thus compensate for the lack of a visual approach.

The most common research is done in summer schools and clubs where children are not in a particular school environment and do not have a load rating. In frequent researches during Harvard's Summer Computer Science School, they begin to learn programming in Scratch, and later switch to the Java programming language. Very few students had experience in programming. After completing the school, the students had very positive experiences with Scratch. The attendees who answered that Scratch had a negative impact on the experience with Java as one of the reasons stated that Java is much harder, less fun, and the results are how they expressed themselves are far more poor. There were also students who neutralized the experience with Scratch and they already had a previous programming experience. It was to these students that the programming language Scratch was more than easy to use.

The results that students achieve on the course of programming do not have a good correlation with their other successes in the school and the results of the competitions. A large number of studies were studied by the influence of factors such as spatial thinking and mathematical abilities, musical abilities, vocal skills, but these are factors that do not distinguish programming from other disciplines. More extensive research has indicated that the level of knowledge, mathematical knowledge and attribution of success can be considered good before the programmatic success rate. The results of the same research indicate that a serious approach to learning is in a positive relationship with the success of programming while the superficial attitude towards learning has a very negative attitude toward it. It is important for students to be able to achieve success and progress in programming. How do students experience programming? What, in their opinion, is needed to successfully master the programming tasks? They are very aware of the requirements of these tasks, so logical thinking and the ability to solve the problem are considered the most powerful factors of success in programming. Very important are considered characteristics such as paying attention to details, considering certain alternatives, mathematical abilities and programming skills, and at the bottom of the scale, they have the ability to learn, knowledge of computing, modular engineering and planning. It is interesting that the skill of listening to work is not considered particularly interesting for programming discipline. Several different researches has confirmed the correlation between student's ability to solve problems and programming.

5. Conclusion

Teaching difficulties in children today generally hinder new technological and multimedia shifts, and programming is not particularly popular for long-term study at school. And in this particular case, when we have devoted attention to that in this work, we recognize more sociological reasons for which students lose interest in this discipline. Frequent perception of informatics as a socially isolated career, IT classes are often perceived as incompetent male environments of controlled behaviors, and students themselves rarely see the relevance of programming in real life. There is also an increase in digital violence, the great influence of social networks and overall intellectual development and access to computer science. The potential for attracting several different groups of people in the field of computer science is based on the creation of environments that deal with some of these sociological barriers to programming, supporting students as well as giving interesting reasons for programming and adequate education in these areas, with huge investments in computer science infrastructure and education.

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APPLICATION OF ARTIFICIAL INTELLIGENCE FOR REAL-TIME STEAMING IN WEB SITES

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Abstract: *When users of websites have the need to access some real-time audio or video signal into a stream, this can cause delays and interruptions in the transmission. This is especially pronounced when a large number of users want to access the server at the same time and look at the same content, thus increasing the linkwave's load. In this paper, one solution of the algorithm, based on artificial intelligence, is presented. The proposed algorithm finds Steineer tree and Pareto an optimal path for transmitting multimedia signals in topology and conditions of the network that is dynamically changing.*

Keywords: *Artificial intelligence, neural network, multimedia streaming, web sites*

1. INTRODUCTION

The intense development of hardware and software has contributed to the fact that a large percentage of people today have different types of electronic devices and direct access to the Internet. These opportunities have increased the need for the most prominent types of services and services offered through websites [1]. Thus, web sites and their versions on various types of devices have become a need of a modern society in everyday life. Today, most users start the day with reading the latest news, watching weather forecasts, tracking traffic conditions, and so on.

The first sites only had a textual content, and that was enough for the information to be transmitted. Over time, the demands of the users, and thus the sites that companies have created, have become increasingly complex and technologically more complex in the desire to be better, more beautiful and innovative. The tastes and demands of the users are constantly increasing and the market constantly searches for something new and better. All these requirements are followed by other areas in the IT industry [2]: development of telecommunication network, development of protocols, development of hardware components, devices, ...

It has long been known that color, and therefore images, have a big impact on the user and the perception of the entire site [1]. Very quickly the sites began to be flooded with a lot of different images. However, the market demanded even more intensive content, and so quickly the need to display video and audio files on the sites. In the first versions of sites this was not possible and such multimedia files could only be downloaded to the personal account and then viewed. As user and market demands became more and more intense, communication networks, web servers and websites had to provide real-time transmission, ie, streaming audio and video signals and within web sites [3]. Today's young users mostly use these types of content and consider it to be the default web site offer.

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On the other hand, the real-time transmission of audio and video signals is the most complex thing from the aspect of the communication network [4]. This relates to network resource bandwidth, transmission quality, delayed transmission and download speeds, resulting in interruption in user playback, high data transfer rates, and slow loading.

For this reason, a large number of scientific papers are devoted to solving the most optimal way of distributing audio and video signals in order to achieve better quality, faster and cheaper transmission and less engagement of network resources [5], [6], [7].

Special attention is drawn to services that simultaneously access a large number of users, such as video on demand, ip television or realtime broadcasts of radio stations.

Sites offering such content are one of the most complex ways of transmitting and displaying data. Users expect to see audio or video content, in real time, without delay, with more users wanting to view the same content at the same time. This content is displayed in the browser, but it encounters a complex logic of routing through the global network. When more users want to view the same content at the same time, then such a routing is called multicast routing [8].

Routing is one of the most important aspects of communication networks. The basic idea of multicast routing is to transfer copies of packages to their destinations [8], [9].

Optimization of parameters involved in creating routing criteria can be divided into two segments. The first is finding the shortest path tree, in terms of the lowest price between the source and the destination, and the other, optimizing the total cost of routing in the multicast tree, in case some of the tree nodes are not members of the destination group [8], [9].

If the conditions in the network change over time and depending on several parameters, we say that it is dynamic multicast routing.

In this paper we will analyze the possibilities of implementing additional intelligence in the form of neural networks in order to improve the quality of transmission of multimedia content, via the Internet, for viewing in web sites, which is based on dynamic multicast routing. As this routing can be realized in a number of ways, and thus improved, in this paper will be used artificial intelligence, and the possibility of applying Hopfield's neural network [10] for the improvement of the routing process.

This work is organized in four chapters: after the introduction, the basic principles of the work of Hopfield's neural network are explained. After that, it is possible to modify it and apply it in the dynamic multicast routing process of the multimedia content. Finally, conclusions and guidelines for future work are given.

2. HOPFIELD NEURAL NETWORK

Hopfield neural network is one type of artificial neural network [10]. This network belongs to a group of recurrent neural networks, because the output signal, with modification, returns to the input, and thus corrects the state of the network. The processing elements (neurons) are full-connected: output, v_i, of each ith cell is connected to inputs of all other neurons via synaptic weights, T_{ij}, producing the modification of cell inputs, u_i, and thus changing the network state, Fig. 1. If the system is stable successive iterations lead to smaller and smaller output changes and network reaches some minima of the system energy.

In hardware implementation, processing cells are realized as summing amplifiers, with nonlinear transfer function $g(u_i)=v_i/u_i$, called also an *activation function*. In Hopfield's early work [10] the activation function was a simple threshold (*hard limiter*), and the model was a discrete one. Later on, Hopfield introduced continuous activation function [11]. A common choice is the sigmoidal or logistic function:

$$g_i(u_i) = \frac{1}{1+e^{-a_i \cdot u_i}}. \tag{1}$$

State equations of the Hopfield NN is described by:

$$C_i \frac{du_i}{dt} = \sum_{\substack{j=1 \\ j\neq i}}^{N} T_{ij} v_j - \frac{u_i}{R_i} + I_i, \quad i = 1,2,\ldots,N \tag{2}$$

where R_i is an equivalent resistance connected to the cell's capacitor C_i. Usually (but not necessarily) all neurons are identical, except synaptic conductance.

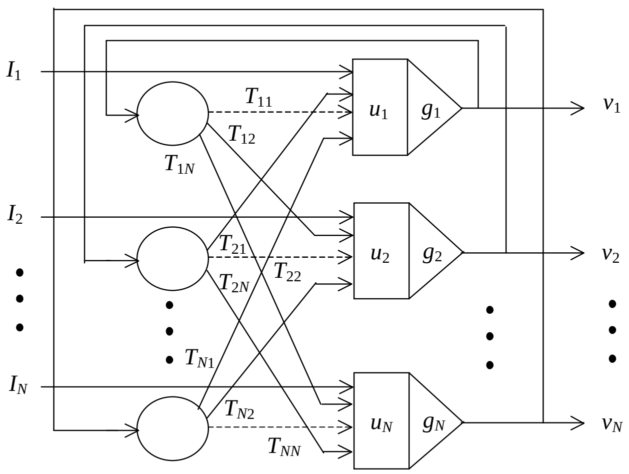

Figure 1: Hopfield network structure

Under these assumptions, and if constants a_i are sufficiently large (for instance, a_i>100), the stability of the network, in Liapunov sense, may be verified by observing the energy function, E, describing the state of the network:

$$E = -\frac{1}{2}\sum_{i=1}^{N}\sum_{\substack{j=1 \\ i\neq j}}^{N} T_{ij} v_j v_i - \sum_{i=1}^{N} I_i v_i. \tag{3}$$

Significant improvements in neural network algorithm are derived in paper offered by Ali and Kamoun [12]. For n nodes problem their computational network uses $n(n$-1) neurons – the diagonal elements in the connection matrix $n\times n$ are removed – and find the shortest path from final stable neuron states. A suitable energy function is of the form:

$$\begin{aligned} E = {} & \frac{\mu_1}{2}\sum_{X}\sum_{\substack{i\neq X \\ (X,i)\neq(d,s)}} C_{Xi} v_{Xi} + \frac{\mu_2}{2}\sum_{X}\sum_{\substack{i\neq X \\ (X,i)\neq(d,s)}} \rho_{Xi} v_{Xi} + \frac{\mu_5}{2}(1-v_{ds}) \\ & + \frac{\mu_3}{2}\sum_{X}\left(\sum_{i\neq X} v_{Xi} - \sum_{i\neq X} v_{iX}\right)^2 + \frac{\mu_4}{2}\sum_{i}\sum_{X\neq i} v_{Xi}(1-v_{Xi}) \end{aligned} \tag{4}$$

Coefficients C_{Xi} are the link costs from node X to node i and the terms ρ_{Xi} describe the connection between nodes: the value is 1 if nodes are not connected, and 0 for connected nodes. The term μ_1 minimizes the total cost; μ_2 prevents nonexistent links from being included in the chosen path; μ_3 is zero for every node in the valid path (the number of incoming links is equal to the number of outgoing links); μ_4 forces the state of the neural network to converge to one of the stable states – corners of the hypercube defined by $v_i \in \{0,1\}$. The state v_i is close to 1 for node belonging to the valid path, otherwise the state is close to 0. The term μ_5 is zero when the output v_{ds} is equal to 1. This term is introduced to ensure the source and the destination nodes belong to the solution (the shortest path).

3. PROPOSED SOLUTION

Unlike point-to-point routing, now the optimization and definition of matrices in the queue for each of the *S-Dm* pairs, where *Dm* is a set of destination nodes. Interactions with each other in terms of minimizing the final solution are given through the first member of the energy function, while the total energy function is obtained after each iteration as:

$$E = \sum_{\substack{m=1 \\ m \in D_m}} E^m \tag{5}$$

This proposal is presented in [13], based on the initial form of the energy function in [14], where the energy function for solving the problem of multicast routing is considered, which considers physical distance and total delay in terms of the maximum allowed delay on the longest path in the tree . By modifying this function and introducing the parameters for capacity and density, but additionally the quality of the Q signal, for the purposes of this paper, the energy function is derived:

$$\begin{aligned} E^m = {} & \frac{\mu_1}{2} \sum_X \sum_{\substack{i \\ i \neq X \\ (X,i)\neq(m,s)}} C_{Xi} v^m_{Xi} \frac{1}{1 + \sum\limits_{\substack{j \\ j \neq m \\ j \in D}} v^j_{Xi}} + \frac{\mu_2}{2} \sum_X \sum_{\substack{i \neq X \\ (X,i)\neq(m,s)}} \rho_{Xi} v^m_{Xi} \\ & + \frac{\mu_3}{2} \sum_X \left(\sum_{i \neq X} v^m_{Xi} - \sum_{i \neq X} v^m_{iX} \right)^2 + \frac{\mu_4}{2} \sum_i \sum_{X \neq i} v^m_{Xi} (1 - v^m_{Xi}) \\ & + \frac{\mu_5}{2} (1 - v^m_{ms}) + \frac{\mu_6}{2} \sum_X \sum_{\substack{i \\ i \neq X \\ (X,i)\neq(m,s)}} [1 - (K_{Xi} - G_{Xi})] v^m_{Xi} \end{aligned} \tag{5}$$

to which the member $\mu_7 Q_{xi}$ is added and represents the matrix of the signal quality in each of the links. The network consists of routers that are linked by links. The number of routers and links can be arbitrary. One of the routers is connected to the web server on which the multimedia content is located. The other routers in the network connect users to their browsers, and they want to get content from the same web server.

Starting from the network structure given in Fig. 2 and setting the parameters of capacity and density to neutral values 1 ie. 0.1 the same result was obtained as in [13], [15], which shows that the newly introduced matrices do not disturb the optimal solution. The initial price matrix is given in Table 1, while matrix Q is randomly generated, while the obtained path is shown in Fig. 3.

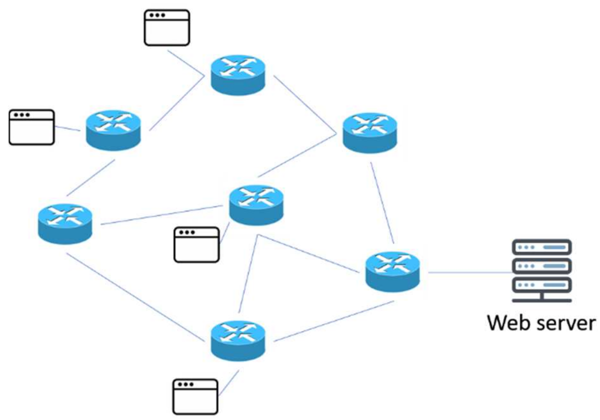

Figure 2: Initial topology of the network.

0	2	3	0	1	0	0	0
2	0	0	3	0	0	0	4
3	0	0	2	2	0	0	0
0	3	2	0	0	3	0	0
1	0	2	0	0	1	0	0
0	0	0	3	1	0	1	0
0	0	0	0	0	1	0	2
0	4	0	0	0	0	2	0

Table 1: Matrix of initial prices

On the basis of data inputs in matrices, the algorithm finds the path from the server to each user who wants to receive the content. In this defined environment, the algorithm finds the path, the tree, as in Fig. 3, shown in red.

For each change of the matrix with the input parameters, the algorithm finds the path according to these values. In order to demonstrate the ability of an algorithm to operate in real-world conditions, in addition to influencing the dynamic change in value on links, the algorithm also detects the termination of the link operation.

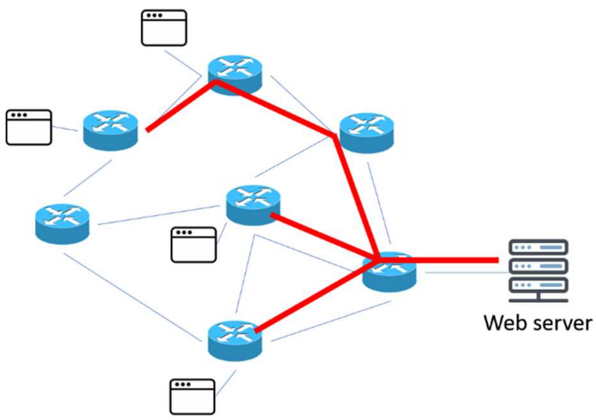

Figure 3: Initial path based on input matrices.

If we assume that the link, indicated by the blue arrow does not work anymore, and that it was the link through which the traffic was transmitted, the algorithm must find another solution. In this case, this solution is shown in Fig. 4a. After finding a new path, any new change in the matrix or topology of the network requires a re-search for the path. This is important to be realized as soon as possible so that the quality of audio or video signals in the browser is as good as possible. This simulation is done in Fig. 4b, when another link, on the left, stopped working, after the link was terminated, on the right.

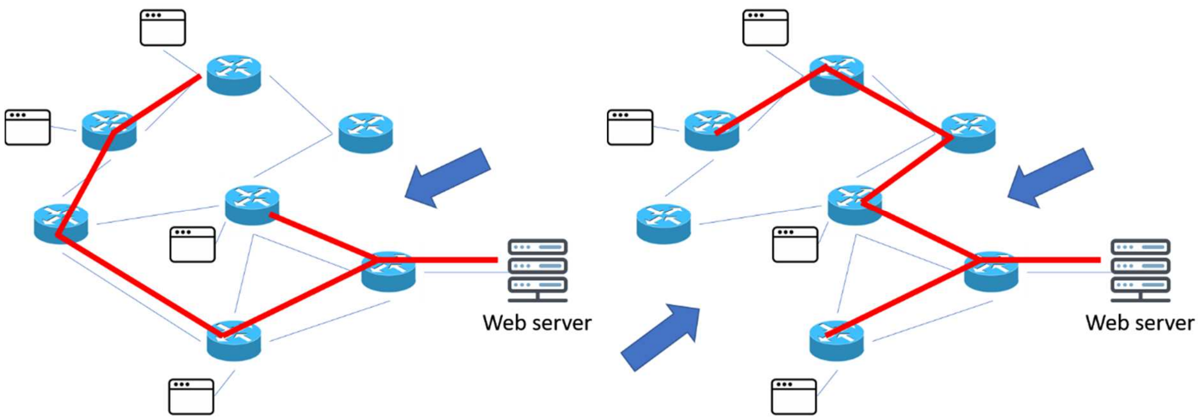

Figure 4: a) Paths after the termination of the link indicated by the right arrow b) Paths after the termination of the link indicated by the right and left arrow.

In a similar way, the proposed algorithm can detect all changes in the topology of the network as well as in the state of the links. Changing the value of the parameters on the links directly affects the state of the input parameters in the algorithm, and the algorithm finds a new path. This new path is relatively fast, as it should allow for a short stop to transmit the multimedia signal from the web server to the browser. Additionally, the path should still include all users who are currently connected to a web server, with as few branches as possible to make the transfer speed as fast as possible.

4. CONCLUSION

This paper presents one solution for transferring audio and video signals from the web server to clients, which access the content at the same time. To find the path, a Steineer Tree has been used that has the least number of links to connect the desired users. Hopfield's neural network was used to find the path, as a form of artificial intelligence. The goal of the algorithm is to detect changes in network topology or link parameters as soon as possible, and on the basis of this information find the Pareto optimal path. This path is found in a dynamic environment that is one of the most complex, and which is needed in situations where there is a required guaranteed quality of signal transmission across the network. Further research will focus on the hardware implementation of the proposed solution and testing in the networks of higher topology.

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LUXURY RESTAURANTS IN ROMANIA - AN INNOVATIVE, ELEGANT AND EFFICIENT ONLINE PRESENCE

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Abstract: *In recent years, the restaurants field has seen spectacular growth in the Romanian economy. More and more restaurant owners have realized the need to promote their business in the online environment as well. In this paper we aim to analyze the strategies by which the restaurants try to attract clientele (Romanians or foreign tourists) through web sites. We analyzed a large number of websites of luxury restaurants in Romania from the point of view of the thematic construction, especially following the way the information is organized, selected and hierarchized, the home page, the name of the company and the motto (the institutional slogan), key words, titration, the link between text and audio-visual documents. We believe that the way in which the company shapes its identity and formulates its discourse is an essential element of advertising strategy and that the originality, creativity and surprise effects generated by the discourse built on website support can attract many customers. On many websites we can see incredible scenarios, titles and collocations in foreign languages (English, French), presentations of the "gastronomic vision" of the master chef. Some websites are translated into English, French, Italian, others contain only English texts - a sign that this restaurant addresses to an elite. Influences of international cuisine, declared or not, also attract a part of their customers, who want to adopt concepts such as fine dining, l'art de vivre à la française or the taste of France or la dolce vita. Being a growing and growing sector, the discourse of restaurant founders and managers offers sometimes spectacular instruments of loyalty and attraction of customers.*

Keywords: *Brand name, brand signature, organizational identity, web site, discourse analysis, interculturalism.*

1. INTRODUCTION

Among the fastest growing sectors of the recent Romanian economy, alongside telecommunications, construction and IT, the restaurant sector is to be found. Investments in this field have been stimulated both as a consequence of global consumption growth, of tourism development, but also due to the financial facilities granted by the Romanian Government (lower VAT in both the food and tourism sectors). Many companies with Romanian private shareholders have been set up, but foreign companies have also entered the market, having spectacular turnovers and creating many jobs.

In addition to the classic, traditional ways of presentation and promotion of restaurants, such as posters, print media and television advertisements, leaflets, flyers, modern communication

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channels have also been employed, such as websites, blogs, social networking sites. Many food establishments, especially luxury restaurants, have created their own website, out of the desire to make their business known, to gain authority and credibility, to educate, to gain the loyalty of their customers and even to select them. Besides its informative function (presentation of the business), a site has multiple functions: communication (it updates a style, a tone, an ideology in its discourse), marketing (the site is a means of advertising without spending too much), e-commerce (virtual store), capture (the business will always be able to attract new customers through content and attractive ways of presentation).

This paper analyses the identity in discourse of luxury restaurants as it appears on their websites, the ways of communicating with the customers, the strategies of attracting the customers, and the way of involving clients in the business project.

In our opinion, the main characteristic of the identity in discourse of the luxury restaurants is the intention to create emotion. We are dealing with a discourse infused with subjectivity and interculturality. In fact, a brand that manages to create an emotional bond with consumers will have more chances of success in trying to make known a new product on the market and then in selling it (Lindstrom, 2011: 43). Also, the elegant, novel, original speech, with elements of a show is reflected in the characteristics of the products and services offered by the luxury restaurants. It is about a "promise" of quality, uniqueness, class.

2. METHODOLOGY

We will analyze the identity in the discourse of the luxury restaurants by relying mainly on Discourse Analysis and Content Analysis methods. Organizational identity has prompted the interest of many researchers in various fields of study, such as marketing, communication, sociology, psychology. We believe that by bringing together elements of linguistics and discourse analysis, we will be able to identify novel strategies for capturing public attention and attracting new customers.

We will use the concept of thematic construction of the discourse (Florea, 2007), focusing in particular on how the information is organized and prioritized globally (splitting information into pages), page layout (especially the main *home page* elements such as the name of the restaurant, the logo, the motto or the brand signature), titration, photos. The informative function of the speech is always accompanied by the "capture" function (Charaudeau, 1997), and the images play an important role in the economy of a restaurant's website.

3. ORGANIZATION OF INFORMATION

Generally, information is structured on pages that can be accessed using hyperlinks. The menu is easy to follow, in most cases horizontally arranged. The pages that appear in almost all the examined websites are *home page, menu, and contact*. However, the restaurants are differentiated by introducing intriguing, novel and original pages. Below we will give some examples illustrating the originality and creativity in this area.

The *Artist Restaurant* is founded by a Dutch established in Romania after an extremely rich international experience. The site, with versions in Romanian and English, proposes 5 pages, the name of each being accompanied by a syntagm that summarizes, qualifies or covers the theme of the page. If, generally speaking, page titles are simple nominal phrases, in this case the title-subtitle organization refers to the techniques used in the print media. The subtitle phrase, written in smaller characters, has obvious elements of subjectivity: it qualifies and evaluates the type of food (unique dining), the cuisine (delicious art), the act of cooking (painting with flavors), it includes the enunciator in the message using the possessive adjectives (our) and the possible client by using the personal pronoun (you):

Table 1. The Artist Restaurant

Home	About	Menu	Gallery	Contact
Unique dining	Our story	Delicious art	Painting with flavors	Here for you

Lacrimi şi Sfinti (*Tears and Saints)* is the restaurant of a famous Romanian poet, Mircea Dinescu. Lately he has also been the protagonist of a TV show. Mircea Dinescu proposes dishes inspired by local cuisine, reinterpreted, wishing to bring traditional Romanian recipes to the attention of the public, "an almost lost local culinary culture or, at best, ignored for over a century." The website has only a Romanian version. The suggested pages are the following:

POVESTEA	LOCAŢIE	REZERVĂRI ON-LINE	MÂNCARE	MENIU	CONTACT
(THE STORY)	(LOCATION)	(ON-LINE RESERVATIONS)	(FOOD)	(MENU)	(CONTACT)

Table 2 Lacrimi şi Sfinti (Tears and Saints)

The LOCATION page appears with a good reason as the restaurant is established in a heritage building, where at the beginning of the 20th century there was a fabric shop belonging to famous art collector family, the meeting place of important Romanian painters. The restaurant is a "museum", the dishes are unique, rare, and “precious". The exceptional character of the building, the memory of the important people who went there, the fact that the owner is a man of culture are associated with food as a symbol of the culture and traditions of a people. Food is "a metaphor of culture, class and ethnicity", "the source of memory and tradition", "a marker of identity" (Van der Spuy, 2018: 7).

The website of the *Modigliani* restaurant (Romanian and English versions) proposes the ITALIAN FLAVOURS page, highlighting the products served and their origin (the flavors, recipes and ingredients of Italy) and counting on authenticity as an essential value:

Table 3. Modigliani, Italian restaurant

ABOUT US	MENU	ITALIAN FLAVOURS	EVENTS	CONTACT US

In addition, two links can be accessed: SEE THE SPECIAL MENU; and the RESERVATION link, arranged one on the left, the other on the right side of the page. The second allows access to the reservation page, giving maximum site functionality. To our surprise, we discover that the site has a Romanian, English, but not an Italian version, despite the large number of Italian investors existing in the capital.
We find a similar situation in the case of the Italian restaurant ROBERTO'S, located inside the Hilton Hotel, whose website can be consulted in Romanian and English.

Table 4. ROBERTO'S

RESTAURANT	OUR MENU	CHEF	EVENTS	CENTENNIAL	BLOG	BOOK NOW

The restaurant's website highlights the chef's personality, dedicating a whole page (CHEF) to the exceptional career of a perfect practitioner. The CENTENNIAL page announces the possibility for customers to join the Centennial Club program and to benefit from a series of discounts, and the BLOG page provides recipes, tips and tricks for cooking Italian food.

The *Joseph by Joseph Hadad* restaurant website has only an English version, which excludes from the very start a wide range of customers and selects a privileged category. It proposes several pages, of which the CONCEPT page is the one that incorporates the philosophy of the business and the founder's vision:

Table 5 Joseph by Joseph Hadad

HOME	CONCEPT	MENU	GALLERY	EVENTS	CENTENNIAL	RESERVATION	GIFT VOUCHERS	BLOG	CONTACT

On this page, the descriptions of the restaurant, its ideology and the presentation of the chef alternate with direct speech sequences. The page opens with the words of the founder and of the master chef. By addressing readers directly, the master chef reveals his personality through a warm speech, very close to potential customers. Direct speech fragments are built after the design of a letter addressed to customers. The beginning and the end of the text belong to Joseph Hadad, who opens himself to the readers:

> “I breathe spices and I create them from scratch. I dream every recipe, I wake up in the morning, I draw it and after that I go in the kitchen and cook it. This is the process of every single recipe from the menu.”~Chef Joseph Hadad
>
> “Love of my life? Cooking! It flows through my veins and keeps me alive. And I am glad to share it with all of you, at my fine dining restaurant, Joseph by Joseph Hadad”.

Joseph Hadad concludes with "Yours truly" and signs as if he addresses the website visitors via a letter.

The concept of the restaurant is illustrated with an emotional lexicon (love, passion) and a lexicon centered on senses and sensations ("I breath spices", "It flows through my veins and keeps me alive"). The chef is an artist, "a forever passionate food lover," combining the "fine dining" style with the concept of "culinary architecture", creating magical things.

Selecting or excluding pages, besides the regular pages of restaurant websites, gives clues to the identity and specificity of luxury restaurants, the concept and vision of their founders. It can focus on the location, the products, the origin of the products, the person who cooks, according to the values of the business and the message they intend to convey: quality, uniqueness, authenticity, tradition, culture, history.
With small exceptions, more specifically when it comes to Romanian restaurants, the websites also have English version, which shows the desire to keep up with times, to adapt to the times we live, addressing an elitist clientele.

4. HOME PAGE

Communication specialists recommend that the homepage should have an airy page layout, an elegant design, a title, a logo, a little, essential but valuable information, a few well-chosen and high-quality images, a representative background image, and links to other pages. The home page has the role of introducing and guiding the reading. If the page is well done, the business manages to build its credibility from the very start.

In the case of all the examined websites, all these recommendations are observed. At the top of the main page, important elements of the thematic construction of the identity in discourse appear. They are the name of the restaurant, its slogan, the logo. The home page includes photos and warm colors, the image having a primary role in attracting public attention.

Here the purpose of capturing the company's speech has a more important role than the information purpose (Charaudeau, 2005). In order to find out information, the customer who visits the site is encouraged to access the internal pages, to become a loyal visitor of the website and a permanent customer of the brand.

The minimal elements of the home page are the name of the restaurant, some photos and links to the internal pages.

The Artist Restaurant (the name of the restaurant, two photos succeeding one another, representing the chef at work and a serving dish made by him, a horizontal menu bar at the top of the page)

Other items that appear on the home page are the logo, the motto, and the advertising slogans:

Meze Taverna (the logo consisting of the name of the company written in Greek characters, a succession of photos representing the restaurant - exterior and interior - and the products served, on the left a vertical menu bar, containing symbols, without titles);

Roberto's Restaurant (the name of the restaurant, the motto, a background image representing the interior of the restaurant, overlaying a photo of the restaurant's room, two pictures representing the customers, a photo of a serving dish and the phone number for reservations, a horizontal menu bar at the top of the page); here the images also function as links to other pages of the website;

Modigliani. Italian Restaurant (the restaurant name, a background image representing a serving dish, the motto, an impact phrase, and a call to action, a horizontal menu bar at the top of the page plus two buttons placed under the menu bar, also for access to internal pages);

Joseph by Joseph Hadad (at the top of the page: to the left, the founder's and owner's signature, followed by a horizontal menu bar, a background image representing part of the restaurant's room, the restaurant name, a welcome phrase, and another phrase defining the concept of the business).

Generally, the home page is elegant, airy; the photos create excitement and subtly complement the text, encouraging site navigation.

5. BRAND NAME, BRAND SIGNATURE

Brand names have a "privileged role in the communication media universe", being associated with the "brand image" the company is constantly acting upon (Maingueneau, 2005). They reflect the culture, the identity, the mission of the business offering the products or services. They are often accompanied by the brand signature, the motto or the institutional slogan (*tagline* in the USA, *baseline* in the United Kingdom, *signature de marque* in France), a syntagm that synthesizes the economic strategy or brand promise.

These elements have a major place in the website's economy: generally, the restaurant name and the motto appear on the *home page*; in some sites there are elements that are present on each page; sometimes the motto appears only on certain pages, especially on the presentation pages of the chef or on the *Cuisine* pages.

These important elements of the thematic building of identity in discourse, which mainly have informative and advertising function, rely on creating the surprise element. They are small, transparent texts, but must be equipped with a great "evocative power" (Charaudeau 2005), first to attract attention, then to remain in the public's memory.

Hammer (2018) notes that, in order to stand out, especially in the fashion, luxury and restaurant sectors, the company's name is trying to innovate through unexpected, original and memorable names that highlight the business and its vision.

One of the strategies commonly used is the association of some areas of activity. The most used is the *cuisine & art* association. The restaurant is a "creative workshop", and the chef is an "artist", a painter, a sculptor. Thus, the essentials of the *cuisine* concept are emotion and expression, just as with fine arts. Art becomes a source of inspiration, a model, and a goal. Therefore, the products will have the character of uniqueness, excellence, surprise. Using isotope art is one of the main discursive strategies of the restaurant branding, and creativity is part of the promise of these brands.

Table 6. Cuisine & Art

RESTAURANT NAME	***BRAND SIGNATURE***
The Artist Restaurant	Imaginative & Emotional, Artistic & Playful, Inspired & Innovative. These are the words that define us.
L’Atelier (The Workshop)	L’art culinaire (The culinary art)
Modigliani. Italian restaurant	Trăieşte plăcerea gustului (Experience the pleasure of taste)

The first name highlights the image of the chef, the artist; the second one refers to the place where the products are created. Trends are also written in the isotope of art, the former using qualifying adjectives from the lexical field of art (imaginative, inspired), the latter employing them explicitly (gastronomy is an art).

The website of the *L'Atelier* restaurant has a Romanian version and an English version. The name and motto remain in French, though, evoking not only the French gourmet tradition - recognized worldwide - but also a whole set of qualities specific to the French cultural space. It is not by accident that in the last years there is talk of *haute cuisine*, according to the model of phrase *haute couture* (from here, the *cuisine-mode* association).

The third example illustrates a special choice for a restaurant name. Choosing the name of a famous painter confers extremely many chances for the public to easily remember the name. At the same time, it raises the interest for that establishment. The brand signature refers to pleasant senses and sensations, contains emotion lexeme (*pleasure*), helping to create a positive image. In fact, it is followed by a call to action, focused on the client, a call that works with the same positive vocabulary and uses lexemes that qualify (*authentic*) or positively assess (*exquisite*) („Încearcă meniul nostru rafinat cu o autentică savoare italiană, pregătit de către un Bucătar Şef italian. Delectează-ţi simţurile şi răsfaţă-te!" / „Taste our exquisite menu with an authentic Italian touch, designed by our Italian Executive Chef. Delight your senses and spoil yourself!").

In the following example, the Italian name does not have the connotations mentioned above and does not evoke luxury, but rather a small, familiar space, in contrast to the English slogan referring to art, modernity and a creative cooking style:

Table 7. Cuisine & Design

RESTAURANT NAME	***BRAND SIGNATURE***
Baracca	Design food

We also notice the existence of poetic names. This time the cuisine & art association is replaced by the combination of cuisine & literature. The name „Lacrimi şi Sfinţi" (Tears and Saints) alludes to emotions and literature, and also has a "recreational" function (Hammer, 2018). This name, which creates a surprise effect, is itself a brand signature. The interpretation of the name of the restaurant implies knowledge of the owner's work (Mircea Dinescu). In fact, in the opening of the restaurant menu there is a poem written by him: „Bucătăriile se văd din cer / Mai bine decât oamenii de seamă / Prinzi îngeru-n gamela ta cu zeamă [...]" ("The kitchens are seen from heaven / Better than the notable men / You can catch an angel in your canteen full of soup [...]").

Table 8. Cuisine & Literature

RESTAURANT NAME	***BRAND SIGNATURE***
Lacrimi şi Sfinţi (Tears and Saints)	-

A frequent choice for restaurant names is the use of proper names. The first names of the founder are frequently used. In the following examples appear, Robert Bayer, the founder of Roberto's Restaurant in Amsterdam, and Joseph Hadad, a 40-year international experience chef who was also the protagonist of some TV shows in Romania. These personalities are themselves a brand:

Table 9. The Founder

RESTAURANT NAME	***BRAND SIGNATURE***
Roberto's	Pura cucina italiana (Genuine Italian cuisine)
Joseph by Joseph Hadad	Contemporary fine dining, intimate space, author recipes and an art deco style

Just as the name Roberto refers to the Italian cultural space, being an extremely frequent name, the slogan contains the phrase "cucina italiana", which became a gourmet brand, preceded by the "pura" rating. We find the idea of authenticity, the return to the origins, the valorization of the history, traditions and culture of a people.
In the second case, the business signature contains four elements that define the restaurant.

Table 10. Cuisine & Histoire

RESTAURANT NAME	***BRAND SIGNATURE***
Casa Antinori	Un restaurant unde arta culinară întâlnește aspectul rafinat toscanian (A restaurant where the culinary art meets the refined Tuscan look)

Sometimes, a famous family name is chosen, as in the case of the Italian restaurant *Casa Antinori*. The Antinori family was famous in Tuscany for the production of quality wine, with a tradition of more than 600 years.

Even if these luxury restaurants are located in the capital or in the major cities of Romania, most of the names and mottos are written in foreign languages: English, French, and Italian. Generally, these are international, French or Italian restaurants that offer products of very high-quality created by chefs who have graduated from famous schools or who are themselves school founders. The message sent by the combination of name & motto expressed in foreign languages is generally the following: we are the representatives of the gastronomy elite; our clientele is part of the elite of society or wants this, wishes for a better life, is open to the world and willing to adopt the French, Italian, English lifestyles, etc.

6. CONCLUSION

Analyzing the identity in discourse of luxury restaurants and how the information on the websites are presented and prioritized, we noticed the desire of each establishment to create a strong brand image, to build their credibility in a context of intercultural communication and to stand out from other establishments in a highly competitive environment.

We identified some elements of the discursive strategy of these businesses, namely the selection of information to put them forward, the attractive presentation of information, the creation of isotopes and the novel associations (cuisine & art, cuisine & mode, cuisine & literature, the chef is a painter, a sculptor, a designer), the choice of original scenography and the use of a significant number of markers of subjectivity: positive vocabulary, emphasis on elements with qualification and evaluation function (the dishes are "delicious sculptures", the menu "unique", the culinary experience equals to the "conversion into an experience of emotions"), focusing on the client and his wishes.

Restaurant discourse has a strong persuasive power. On the one hand, the pool of common knowledge of a people is successfully exploited, calling for history, culture, traditions, rituals, religion. On the other hand, intercultural communication proves to be a winning strategy for the luxury restaurants sector. Their discourse contains many elements of multiculturalism and sells "hope in many forms" (Lindstrom, 2013), promising a healthier, better, more beautiful, more luxurious life (fine dining, la dolce vita, the taste of France).

Behind the obvious commercial motivation, we find a coherent and harmonious discourse on these websites. Choosing a name, a logo, a motto, distributing information on pages, selecting and merging titles and images, they are all driven by a red thread that reflects the vision of the owners and of the marketing specialists, the concept and style of the brand.

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THE PROBLEMS OF COMPOSITE INDEX NUMBERS OF SMART CITIES

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Abstract: *Smart city initiatives, plans, missions have "mushroomed" in every continent in recent years. These projects want to apply the information technology for improving the efficiency and quality of local services and for providing new services for the inhabitants, visitors and the entrepreneurs of the settlements, or more safety, leisure and less pollution. Areas of applications are manifold, such as transportation (vehicle routing, road pricing, parking systems, traffic patterns, congestion reducement, smart traffic lights and so on), mobile workforce enablement (city surveyors, park maintenance, inspectors, health and social services), energy (street lighting, building control, demand for electricity, energy theft detection), utilities (smart meters, field service, customer service, maintenance optimization and so on), healthcare (reducement of waiting times, forecast of visit and admission rates, real-time alerting, telemedicine and so on), education, security and others.*

These projects have mainly positive impact from technological point of view (for example, more information, quality improvement, more safety is engendered). However, in the evaluation of the projects, the cost benefit analysis, the comparison of implementation and maintenance costs and the realization of benefits is either missing or use doubtful, questionable nonmonetary categories for benefits. Moreover, it typically neglects the displacement effect and opportunity costs, therefore systematically biased toward greater positive impacts. The dominant rhetoric and propaganda is strongly influenced by the big information technology companies, which set its sights on local governments as a huge, untapped market.

The paper deals with the problem of creating composite index numbers for the evaluation of Smart city projects and for the comparison of "smartness" of cities. These composite indicators are popular tools of technocrats and bureaucrats, but the transformation of a multi-indicator system into a one-dimensional metric scale, in spite of the often use of a sophisticated mathematical technique, is a highly questionable practice.

Keywords: *smart city, indicator analyses, multicriteria analyses, decision support tools, information technology*

1. INTRODUCTION

Smart city became a key term or rather a buzzword in the city planning and city strategy literature, sometimes used parallel with digital city or intelligent city, in the same or similar meaning. The term is a fantastic marketing trick: everybody wants to be smart. Plethora of other phrases emphasize the technological side of the concept: telecity, urban cybernetics, informational city, knowledge-based city, wired city, virtual city, metered city, real-time city, smart urbanism and others. These terms, but most frequently the term smart city, are used by the researchers, planners, technocrats, public media, government administrators, politicians and IT (information technology) companies. In every continent, in every settlement size category, from the very small towns to the global megacities, more and more participants

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want to use more and more information technology and digital solutions, preferably not by the expense of their own budget, but by the expense of some outer sources, for example, grants and supports of the central governments.

Smart city projects became popular research topics, supported by both the interested cities and IT companies. The proportion of corporate research is unusually high in the area. The materials of companies, published not only in company propaganda materials (biased, subjective product descriptions by the IBM, Cisco, SAP, Intel, ABB, Siemens, Ericsson, Dunlop, Fujitsu, Google, Huawei, Hitachi, Microsoft, Oracle, General Electric for example), but in academic journals too, is quite common. Similarly, biased governmental marketing materials are also very frequent. An important element in the success and rapid spread of smart city programs is that policy makers and practitioners could create new jobs for themselves as a service class for implementing smart city projects. The risk of the projects is low: there are some improvements in something, which can be demonstrated, with forgetting to mention the costs and the possible alternative use of resources.

As the popularity of smart city research is increasing, the “measurement” of “smartness” became also a popular research topic. This is in accordance with the demand of the planners and project financing institutions for the success indicators, and with the observable tendency of new and newest indicators for describing the settlements from the point of view of the quality of life, livability, creativity, environment, social capital, development and many other fashionable research aspects of modern societies. Today, the pure list of these indicators would be a very long reading. Networked Society Index (by the Ericson), Green City Index (Siemens), European Green Capital Award, Innovation Cities Index, Arcadis Sustainable Cities Index, European Energy Award are some examples, which have some connection to the smart cities. Other motivation for new indices is the publication possibilities: a new index (with a rotund naming) can be created and published with changing only a minor part of a previous index.

The abundance of these indicators creates a danger of the mechanistic, technocratic, superficial approach to the concerned questions, instead of a more critical, inclusive evaluation. Moreover, these composite or complex indicators join up extremely different basic indicators. The paper deals with this conceptual problem, after presenting some general question about the smart cities.

2. TERMINOLOGY AND TYPICAL APPROACHES TO SMART CITY

The term smart city has been variously defined within the literature, but can broadly be divided into two distinct but related understandings as to what makes a city smart. The first approach stresses on the technological elements: sensors, cameras, digitalization, big data, wireless technologies, applications, grids, buildings, infrastructures, networks system integration and so on. The second approach has an emphasis on the knowledge economy aspects, innovation and creativity. Local democracy, participation of citizens, quality of life plays also an important role in these definitions. The mix of the two approaches is also frequent, the stressing on synergies between new technology and social structure. These concepts are mainly positive, desirable, and attractive. As many authors point out, the term is brilliant from the marketing point of view: smartness is a more user-friendly, positive term than the more elitist term intelligent [1].

We do not want to give a new definition. Instead of this we collected some definitions, organized into Table 1, which shows the huge diversity. Most of the papers deal in the beginnings with the problem of the definition, moreover, there are papers, which deal only with this conceptual problem; see for example [2], [3], [4].

Table 1: Definitions of smart city

Definition	Author(s)	Year
We believe a city to be smart when investments in human and social capital and traditional (transport) and modern (ICT) communication infrastructure fuel sustainable economic growth and a high quality of life, with a wise management of natural resources, through participatory governance.	Caragliu, A.; De Bo, C.; Nijkamp, P. [5]	2011
A smart city infuses information into its physical infrastructure to improve conveniences, facilitate mobility, add efficiencies, conserve energy, improve the quality of air and water, identify problems and fix them quickly, recover rapidly from disasters, collect data to make better decisions, deploy resources effectively, and share data to enable collaboration across entities and domains.	Nam, T.; Pardo, T. A. [1]	2011
A smart city is a well-defined geographical area, in which high technologies such as ICT, logistic, energy production, and so on, cooperate to create benefits for citizens in terms of well-being, inclusion and participation, environmental quality, intelligent development; it is governed by a well-defined pool of subjects, able to state the rules and policy for the city government and development.	Dameri, R. P. [6]	2013
Smart cities are presented as the object of a wide range of technologically mediated practices of management at a distance, based on orchestrated assemblages of computerized systems that act as conduits for multiple crosscutting forms of data collection, transfer, and analysis. At their core, efforts towards smart cities thus imply a world of optimized ordering and regulation that relies fundamentally on the coding of social life into software	Klauser, F.; Paasche, T.; Söderström, O. [7]	2012
Smart City is the product of Digital City combined with the Internet of Things.	Su, K.; Li, J.; Fu, H. [8]	2011
A city that monitors and integrates conditions of all of its critical infrastructures, including roads, bridges, tunnels, rails, subways, airports, seaports, communications, water, power, even major buildings, can better optimize its resources, plan its preventive maintenance activities, and monitor security aspects while maximizing services to its citizens	Hall, P. [9]	2000
Two main streams of research ideas: 1) smart cities should do everything related to governance and economy using new thinking paradigms and 2) smart cities are all about networks of sensors, smart devices, real-time data, and ICT integration in every aspect of human life.	Cretu, G. L. [10]	2012
A Smart City is a city well performing in a forward-looking way in […] six characteristics […], built on the smart combination of endowments and activities of self-decisive, independent and aware citizens.	Giffinger, R. [11]	2007
‘Smart city’ seems like a textbook example of an ‘empty signifier’ in urban planning; that is, a concept virtually void of any substantive meaning.	Haarstad, H. [12]	2017

From technological point of view, the approach toward smart cities lies on a scale of which one endpoint is the techno-utopian vision, the optimistic view of future, where all problems are solved by the help of technology. Sustainability, energy efficiency, infrastructure optimization, quality of life, social initiatives, e-government safety, security, intelligence, and citizens are keywords in this enthusiastic literature. The other extremists have an anti-technology attitude; Smart city for them is equal with control of the society by the authorities and greedy corporations [13], [14]. The starting point of both supporters and critics is often not the normal experiences of "ordinary" towns and cities, but the planned or semi-finished Greenfield megaprojects of IT multinationals financed by the government (see some of them in Table 2), or the high-tech islands of megacities (such as Sao Paulo, Kuala Lumpur, Singapore).

Table 2: Planned or semi-finished megaprojects, smart city islands

City	Country
Songdo	South Korea
Masdar	United Arab Emirates
Living PlanIT	Portugal
Konza Technology City	Kenya
Cyberjaya	Malaysia
Putrajaya	Malaysia
Palava	India
Smart City Kochi	India
Wave Smart City	India
Meixi	China
SmartCity Malta	Malta

INDIVIDUAL AND COMPLEX INDICATORS OF SMART CITIES

Lots of complex indicators were suggested for the measuring of smartness of the cities (see for example [11]; [15]; [16]; [17]; [18]). Complex indicators are always based on basic indicators. The numbers of basic indicators merged into a complex indicator can be only a few (less than 10) or very large (more than 100). The surprising or strange feature of the basic indicators of complex smart city indicators is that vast majority of them have nothing to do with information technology solutions, but they are very simple traditional indicators. Some examples from various proposed smart city indices:

- GDP per capita,
- GDP growth,
- Unemployment rate,
- Ratio of deaths per 100000 inhabitants,
- Average working hours per year of worker,
- Net annual income,
- Number of headquarters on Forbes,
- Average rent prices for local households,
- Average years of schooling of inhabitants,
- Adult illiteracy rate,
- Population density,
- Ratio of female workers in the public administration,
- Number of public and private hospitals and health centers per city,
- Number of museums,
- Crime rate,

- Vehicle per person,
- Poverty ratio,
- Road traffic deaths,
- Deaths due to the cardiovascular diseases,
- Water consumption,
- Households without electricity supply service,
- Greenhouse gas emissions per capita,
- Green spaces per person,
- Waste generated per person,
- Ethnic plurality.

This list of traditional indicators, used as a “smart city” indicator, could be enlarged. Several indicators are conceptually problematic: higher value or lower value of the indicator is advantageous? What is the case, for example, with the population density, road density, ethnic plurality, female workers ratio? Other indicators have a clear meaning from the point of view of positivity, for example, lower unemployment rate or lower illiteracy is better than higher, but in which way is these indicators are connected to the information technology? These are traditional indicators, describing the development or economic situation of settlements, regions or countries.

The very different indicators could be good for the general or specific description of settlements. However, it is no sense to put together and merge the entirely different characteristics into one singular number, because the various original important information disappears in the complex indicators. These indicators do not create new information but either show the same as the original indicators or rather disturb the transparency.

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AN OVERVIEW OF THE NFC-BASED SYSTEM FOR THE TOURIST GUIDANCE IN SMART CITY

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Abstract: *Development of modern technologies provides new options and enhancements in the way of tourists' involvements and experiences. By integration of various non-traditional technical means, deeper interactivity between the city and its visitors can be reached. Through this paper, the special guidance system for tourists based on the usage of smartphones will be introduced. The system utilizes special NFC sensory to guide tourist across all important sightseeing objects. The system is applied as a geocaching game, where all participants are motivated to reach all tasks as fast as possible, step-by-step visiting and investigating all objects on which the city tourism lies.*

Keywords: *NFC, Tourism, Guidance, Tour, Sightseeing*

1. INTRODUCTION

People's lives are now significantly affected by mobile devices. These are especially mobile phones, resp. smartphones. Currently, this device is used to carry out even the most common activities. Just like people, mobile phones also experienced evolution. Older models were used exclusively for text and call communication. However, mobile phones nowadays have many other features. Thanks to this they basically replace the function of the computer. With powerful hardware, various applications can be run on a mobile phone. In addition to applications, these devices can also be used as a communication platform for connecting with the outside world. In particular, this enables communication technologies inside a device such as Wi-Fi (Wireless Network), Bluetooth or NFC (Nier Field Communication). It's exactly NFC communication thath is becoming more and more popular and is supported by almost all modern phones. As mobile phones are now compact and portable, users can take them practically anywhere. Considering that users can take these facilities with them as part of their leisure travel activities and so on, using mobile phones is an interesting issue also for tourism support. The paper presents the design and creation of an application for the Android platform using the NFC technology. The application presents a game based on the sightseeing of cultural monuments in Žilina. The essence of the game is to find all the selected cultural monuments in Žilina.

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2. THEORETICAL BACKGROUND

Near-field communication (NFC) represents a RFID system (Radio-frequency identification) that allows devices to communicate quickly with each other. [1] The distance between these devices is small using the 13.56 MHz RFID band. [2] NFC technology is not a whole new thing. This technology has existed for several years. [3] The interest in using this technology has increased especially with the use of payment systems, specifically with the possibility of contactless payment transactions. Currently, this communication technology includes most mobile devices (Smartphones). This fact has further strengthened the relevance and usability of NFC technology in various processes that use mobile devices. [4], [5] The importance of NFC technology can be monitored even in the case of low-cost solutions because this technology provides a fast and easy way to get data. This process is simply done by attaching a device (e.g. Smartphone) to the NFC tag. In this process with NFC technology it is not necessary to pair the devices. [2] Given the speed at which information and communication technologies are being developed, NFC technology can be expected to become more extensively used in the future. This is especially the use of this technology in the low-end sector and in large-scale systems of the Internet of Things, Industry 4.0 and SmartCity. NFC technology can be applied in any way within all of the above-mentioned systems. NFC technology can be applied in any way within all of the above-mentioned systems. This article focuses on using NFC technology in the city to support users or tourists in the form of games.

3. GAME SYSTEM DESIGN

The Android system has been chosen as the operating system with which the app (game) will work. This operating system was chosen mainly because most mobile phones - smartphones works on the Android platform. According to portal Statista, the Android operating system has more than 80% of sold smartphones [6].

It was necessary to use more tools to create an app, resp. game on Android platform. Between these are included:

- Android SDK, contains a comprehensive set of development tools (e.g. Debugger, libraries, emulators, tutorials, etc.),
- Android Studio, the official development environment for Android platform,
- Comnent Tree, which consists of several components (Manifests, Java, Res, Gradle Scripts),
- Android Studio Emulator, which allows the development of applications without the use of a physical device, such as phone, tablet, or smartphone with Android system.

The role of the application is to communicate with the NFC tag. In NFC tags data can be stored in different forms. Within the proposed app, the data was stored in NDEF (NFC Data Exchange Format) format [7], [8].

The designed system is divided into two separate applications. The reason for the division of the solution was to prevent tag editing by the player (i.e., the regular user) in the game play process. The first application is administering. This app is used to set up an NFC tag. The second application is a game. This app is responsible for the game logic of the entire system. Logic resp. the course of the game is as follows:

1. The app will offer the user a list of monuments.
2. The user selects a monument from the menu.
3. The user has help hints at his disposal while searching for the monuments.

4. In case user finds the monument, the content loading of NFC tag, which is placed very close to the monument itself, will run. At the same time, in the application are displayed the brief characteristics of the monument.
5. When a user finds all the monuments, the game ends.

The first application within the proposed system is the administration application. This app was designed so that common users do not have an access to it. The application is exclusively for administering the tags set by the administrator. The application name is "ZG Admin", i.e. "Zilina Go Admin". This app contains two features:

1. Content setting NFC tag, i.e. writing URL (Uniform Resource Locator) addresses, which will refer to HTML (Hypertext Markup Language) folders. The contents of these files will be brief information about monuments. Each monument will be assigned to a custom tag and an HTML file. This file will be stored on the Internet.
2. Reading the tag content, i.e. verifying the accuracy of URL addresses that are stored in tags. At the same time, this feature serves to verify that URL addresses are correct when placing the tag to the monuments itself.

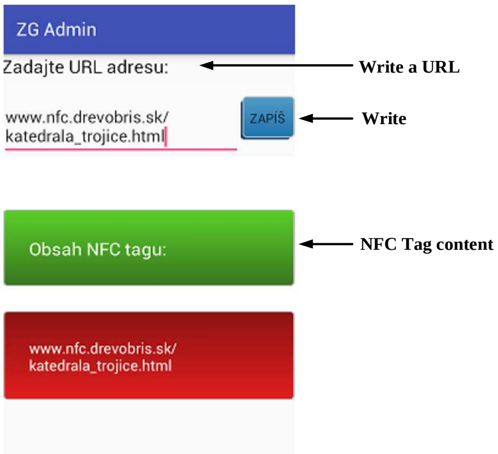
The second application within the proposed system is the game application "Zilina Go". This application accompanies and helps the user search for monuments in Žilina. The task of the player is to help find ten major buildings, respectively places in the center of Žilina. Once the app is opened, the player (user) displays a list of previously unmarked monuments. In this list, the player does not have any data available on unmarked monuments. When selecting a monument, the player will see the help. At the same time, the timekeeper will start. If a player succeeds in finding a memorial at the appointed time, using the NFC tag on the monument the timekeeper stops, retrieves the information stored in the HTML file, and can continue to search for another monument. Data about monuments and games are stored in a local database. This database will be created after the installation and first open the app on the mobile device of the user.

3. PLAYING THE GAME

Before you can play the game itself, you need to set NFC tags first. This setting runs through the admin application. With this app, for the NFC tag it is necessary to set (see figure 1):

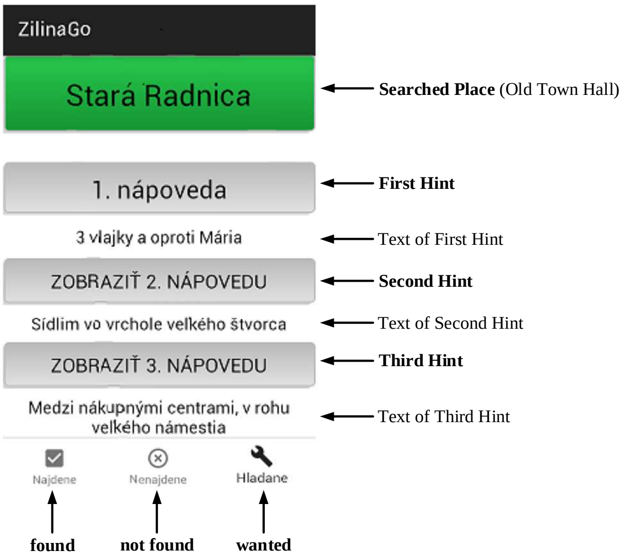
- URL address, which refers to a specific monument.
- Verify the write by NFC backfill.

Figure 1: Setting the NFC Tag



Once you've successfully set up your tags, you can play the game. When the game is turned on, the user has no monument on the screen. That means he has not found any yet. Through the navigation menu, the player gets to the list of all the sights. The player selects one of the sights and returns to the game menu where the player has the help. If a player does not know how to find a monument with the help, he can ask for more help. Showing help in the app during the game is shown in Figure 2.

Figure 2: Wanted monument

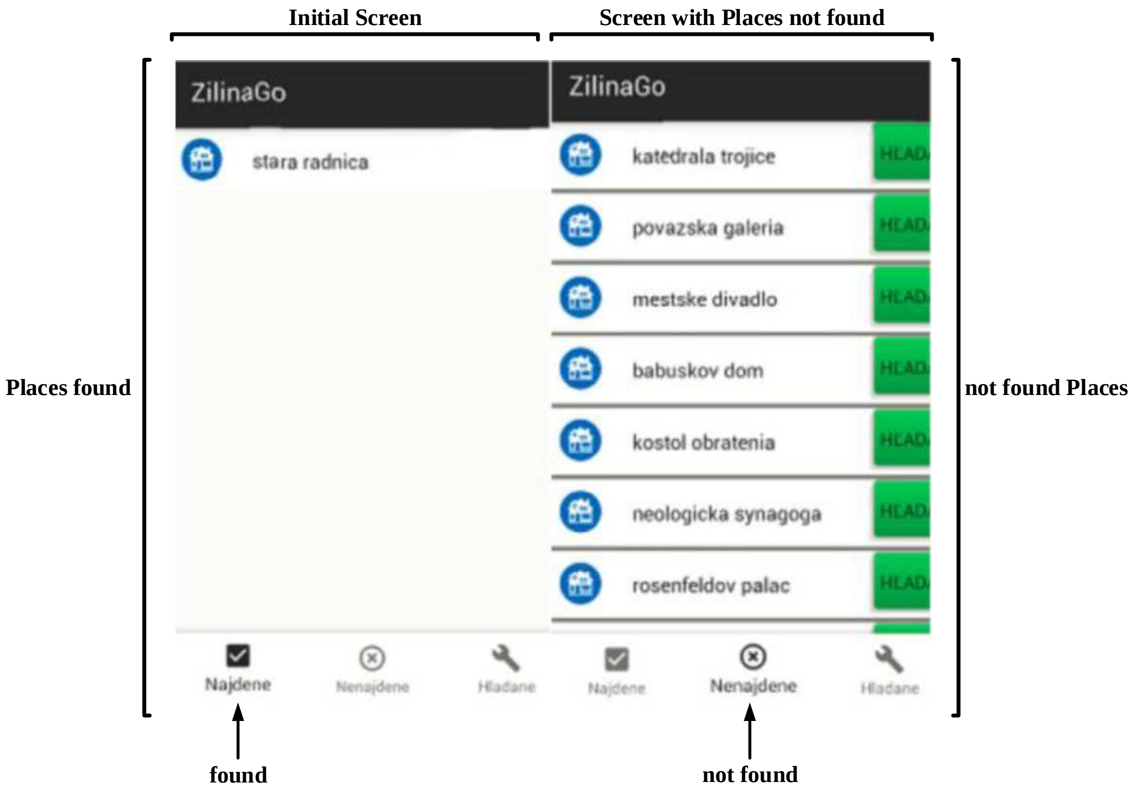


The next step in playing the game is to find the monument chosen by the player, respectively loading the correct NFC tag. If a player finds the right monument, then a new window opens when the phone is attached to the NFC tag, which includes congratulations, the resulting time of finding the monument, and some interesting insights about monuments. The appearance of found monument is shown in the following picture.

Figure 3: Finding the right NFC tag or monument

Since the monument has been successfully found, this fact will appear in the app. Once the app has been opened, the found monuments are displayed on the Home screen or in the list of found monuments (see Figure 4).

Figure 4: Records after finding the right monument



You need to repeat the gaming process to find other monuments. The game ends with finding all the sights.

3. CONCLUSION

The development of information and communication technologies is currently moving very fast. And thanks to technologies, people, their users, are able to travel safer, more efficient and in more comfortable way today. The proposed application or game is an instrument or option to use modern technology to support travelling and tourism. At the same time, it is possible to achieve a better orientation of people, tourists, and customers in exciting metropolises around the world. With the proposed application, it is also possible to support the building of a smart city (SmartCity). If a city is already smart, this app and the whole solution is suited for expanding the intelligent city's technology capabilities. The proposed application or the game is a more functional system between the city and tourists. While the application is complete, there is still room for improvement, such as adding new sights, improving the graphic user interface, adding statistics, comparing results with other users, organizing events via an app, and so on. All of these examples could be incorporated into the proposed system in the future to improve it.

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DIGITIZING CULTURAL HERITAGE: EVIDENCE FROM ITALIAN MUSEUMS

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Abstract: *This paper aims to shed light on the link between digitization processes and competitive strategies in Italian museums. It is also addressed to understand how digital skills, held by the museum, do affect the organization's capability to match technological innovation and strategy.*
In line with the exploratory nature of research, we have adopted the multi-case study approach. Three of the main Italian museums, selected through a convenient sampling, which considers the historical-architectural importance of the site and the collections housed in it, have been investigated through semi-structured interviews and document analysis.
Cases show how digitization processes are mainly driven by museums' accessibility to technical skills, as well as by the novelty character of digital innovations available. This often brings to underestimate the required alignment between digital contents, digital skills held by the cultural organizations, and types of users.
We believe that our research can contribute to a clear acknowledgement of issues concerning the digitization process by managers of the Italian museums, hence leading to adoption choices that keep into account strategic and organizational aspects, besides the technical ones.

Keywords: *Digitization, digital skills, cultural heritage, alignment technology-strategy*

1. INTRODUCTION

There is a widespread awareness that cultural organizations can benefit in many ways from the adoption of digital technologies. Collection, conservation and access to the cultural heritage in novel, accessible and attractive ways demand for digitizing museums, as well as for designing methodologies to represent, manage and exploit cultural heritage data at different levels. The major Italian cultural organizations are currently engaged in choices regarding the adoption of digital technologies. However, either the literature or the empirical evidence suggest that these choices are not always the result of a clear perception and of a careful reflection about opportunities and limitations linked with the adoption of digital artifacts and devices.

Through a multi-case analysis, our paper aims to shed light on the link between digitization processes and competitive strategies in museums, in logic of reciprocal adequacy. We wonder how digital skills, held by the cultural organizations, do affect the organization's capability to align technological innovation and strategy in Italian museums.

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In the following paragraph we briefly illustrate the theoretical background; in section 3 we outline the research objectives and methodology; in section 4 we present the results of our analysis; and lastly, in section 5 we debate about such findings and draw some conclusions.

2. THEORETICAL BACKGROUND

The general framework of reference is constituted by the relationships that exist between the firm's strategic choices, the digitization processes, and the development of digital skills. The literature review has been circumscribed to the analysis of these relationships in museums, as well as to the identification of some possible classifications and taxonomies, related to competitive strategies, technologies, as well as to the so-called "digital skills" within cultural organizations.

Research on the processes of digitization of cultural heritage, and in particular of the museums' collections, has initially privileged the analysis of technologies for the preservation of works of art, and for their remote fruition (through the Internet), and then moved on the role and the impact of digital technologies for on-site fruition. To date, two themes still seem to us insufficiently investigated in the literature: that of the relationship between choices relating to technology and the market orientation of museum institutions; as well as the question of the adequacy of digital skills and the connected degree of technology acceptance.

As regards the first issue, references to the necessary alignment between the choices of technology adoption and the market strategies of the museums are sporadic [1] - [2] - [3]. Much of the research considers the introduction of digital technologies in museums as an independent variable, from which implications on organizational strategy, as well as on roles and skills, may arise. In other studies, the analysis of the digitization process leads to the identification of alternative digital approaches [4] - [5].

The topic of digital skills, on the contrary, is much more debated, but issues concerning technology acceptance are often neglected. Studies on this topic are mainly concerned with the identification of some possible classification criteria; otherwise they focus on the opportunities associated with the emergence of new roles and the evolution of existing roles within cultural organizations [6].

In short, in our opinion the main gaps in the literature can be traced a) in the almost total absence of a debate about the relationship between the role of digital technologies and market strategies; b) in the lack of attention to the question of technology acceptance, both on the side of museum employees and on the users' side. A deepening in these two fields of research seems really desirable; in order to support museum organizations to pursue adequate levels of efficiency and effectiveness in the digitization processes underway.

3. RESEARCH OBJECTIVES, METHODOLOGY, AND DATA COLLECTION

The first aim of our research was to assess the coherence between digital technologies in use and the competitive strategy pursued by the museum. Besides, we wanted to understand how digital skills, held by the museum, do affect the organization's capability to match technological innovation and strategy.

In line with the exploratory nature of research, we have adopted the multi-case study approach, in the logic of replication and of analytical generalization [7] - [8] - [9]. Indeed, the multi-case method makes it possible to highlight a variety of situations, even diverging from one another, with the ultimate aim of contributing to the elaboration of an explanatory theory.

The sample has been built in the following way: starting with the case of Palazzo Ducale di Urbino, we added two more cases (Palazzo Ducale di Mantova, La Venaria Reale di Torino), in order to diversify the sample, according to some parameters (ownership, yearly number of visitors, characteristics of the hosted collections). The museums have been selected following the criteria which consider the historical-architectural importance of the site and the collections housed in it. The choice to select a sample consisting of art collections hosted in ancient palaces, castles, or villas is linked to the belief that this combination extols the opportunities inherent in the digital technologies for on-site fruition (e.g. virtual/augmented reality devices). The main data relating to each museum are summed up in Table 1, below.

Table 1: The sample investigated

Museum	*Place*	*Year of foundation*	*Ownership*	*Visitors (2017)*	*Type of heritage*
National Gallery of the Marche at Palazzo Ducale	Urbino	1912	Public (government)	164.000	Renaissance painting
Museums at Palazzo Ducale	Mantova	1881	Public (government)	323.000	Thematic exhibitions
La Venaria Reale	Torino	2008	Public-private network	1.049.000	Paintings and sculptures from the 15th to the 17th century. Thematic exhibitions

The research was carried out by using both primary and secondary data. Primary data was collected through semi-structured interviews addressed to the general managers of the museums. Secondary data consisted of documents provided by the management itself and/or collected by the authors, such as website content, press releases, and so on. Interviews were performed in the period may-november 2018, either at the office of the manager or by telephone. They have lasted from thirty minutes to an hour and followed a precompiled track. However, we left managers free to investigate further points. Three main questions were posed about the following issues: type of market strategy pursued by the museum; type of digital technologies/devices in use and reasons that has pushed museums to their adoption; range of digital skills held by managers or employees in the museum.

As regards market strategies, we integrated the taxonomy proposed by [10] between mass, segmentation, or niche market strategies, and that suggested in [11], who distinguish between audience broadening, diversifying, or deepening; where the first refers to the reach of a larger share of the potential audiences, the second to the attraction of new groups of users, and the third to make the current audience more involved. As regards digital technologies, the taxonomy proposed in [12] and the distinction by [13] between remote fruition technologies (e.g.: website, social networks, multimedia, database) and on-site fruition technologies (e.g.: info-points, touch-screens, VR/AR devices) was used. Lastly, we distinguished between technical digital skills (held by the roles involved in designing and programming activities of IT solutions) and applied digital skills (ability to use software and devices by the decision makers and the employees involved in routinary tasks), following the distinction proposed in [14].

4. FINDINGS

The case of La Venaria Reale (Turin) highlights a market strategy that is clearly oriented at deepening the audience. This orientation may have been suggested by the awareness of having to consolidate relations with the audience, after a phase of marked growth in the number of visitors. The management is strongly committed in finding new and profitable ways to increase customers' loyalty, by introducing on-site technologies that can foster a greater user-heritage interaction (i.e., through the introduction of chatbots technology for a simulation of a dialogue between visitors and characters depicted in the paintings); on the contrary, the enlargement of the visitors' base does not seem to be a priority. With regard to implementation methods of the on-site technologies, the management is intended to mainly rely on internal and applied digital skills. Indeed, the analysis shows that the museum has a rather high level of applied skills that are widespread among employees. At the same time, some employees have also (some) technical skills, meaning that they are capable to intercept the cutting edge of the "digital transformation potential" and – most important – to understand its applicability in the specific context in which they operate. The access to external technical skills is an option which, however, in the perspective of the management, should stay residual.

As regards the case of Museums at Palazzo Ducale in Mantova, a broadening strategy is quite clearly recognizable, so the aim is to increase the number of visitors within each customer segment. This orientation seems to be coherent in the light of the unsatisfying performance registered in the last few years. Technical skills, even those required for the ordinary maintenance, are only accessed through external suppliers, since they are not available inside the museum; however, suppliers' involvement has been significantly reduced over time, not only for the scarcity of funds, but even due to the fact that they do not guarantee the necessary timeliness of intervention. For this reason, the only one interactive on-site device that had been installed in the museum a few years ago is currently not operating. As regards applied digital skills, some kind of them are directly held by the management. In terms of support to the market strategy, those skills are mainly used to enforce and to monitor the presence on social media (as well as the website update). No employee is specifically dedicated to digital communication, but the manager's assistant is responsible for carrying out this task, along with others. In this case, the lack for technical skills seems to be the main reason why the general manager is oriented at squeezing as far as possible the internal applied skills, while integrating them with eventual contributions from external suppliers. Their focus will therefore be on technologies that can foster the remote fruition of the heritage, mainly via social media.

Finally, the case of the National Gallery of the Marche (Urbino) highlights a market strategy that is clearly oriented at audience broadening: the management is strongly committed in finding new ways to reach more visitors in the market segments that are currently addressed via targeted offerings (schools, tourist groups,...). The museum at Palazzo Ducale of Urbino has developed up to now few digital skills. These are mainly referred to software programs currently in use to perform administrative tasks, as well as to update the website and the official social media channels. Recently, a partnership with academic researchers stimulated the interest of the management in developing technologies that can foster both the remote and - even more - the on-site fruition (VR/AR devices, building information modeling, and so on…). The manager's intention is that to exploit those technologies to reach a wider audience, as well as to deepen the relation with the current audience. Once these solutions will be available, the museum's management plans to rely on external specialists for updating and maintenance, so bypassing the need of developing idiosyncratic skills internally.

5. DISCUSSION AND CONCLUSION

The joint analysis of the three cases highlights some similarities but also some differences as regards the features of the respective digitizing paths. Some approaches show a stronger awareness then others, as regards the need to align the market orientation, the availability of skills, and the type of fruition technologies. In particular, the more confident the managers are with the opportunity to get technical expertise, the more attracted they are about the adoption of on-site digital applications/devices that are designed to make the visit experience more spectacular. This, regardless the fact that there is any clear evidence that these technologies will sustain the market strategy. Museums that are not confident to access to technical skills focus on digital communication when they want to enlarge the audience base; instead, they focus on the variety and the quality of the on-site digital services in order to improve the overall visit experience. An overall reading of the three cases leads us to confirm this dynamic. In fact, while Museums at Palazzo Ducale in Mantova are turning to technologies mainly oriented to external communication, after having experienced the difficulties of using an on-site technology, the National Gallery of Urbino is evaluating the opportunity to go in the opposite direction, although there is no evidence that this shift will support the implementation of the strategy. Therefore, we believe that the (perceived) accessibility to technical skills, and not the market strategy, is a common driver for the choice between on-site or remote fruition technologies.

This paper represents only a first attempt in understanding the phenomenon of digitization in the Italian museums: the low number of cases analyzed is a clear limitation to its significance; hence, the next step of our research will pursue two different aims: a) the widening of the sample, and b) the increase of heterogeneity within the sample itself. A further limitation concerns the short period of observation, whereas the ongoing process of digitization should benefit for a prolonged observation, in the logic of a longitudinal research.

Despite the above mentioned limitations, we believe that our research is able to shed new light on the processes of digitizing that cultural heritage organizations are currently experiencing. On the one hand, evidence from the three museums enforces our initial assumption and outlines the need of a better alignment between the choices of fruition technologies adoption, and the market orientation. On the other hand, the results of the on-field analysis have provided some notable insights in order to understand how the accessibility to digital skills drives decision-making process regarding the deployment of technologies that are more or less suitable to support the market strategy pursued by the museums.

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BIG DATA TRENDS IN DOMAINS OF APPLICATION

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Abstract: *Big data is a well-known area of research due to many challenges, which are constantly appearing. Although specifically big data analytics has been prominently in the focus of interest, big data management as a whole should be guided properly, so that as much information and knowledge as possible can be obtained from data for their intended purpose. There are many proposed solutions that are trying to resolve various issues that arose with big data, for example weak processing capability of traditional systems, such as relational databases, to efficiently manage them. New technologies that are trying to cope with various unstructured or structured forms of data are also being researched, Hadoop and NoSQL databases being some of them. Big data challenges are also connected with requirements in the domain of their usage, such as business and commerce, healthcare, public sector, education, or scientific research. This paper examines current research of big data management, especially according to its various domains of application. It gives an insight into applications of big data in various domains of different background (business, government, etc.), followed by a discussion on issues and challenges in its application, as well as mechanisms developed to resolve them. Additionally, this paper discusses the benefits and values of using big data solutions in selected domains. The contribution of the paper is also an overview of big data associated differences and similarities among domains that are most researched in the context of this area of interest.*

Keywords: *Big data, big data management, domain of application, big data analytics, big data challenges*

1. INTRODUCTION

Big data is nowadays a common buzzword with an increasing number of applications in different domains. Big data can be referred to as a large amount of structured, semi-structured and unstructured data generated by modern applications, which requires more time and resources to be processed. Traditional relational database management systems have some difficulties in handling such data (e.g., scalability, storing complex data, fast and distributed data processing, etc.), so some new technologies and paradigms have been introduced in the last decade, for instance NoSQL and NewSQL systems.

Initially, the focus of big data technologies and solutions was meant to focus on managing three properties (dimensions) of data, i.e., 3Vs of data: data volume, velocity and variety. However, the big data concept has been intensively studied and developed over the recent years, which resulted in a number of modern big data solutions able to handle up to 10Vs of data, such as

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data veracity (degree of accuracy and trustworthiness), data value (amount of benefits that can be extracted from data), data validity (degree of accuracy and correctness for the intended usage), etc.

Nevertheless, with the number of big data applications to various domains increasing, some challenges and issues related to its application have arisen. This paper gives an overview of those challenges and issues identified throughout the literature review process, as well as how the application of big data helped in dealing with requirements of different application domains. In Section 2, the process of Big Data Management is discussed in general, followed by identifying most frequent challenges of big data application and possible strategies to tackle some of the challenges, as well as the additional value generated by big data application. Section 3 contains an overview of how big data is applied to selected application domains: business and commerce, healthcare, government and public sector, education and scientific research. Throughout the analysis, a special focus has been given to challenges and issues caused by big data application in a given domain, and benefits created by its application in that domain. Finally, the paper is concluded by some final remarks on the degree of similarity and difference of challenges and benefits of big data application in selected application domains.

2. BIG DATA MANAGEMENT VALUES AND CHALLENGES

Wamba et al. [1] studied factors that contribute to improved company performance due to investments related to Big Data Analytics (BDA) owing to its high operational and strategic potential, which is beginning to realize in different industries (e.g., retail, healthcare, manufacturing, etc.). The authors focused on Big Data Analytics Capability (BDAC) as the competence to provide business insights by using data management, technology (infrastructure) and personnel capability, because they consider it to be an important organizational capability leading to a competitive advantage in the modern big data environment. Their research confirmed that BDAC has a significant positive impact on company's performance and process-oriented dynamic capabilities.

Almeida and Calistru [2] identified the following challenges related to Big Data Analysis:
- data privacy;
- access and sharing of information about clients and users;
- size of big data structures;
- analytical challenges, i.e., transparently analyze hidden information behind data.

From the business leaders' and IT practitioners' perspective, it is important to identify data pools, that generate the greatest value for the company. Due to data storage and analysis restrictions, companies need to decide which data is worth collecting and analyzing in the first place. As the size of collected data grows, a set of policy issues needs to be defined to handle data privacy, security and intellectual property as the organizational capability. Finally, to capture value from big data, companies need to deploy technologies and techniques that support innovative types of analysis.

Chen et al. [3] reviewed challenges of big data from data management perspective, and grouped them into the following categories: big data diversity, big data integration and cleaning, big data reduction, big data indexing and querying and big data analysis and mining. Big data diversity deals with different big data sources and types. Also, to obtain structured data, there is a need for unstructured data processing and extraction, which can lead to information loss, but it is not problematic if the initial data is large enough. Challenges related to big data integration and cleaning are nowadays especially emphasized by an increased usage of user feedback and crowdsourcing in modern systems, which results in an acceptance of imperfect systems and more effort required for entity matching and resolution. To solve big data reduction challenges, companies employ machine learning and massively parallel processing techniques. To resolve big data indexing and querying challenges, nowadays new indexing methods are used, such as distributed B-tree index, as a replacement to inadequate traditional indexing methods developed for small structured data. Big data analysis and mining challenges are caused by more effort required for complex analysis of big data, and there are some approaches and solutions recommended to deal with this challenge, such as using MapReduce framework or data mining software (e.g. Weka).

Sivarajah et al. [4] performed a systematic literature review (SLR) to explore big data challenges and various BDA tools and methods. The authors grouped different big data challenges identified throughout the review process into three categories:

- data challenges – related to data dimensions (volume, velocity, variety and other);
- process challenges – related to challenges, which arise during data processing, analysis and results presentation (e.g. data acquisition); and
- management challenges – related to accessing, managing and governing the data (e.g. privacy).

Additionally, Wamba et al. [5] performed a literature review with the aim to find out the value that big data create and challenges they face. According to their results, most emphasized values are:

- creating transparency;
- enabling experimentation to discover needs, expose variability and improve performance;
- segmenting populations to customize actions;
- replacing or supporting human decision making with automated algorithms;
- innovating new business models, products and services.

On the other hand, some of the challenges they face are data policies, technology and techniques, organizational change and talent, access to data and industry structure.

Big data also represents a challenge for business intelligence systems. Examples of various proposals of new solutions in this field include: implementing data warehouses within NoSQL database management systems [6], parallel construction of OLAP cubes in big data environments [7], data warehousing architecture for big data environment [8], Octopus [9] or Ophidia [10] as BDA engines and Deep Data Warehouse as an integration of warehouse data and unstructured content [11].

3. DOMAINS OF APPLICATION

Each application domain has its characteristics and requirements when it comes to data management. For the purposes of this research, the most challenging and popular application domains have been selected to be analyzed in more detail: business and commerce, healthcare, government and public sector, education and scientific research.

In the following subsections, an overview of characteristics and challenges related to big data management in those application domains will be given, followed by an analysis of most important challenges and issues related to BDM, as well as opportunities of BDM in those domains.

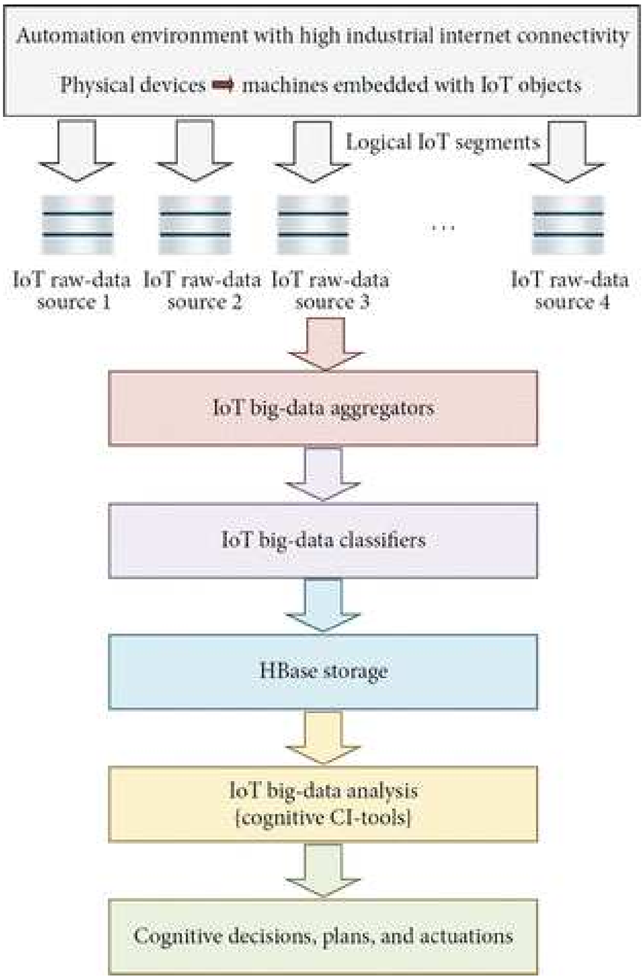
3.1. BIG DATA IN BUSINESS AND COMMERCE

In their paper, Chen and Zhang [12] discuss opportunities introduced by big data in various areas. Specifically, in business, big data creates many opportunities, such as increasing operational efficiency, improving customer service or developing new products and services. Nowadays, many companies use (or are beginning to use) big data to create valuable insights in order to remain competitive on the market. However, as Manyika et al. [13] state, such companies face several challenges, which need to be addressed to take full use of big data: shortage of analytical and managerial personnel, the need to ensure the right infrastructure, and that the economic benefits of big data are clear to users, organization and the economy in general, etc. In their report [13], the authors present several relevant insights gained from their research:

- data has become an important part of every industry and business function;
- big data creates value in several ways (e.g., by replacing/supporting human decision making, innovating new business models, products and services);
- use of big data will become a key basis of competition and growth for organizations;
- there will be a shortage of talent necessary for organizations to take advantage of big data;
- several issues will need to be addressed to capture the full potential of big data (e.g., data policies).

The authors also analyzed the transformative potential of big data in five sectors: healthcare (more effective and cost-saving care initiatives, clinical decision support systems, remote patient monitoring, etc.), public sector (creating transparency, improving operational efficiency, etc.), retail (location-based marketing, customer micro-segmentation, etc.), manufacturing (accelerating product development, product lifecycle management, etc.) and telecommunications (mobile phone location-based services, urban planning, etc.). Manyika et al. analyzed how big data will cause retailers to decrease their prices due to more powerful pricing, promotional and product information in real-time given to customers [13].

Figure 1. COIB-Framework Organization [14]



Mishra, Lin and Chang [14] proposed a Cognitive Oriental Big-data Framework (COIB-Framework) for large scale industrial automation applications that can be used for implementation of Internet of Things (IoT) big data smart industrial applications (Figure 1). Important functions of COIB-Framewok are big data aggregation, classification, storage and analysis.

Lee, Kao and Yang [15] discuss the transformation of manufacturing service in big data environment considering Cyber-Physical Systems and IoT in Industry 4.0, where obtaining useful information from big data is important for sustainable innovation. Authors proposed a unified framework for self-aware and self-maintenance machines for efficient extraction of information from big data and better decision making regarding machine performance.

3.2. BIG DATA IN HEALTHCARE

Healthcare datasets consist of data on physiological and other exposure, medical imaging, disease management and similar, which is very disorganized and distributed [16]. The source data is mostly collected from administrative and clinical databases and electronic health record data. Concretely, BDA in healthcare has many potentials, such as the integration of health information to discover new patterns and helping doctors to discover diseases in early stages or accurately predict their trajectory [16]. Moreover, clinical data integration enabled by BDA

results in many benefits, such as improvement of health process efficiency and healthcare quality and reduced healthcare costs.
However, big data in healthcare also faces some challenges [16]:

- the idea of applying big data in healthcare is relatively young, so there is a lack of knowledge and experience in recognizing which data to use and how to use it;
- the lack of appropriate IT infrastructure;
- information processing without human supervision might lead to incorrect interpretations;
- technical challenges, such as integration of different kinds of data from a variety of sources, fragmented data and data inaccuracy;
- patient privacy concerns might arise due to data sharing between stakeholders.

These challenges are usually handled by implementing big data governance, developing an information sharing culture, employing security measures, and training key personnel to use BDA.

In [17], Wang and Hajli performed a study on 63 healthcare organizations to explore the relationship between BDA capabilities and business value. In a later research, Wang, Kung and Byrd grouped BDA derived benefits into five categories [18]:

1. IT infrastructure benefits;
2. operational benefits;
3. organizational benefits;
4. managerial benefits;
5. strategic benefits.

Their results show that operational benefits and IT infrastructure benefits from using BDA appear most often. In this case, operational benefits refer to improved quality and accuracy of clinical decisions, efficient processing of large number of health records, reducing the number of unnecessary treatments, etc., whereas IT infrastructure benefits include reduced system redundancy, avoiding unnecessary IT costs, quick data transfer between healthcare IT systems, etc. BDA is nowadays also used to improve Quality of Service in healthcare systems by gaining valuable insights into data quality [19].

3.3. BIG DATA IN GOVERNMENT AND PUBLIC SECTOR

Al Nuaimi et al. [20] considered big data use in smart cities, which is the concept that many governments are supporting. The use is mostly oriented towards big data storage and analytics with the idea of creation of big data communities that would collaborate and develop solutions for many areas of smart city (e.g. transport). The authors also provide several examples on national, government level: various risks assessments (e.g. terrorist attacks) based on big data, food and water availability based on climate change, government web sites with public data, etc. Authors also name challenges for smart cities, but they are applicable for country government as well:

- data sources and characteristics – various sources and data formats, unstructured data;
- data and information sharing – sharing among different departments (silos);
- data quality – various data sources are a cause of no standard storage formats, lack of structure and consistency, uncertainty and trustworthiness problems;
- security and privacy – confidential government and citizens information;
- cost – expensive implementation and testing of various systems;

- smart city (or country) population – population caused massive amount of data require intelligent applications able to quickly resolve issues that they generate.

According to authors, requirements for smart city design and implementation are [20]:
- big data management – architectures, policies, practices and procedures for management;
- big data processing platforms – capable of analysis with large processing capability;
- smart network infrastructure – connection of components and efficient transfer of collected data;
- advanced algorithms – specially developed for big data;
- open standard technology – flexibility for upgrading, maintaining and adding features;
- security and privacy – mechanisms for security and privacy as an integral part of design and implementation;
- citizen awareness – knowledge and participation in data gathering;
- government role – balance between benefits and privacy and insurance of openness, transparency, participation and collaboration.

Kim, Trimi and Chung [21] state that government datasets are in silos in departments, in various formats and forms, especially unstructured, and must deal with issues of privacy, authority and legitimacy. Many countries already initiated use of large amounts of big data and made them publicly available, but authors' research showed that:
- only small number of them can be named real big data applications, as they mostly share structured data, not real-time unstructured data;
- most of big data applications are in the citizen and business sectors, not government;
- most projects of big data applications in government sector are in early stage of development.

Authors propose several advices for better implementation of big data applications in government sector (e.g. big data project as national priority or establishing global collaboration with other governments).

Barkham, Bokhari and Saiz [22] investigate urban big data impact on real estate markets. The impact is mostly oriented towards lower property taxes, better neighborhood quality, more attractive city etc. As challenges, they name open data use and usability, privacy and technology and human capital constraints.

3.4. BIG DATA IN EDUCATION

In education, big data is used to keep track of students' grades, test scores, etc. Dayal mentions five significant impacts of big data on education [23]:
- it empowers better decision making – requires a know-how to analyze volumes of data and discover useful information;
- it improves students' performance and results – with the help of big data, it is possible to keep track of students' progress to encourage better results;
- it can produce accurate career predictions for students based on their grades and performance;
- collecting students' data can be used for mapping and creating customized study programs or encouraging creative learning;
- it can enhance the learning experience, and digital reading and course materials to make them more simple for students to understand.

West published a report in which he analyzed the potential improvements in research related to big data in education [24]. Specifically, he focuses on applying data mining to discover useful information, which can be used to gain insight into students' performance and learning approaches, data analytics to enable teachers to efficiently prepare for their classes in advance in more detail and nuance, and web dashboards and online tools, which enable the evaluation of students' actions, and how fast they can master the course material.

According to West and other researchers, the value of big data in education is in the ability to collect, store and analyze real-time data, use the collected data for predictive assessments, and visualize data to track performance.

However, big data faces some challenges in the education field as well. Some of the challenges of using big data in education are [25]:

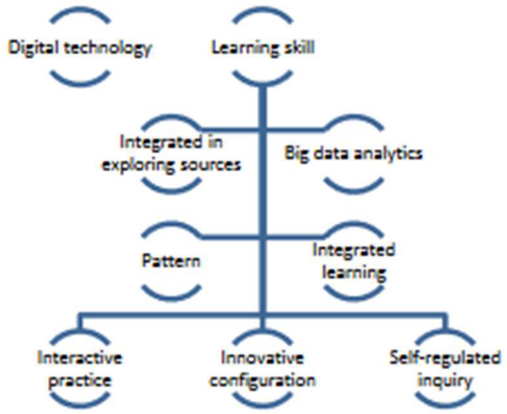
- IT infrastructure costs;
- data privacy and security issues;
- there is information of interest for educators, but difficult to measure in a quantifiable way (e.g., how well are the students learning to apply critical thinking skills);
- the discovered information may point to correlations, but not provide information about the causes (e.g., the information shows that students having classes outdoors are more creative, but that does not mean that studying outdoors automatically makes students more creative).

Poulovasillis [26] emphasizes Learning Analytics (LA) as a prominent area of big data application for improvement of learning process. Another important field is Educational Data Mining, which has the same goal as LA, but is more oriented towards automated discovery and personalization (human oriented). Regarding those two fields, authors argue that great impact can be made on successful use of Intelligent Tutoring Systems and Exploratory Learning Environments, but also state several challenges for big data in education:

- pedagogical – which information is useful to whom and in which learning context;
- technical – practically feasible and pedagogically meaningful methods for big data management process;
- socio-technical – effective use of information extracted from big data from all stakeholders;
- ethical – collection of individual data, privacy, information extraction from big data.

Huda et al. [27] performed a systematic review to find out the use of big data in Innovative Learning Environments (ILE). Authors concluded that it has potential to positively influence learning process mainly in online resources (e.g. personalized learning). They also proposed a big data approach for innovative learning design (Figure 2).

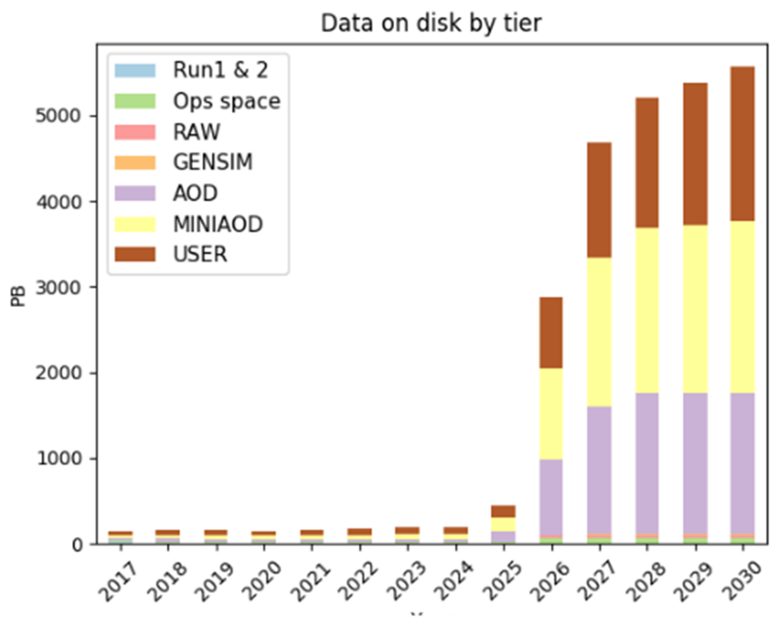
Figure 2. Design of Big Data Approach on Innovative Learning Environment (ILE) [27]



3.5. BIG DATA IN SCIENTIFIC RESEARCH

Nowadays, many scientific fields (astronomy, meteorology etc.) generate large volumes of data, thus making the process of scientific research and discovery data-intensive. Hence, during the system design process in these disciplines, much attention must be given to selecting an appropriate centralized storage and automated analysis approach.

Figure 3. The required estimated disk space for Compact Muon Solenoid (CMS) detector using the current computing model in the next 12 years [29]



Chen and Zhang [12] mention the problem of probing knowledge from data generated by scientific simulations, which is currently still unresolved. Additionally, there are many scientific fields and disciplines that require automated analysis of generated data, as well as a centralized storage repository for all researchers due to its excessive amount, which exceeds average amounts generated in, for instance, everyday Web applications. For example, through the experiments, the Large Hadron Collider (LHC) is able to generate 60 terabytes of data per day or more than 30 petabytes of data per year, and over 100 petabytes of data are archived permanently on tapes [28], whereas telescopes can record up to 30 trillion bytes of image data per day [12]. According to [29], the total LHC dataset is already almost 1 exabyte large, and around 30 times more data than the LHC currently produces will be collected by LHC detectors in the future (Figure 3).

4. CONCLUSION

Big data paradigm is nowadays applied in many domains of different background (social, technical etc.), where the application of big data brings both some challenges and benefits depending on the characteristics of each domain. The literature review and analysis of big data application in selected application domains in this paper indicates that most domains face similar challenges related to data privacy and security issues, costs generated by implementing big data solutions, difficulties related to finding the most appropriate technology solutions capable to handle requirements of the domain, and the lack of human experts capable of properly interpreting the results of big data analysis process.

A higher degree of difference in big data application between different domains exists when it comes to opportunities and potential benefits arising from its application on solving domain-specific challenges and problems. Also, this research has pointed to a growing importance of Big Data Analytics process for knowledge discovery, which will continue to grow in the years to come with the help of modern technological solutions.

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MULTICRITERIA DECISION-MAKING SOFTWARE APPLICATION IN HEALTH INFORMATION SYSTEMS RANKING: E-HEALTH PERSPECTIVE

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Abstract: *Health information systems represent a kind of information-technology platform for the electronic business of health organizations. By using health information systems, health organizations more effectively allocate their medical resources. By transferring real-time health information and diagnosing the condition of patients using virtual medical communities and mobile wireless body area networks, it comes all stakeholders networking of the healthcare organizations in charge of monitoring the health status of patients. All this leads to the creation of special kind of healthcare organizations electronic business, which is electronic healthcare. In order to reduce the costs of allocating medical resources, logistical costs and improving the provision of virtual medical services, each healthcare organization should choose an optimal health information system that matches its size, business mode and needs. Consequently, using the method of analytical hierarchical processes, through Bubble Chart Pro multi-criteria decision making software, health information systems in this paper will be ranked according to their most significant performance related to electronic health.*

Keywords: *e-health, health organizations, health information systems*

1. INTRODUCTION

The task of selecting an optimal information system has become, in modern conditions, very complex for several reasons. First of all, it is difficult to adequately assess which information system is optimal since there are many different information systems on the market. Furthermore, there may be a problem of mismatch between the existing hardware and the desired software solution. Also, the lack of technical knowledge and experience of decision-makers can present a problem. Another problem faced by decision-makers in modern conditions, when it comes to selecting an information system, is the rapid advancement of information technology.

The field of evaluation and selection of the information system has become the subject of many researchers' interests, since the process of selecting an adequate information system, that meets the specific needs of the institutions, is a complicated and time-consuming task, given the need to meet several criteria. Also, the choice will be different depending on the angle of view of the decision-makers, since not all interested users have the same goals (doctors are primarily interested in selecting a user-friendly system, nurses are interested in systems that allow easy entry and manipulation of data, economists want that the installed system will quickly recover

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the return of invested funds, while information experts are interested in the software tools of the system for supporting the electronic business of health organizations).

Choosing the wrong information system can not only represent an unjustified expense, but also negatively affect the business processes and functioning of the institution itself. Therefore, the main goal of this paper is to present one of the ways to evaluate health information systems using multi-criteria decision-making methods. Multi-criteria decision-making is the solution to the problem of choosing one of the more offered alternatives that are evaluated using multiple criteria's. Evaluation and selection of the information system can be considered as a problem of multi-criteria decision making, so multi-criteria methods can be used to solve them.

2. METHODOLOGY

Many methods for solving multi-criteria decision-making require clearly defined and expressed weight coefficients. Weight coefficients represent the importance of each attribute, that is, the contribution of each of the attributes to achieving the final goal. Therefore, assessment and assignment of weight coefficients plays a key role in the process of multi-criteria decision making and varies from decision-maker to decision-maker.

Weight coefficients should be consistent with the purpose of the analysis. Also, the weight coefficients themselves are useful information for those who are valorizing the solution of a specific problem solved by the methods of multi-criteria decision making, since they quantitatively show the preferences of the decision-maker.

Namely, the AHP method is used for multi-criteria analysis and making "correct" decisions in situations where it is necessary to decompose the problem into hierarchical sub-problems, and then analyze them independently of each other. [4] By determining the value and relative significance, based on the fundamental and primarily rational structured mathematical model, the potential alternatives are assigned the relative ability to solve the given problem, i.e. the desired goal of decision-making. Thus, the AHP method can usually be implemented: [6]

- Selection - selecting one alternative from a given set of alternatives based on the proposed criteria;
- Ranking - hierarchical setting of alternatives in relation to some reference and potentially expected alternative;
- Prioritization - defining the relative value of all parts of individual alternatives versus their ranking as a whole.

Weight coefficients should be consistent with the purpose of the analysis. Also, the weight coefficients themselves are useful information for those who are valorizing the solution of a specific problem solved by the methods of multi-criteria decision making, since they quantitatively show the preferences of the decision-maker. After searching the relevant literature and based on the knowledge and experience in this field, during the research, a set of criteria was selected, with the note that the subjectivity of the author is a limiting circumstance. During the survey, according to AHP (Analytical Hierarchical Process-Analytical Hierarchy Processes) and the software based on it Bubble Chart Pro, the following criteria for choosing the optimal electronic health software were used: [3]

- C1 - market share of e-health software (in%);
- C2 - total number of software users;
- C3 - total number of patients who can be processed;
- C4 - monthly maintenance fee (in Euros);

• C5 - the size of a health organization measured by the number of employees;
• C6- adoption rate: the rate of adoption of a software solution for e-health in a health organization (in%) - the weighted average of average grades (1-9) of the basic characteristics of software solutions for electronic health divided by the number of them and multiplied by the number 100.
• C7- Combined score: ranking software based on the total user rating for the following features (1-9): user-friendly, interface, satisfaction, comprehensibility, information exchange.[32]

Bearing in mind the fact that the subject of the evaluation of the health information system through a review of literature related to information systems, the application of the AHP method can be found in numerous works. The method of analytical hierarchical processes (AHP) was developed by Saaty in the early seventies of the last century. AHP is a tool in decision analysis, designed to help decision-makers in solving complex problems involving a large number of decision-makers as well as a number of criteria.

The AHP method rests on a well-defined mathematical structure that allows the determination of own vectors on the basis of which the exact or relatively accurate weight coefficients are generated. The method of analytical hierarchical processes compares the criteria, or alternatives taking into account the criteria, by couples. In addition, a checked numerical scale is used that represents individual preferences taking into account quantitative and qualitative attributes. In this way, individual preferences are transformed into a scale of relationships.

The essence of the method is to structure a complex decision-making problem that can contain multiple criteria, multiple alternatives, as well as a greater number of decision-makers at several hierarchical levels, determining the weight coefficients of the criteria and alternatives by levels, and thus forming the final order of the alternative. The modeling process requires four phases:

- Creating a hierarchical structure, that is, determining alternatives, criteria, and sub-criterion,
- Data collection using even comparisons to create a decision matrix,
- Estimating relative weights,
- Make a final decision.

The first phase involves explaining the problem of decision making. The problem is viewed as a hierarchy where the goal of the observed problem is at the top, while at lower levels there are criteria and possibly sub-criterion, depending on the complexity. At the lowest hierarchical levels, there are a number of alternatives that need to be evaluated.

The second phase of the AHP method involves data collection and comparison of pairs of hierarchical structure, both at a given level of hierarchy, and in relation to the criterion of a directly higher level. The essence of the pairing is to determine the preferences that the decision maker expresses to help Saaty's scale of relationship with 9 departments - Table 1.

[32] The value of this criterion was obtained on the basis of the conducted survey in the health centers of Niš and Leskovac, the Ministry of Health of the Republic of Serbia, while the values of this criterion for other health information systems were downloaded from http://www.capterra.com/electronic-medical-records-software/ #infographic, accessed 12.06.2017.

Table 1: Saaty's scale

Scales	Degrees of preference
1	Equally
3	Moderately
5	Strongly
7	Very strongly
9	Extremely
2, 4, 6, 8	Intermediate values between which represent compromise between previous values of importance

After completing this process, an appropriate matrix of comparisons is obtained which starts the third phase of the AHP method. The third phase of the AHP method consists in estimating relative weights. The comparison of pairs from the second phase results in a reciprocal n x n matrix A, where the elements are on the main diagonal, and the elements are calculated as the reciprocal values of the elements, that is, i, j = 1, 2, ..., n. As a result of this comparison, in the fourth phase, at the level of the criterion, the relative significance of each criterion can be determined, expressed through a weight coefficient. On the other hand, at the level of alternatives it is possible to determine the ranking of alternatives for each of the observed criteria, both partially and collectively.

2.1 BUBBLE CHART PRO: MULTICRITERIA DECISION- MAKING SOFTWARE

Bubble Chart Pro combines the power of colorful bubble charts with powerful business analytics so that it can prioritizes, optimizes, and visualizes project portfolio data. This multi-criteria decision-making software was designed to help managers make faster and better decisions in doing business. Bubble Chart Pro let managers quickly compare the relationships between business / project in critical business parameters such as cost, profit, and risk based on Analytic hierarchy process method. Thus, by visualizing project or business portfolios using Bubble Chart Pro™, managers can find clusters of relatively attractive projects in one area of the graph, such as areas of high value, low cost, and/or low risk, and compare them with relatively less attractive projects in a different area of the graph, such as an area of low value, high cost, and/or high risk. [2]

Bubble Chart Pro also includes a SMART project prioritization system for ranking projects and an easy-to-use optimizer for selecting best set of projects against multiple constraints such as limited capital, resources, time, and risk. The SMART (Simple Multi-Attribute Ranking Technique) project prioritization system that was developed to prioritize projects in a way that integrates all your key project data into a single value score so that it is understandable, robust, and rigorously defensible.

3. DISCUSSION AND RESULTS

In this paper, the AHP method will be used to determine the weight coefficients. In this case, the ideal solution is the point at which the utility for the decision maker is greatest, that is, the point in which the income attributes have the highest value, while the exponential attributes have the lowest value at the same time. Analytic hierarchy process (AHP) serves to solve complex problems such as choosing an optimal electronic health software alternative. [5]

Considering the conflicting nature of the goals that economic decision makers face, it is necessary to compare the alternatives in order to choose the optimal one. The AHP method is based on determining the relative importance of the selected criteria, or allocating relative weights using matrices. By using the Bubble Chart Pro software, it is possible to evaluate attribute and hierarchical representation of alternatives based on their mutual relationship. Using the relevant data (Table 2), the criteria are prioritized using the Saaty scale.

Table 2: Values of criterions for each electronic health software solution

Software for health information systems	Criterions						
	C_1	**C_2**	**C_3**	**C_4**	**C_5**	**C_6**	**C_7**
eClinicalWorks	10,3 %	850.000	115.000	250	50	3%	2,5
McKesson	3,1 %	200.000	40.000	100	50	3%	2,6
CureMD	1,9 %	232.623	47.186	295	30	4%	4
Practice Fusion	6,5 %	112.000	30.000	1	30	8%	3,83
All Scripts	8,2 %	180.000	10.000	1	20	6%	2,83
Heliant Health	0,001%	20.000	5.160	150	66	3%	7,26

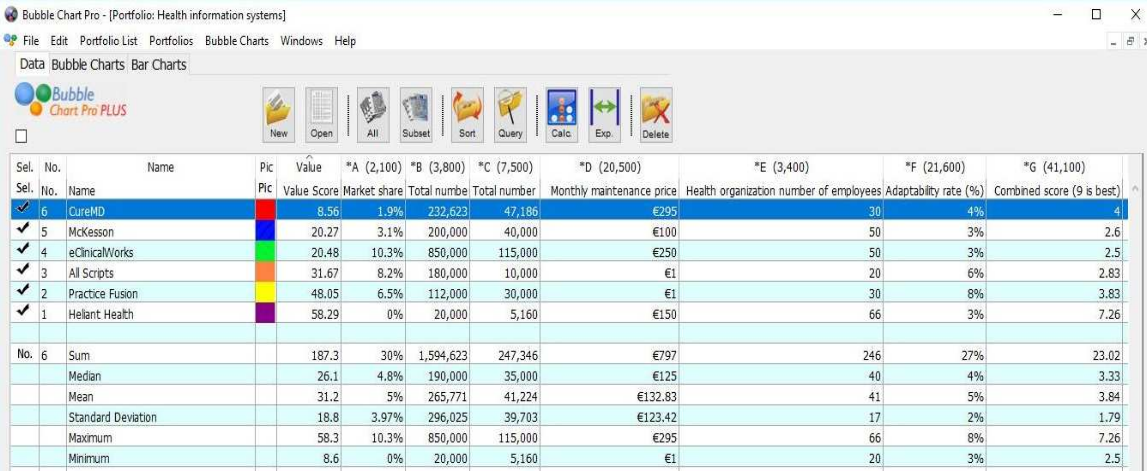
By entering the decision matrix data, the corresponding model, as well as the relative weight of each criterion, is defined for individual software solutions for electronic health (Table 3), after their mutual comparison according to given criteria.

Table 3: Weight coefficients for all analyzed electronic health softwares in this paper according to AHP

Software for health information systems	Weighted coefficients for each criterion for software solutions						
	C_1	**C_2**	**C_3**	**C_4**	**C_5**	**C_6**	**C_7**
eClinicalWorks	1,00	1,00	1,00	0,68	1,00	0,39	0,28
McKesson	0,13	0,25	0,28	0,67	1,00	0,39	0,35
CureMD	0,07	0,33	0,36	1,00	0,39	0,46	0,78
Practice Fusion	0,29	0,09	0,13	0,27	0,39	1,00	1,00
All Scripts	0,48	0,16	0,06	0,28	0,26	0,99	0,95
Heliant Health	0,51	0,48	0,07	0,65	0,88	0,50	0,69

For each of the criteria given in Table 3, Bubble Chart Pro calculated their relative weight and prioritized them. Based on the budget, it is seen that the combined rate (C7) criterion has the highest priority in selecting an optimal software alternative, with a value of 0.411. It is important to emphasize that for analytical hierarchical processes, the validity of the model is assessed on the basis of an index of inconsistency, the value of which should not exceed 0.1. Based on Fig. 1, it can be seen that the value of the index of inconsistency for the observed model is 0.1, which indicates the correct choice of criteria and their mutual relationship according to Saaty's scale with respect to the law of transitivity (a> b and b> c then and a> c).[33]

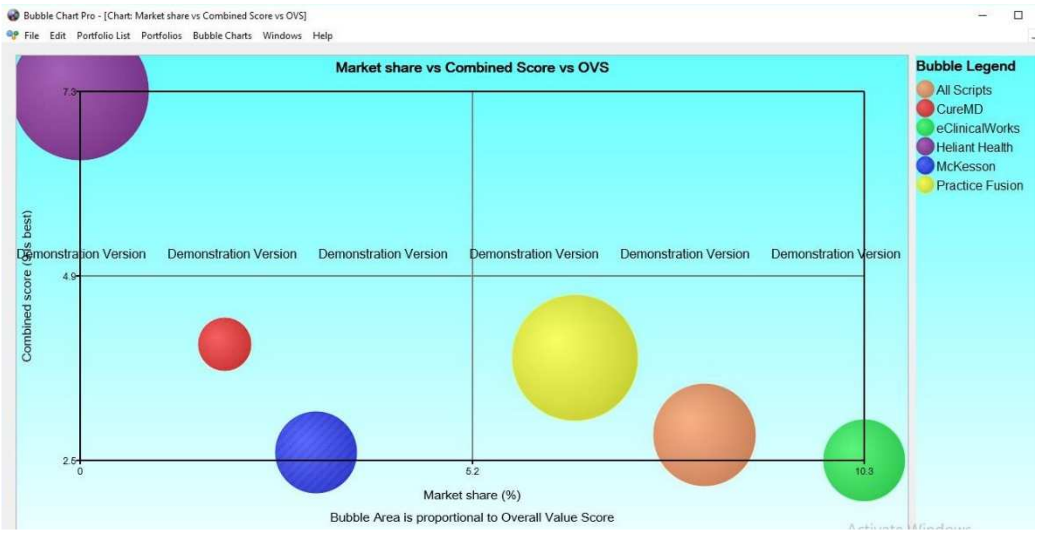
Figure 1: Bubble Chart Pro calculated weights for electronic health software alternatives



Sel.	No.	Name	Pic	Value Score	*A (2,100) Market share	*B (3,800) Total numbe	*C (7,500) Total number	*D (20,500) Monthly maintenance price	*E (3,400) Health organization number of employees	*F (21,600) Adaptability rate (%)	*G (41,100) Combined score (9 is best)
✓	6	CureMD		8.56	1.9%	232,623	47,186	€295	30	4%	4
✓	5	McKesson		20.27	3.1%	200,000	40,000	€100	50	3%	2.6
✓	4	eClinicalWorks		20.48	10.3%	850,000	115,000	€250	50	3%	2.5
✓	3	All Scripts		31.67	8.2%	180,000	10,000	€1	20	6%	2.83
✓	2	Practice Fusion		48.05	6.5%	112,000	30,000	€1	30	8%	3.83
✓	1	Heliant Health		58.29	0%	20,000	5,160	€150	66	3%	7.26
No.	6	Sum		187.3	30%	1,594,623	247,346	€797	246	27%	23.02
		Median		26.1	4.8%	190,000	35,000	€125	40	4%	3.33
		Mean		31.2	5%	265,771	41,224	€132.83	41	5%	3.84
		Standard Deviation		18.8	3.97%	296,025	39,703	€123.42	17	2%	1.79
		Maximum		58.3	10.3%	850,000	115,000	€295	66	8%	7.26
		Minimum		8.6	0%	20,000	5,160	€1	20	3%	2.5

In order to choose the optimal alternative of electronic health software solutions Bubble Chart Pro has created bubble graphs in three dimensions, which show us the actual relationship of above mentioned group of analyzed softwares. Namely, on the Figure 2 we could see relationships of those softwares using criteria's such as market share and combined score, which are analyzed in context of Overall Value Score (OVS) as third dimension. In this view of mentioned bubble chart, chart area is bounded by the highest and lowest electronic health software criteria values and divided in four quadrants. This allows us to identify the most attractive and the least attractive areas. In this chart, as the most attractive area for market share criteria is the fourth quadrant, where eClinicalWorks has the best value (green bubble), but the most attractive area for the combined score criteria is the second quadrant (upper left), where Heliant Health has the best position on this chart (violet bubble).

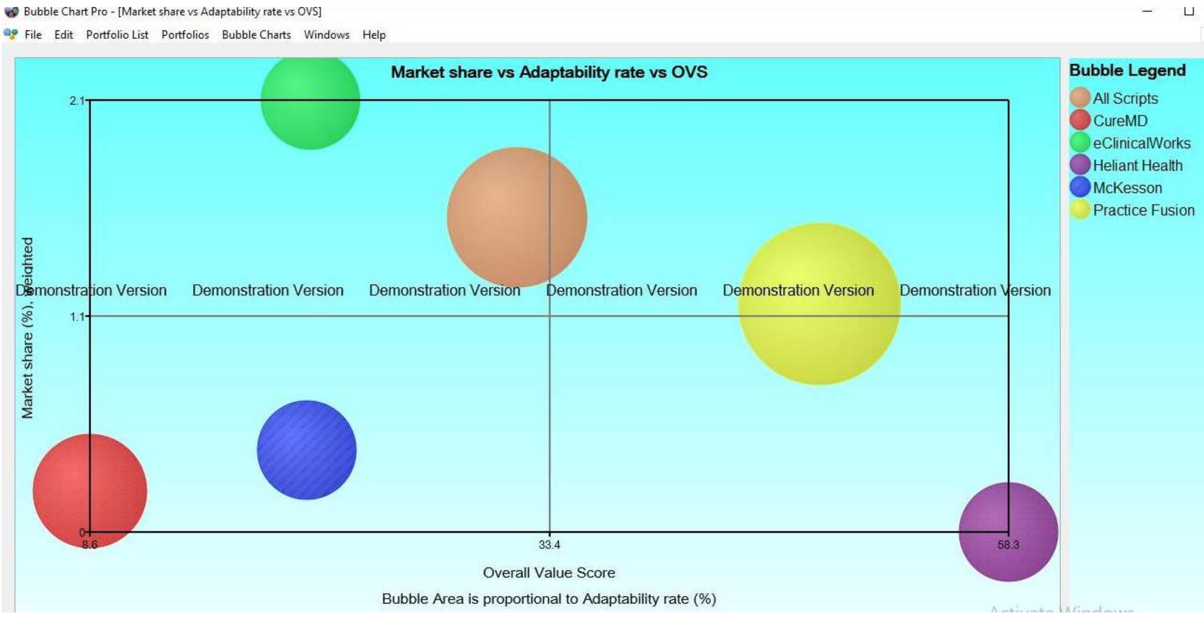
Figure 2: Relationships of electronic health softwares using criteria's such as market share and combined score



33 According to consistency index formula: CI= (ʎmax-n)/(n-1), where ʎmax represents the average value of weighted coefficients sum of criterions divided by their number

On the Figure 3, as the most attractive area for market share criteria is the second (upper left) quadrant, where eClinicalWorks has the best value (green bubble), but the most attractive and optimal area for the adaptability rate criteria is the border between first and fourth (right down) quadrant, where Practice Fusion has the best position on this chart (yellow bubble).

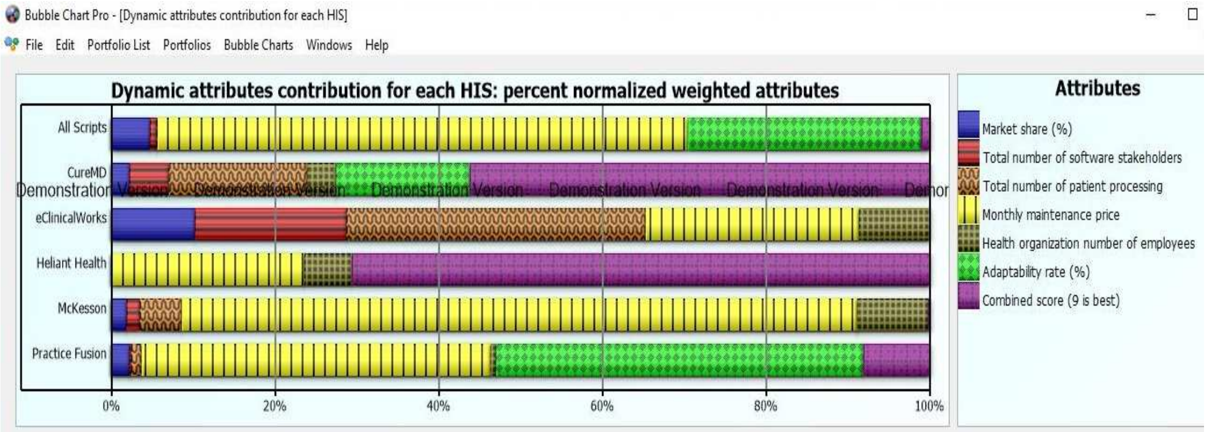
Figure 3: Relationships of electronic health softwares using criteria's such as market share and adaptability rate



Dynamic attributes contribution, as a result of dynamic sensitivity analysis in Bubble Chart Pro, represents the percent of contribution for each criteria in the dynamic criteria structure of electronic health softwares. This graph (Figure 4) give decision makers more detailed structure of ranked softwares and more sensitivity, for choosing the optimal software alternative and therefore its implementation into the health organization information system:

– McKesson alternative has the significant percent contribution for the monthly maintenance price, and it is not the best and cost- effective solution.
– All Scripts has the well balanced contribution of criteria's such as adaptability rate and maintenance monthly price.
– CureMD alternative has the most significant contribution in combined score.
– eClinicalWorks has the most significant percentage contribution in total number of patient processing and stakeholders, and also has the best market share.
– Healiant Health has the best combined score contribution in the dynamic software structure, but very high price of maintenance.
– Practice Fusion has the best relationship between combined score and adaptability rate.

Figure 4: Dynamic percentage contribution of each criterion in optimal electronic health software structure



4. CONCLUSION

Health information systems and electronic health care as an integral part represent a major important information and technology opportunity for the health sector, which is facilitated by the rationalization of the costs of providing health services and improving the efficiency and quality of the complete healthcare system. Internet-based e-submission of healthcare organizations faces numerous challenges when spending optimization costs and raising the level of interoperability of healthcare organizations by using software solutions for health information systems. The evolution of health information systems is becoming a modernization of the provision of health services in real time, with shortening of time interventions and reducing the risk of negative outcomes.

Health information systems enable equal allocation of medical resources to the targeted priority population of patients, while striving for the rational exploitation capacity of health organizations. This refers primarily to the function of monitoring the flow of patients from the country of the health information system in order to avoid unnecessary endangering the capacity of the hospital users.

Because of those reasons, multi-criteria decision-making softwares play the significant role helping health organizations managers and medical stuff to make the optimal decision, especially in choosing the right electronic health software alternative. As we can see in analysis, the optimal electronic health softwares are those which have low price of maintenance, user-friendly interface, great scalability and low redundancy rate of medical data, which means the great combination of adaptability and combined score such as Practise Fusion software.

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APPLICATION OF INFORMATION COMMUNICATION TECHNOLOGY IN THE WORK OF JUDICIAL AUTHORITIES

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Abstract: *In order to improve the efficiency, accountability and transparency of the work of judicial authorities and the establishment of a modern and user-friendly system of judiciary, it is necessary to build contemporary information systems with the needs of the judiciary. The unique information system applied in the judicial system enables: optimizing human resources; rationalization of financial resources; automating and reducing, as far as possible, the impact of the human factor on the efficiency of the work of judicial authorities; reducing paper documentation and introducing e-data and their electronic exchange between judicial authorities and other state institutions.*
An ever growing trend in the development of the information and communication technology system leads to its penetration into numerous systems and pores, and thus in the legal system, and imposes the needs of an adequate strategy and reform of the judicial system followed by the introduction of the electronic - cyber court.

Keywords: *information communication technologies, justice system, e-justice system, strategy, cyber court*

Introduction

The judicial system is continuously being harmonized with the needs of society and organization of work in accordance with contemporary trends and globalization. The development of information and communication technologies is unbearable in the legal system and imposes the need for changes in its functioning. Nevertheless, the system of judiciary largely lags behind in the application of modern information and communication technologies in relation to other activities. The application of modern ICTs would be accompanied by an increase in efficiency by reducing costs and satisfying the users of court services. The application of video technologies in the judiciary system would contribute to more efficient work. Accessibility to the global network would allow video meetings of spatially distant parties (the accused, the judge, the lawyer, etc.) and make the court processes much cheaper than the classic way of their work. The electronic - cyber court is the basis of the model of the work of the future judicial system. Due to the many benefits of new technologies, more and more application of scientific achievements in the work of the judiciary is expected, accelerated development and wider representation of information and communication technologies.

Information and Communication Technologies (hereinafter: ICT) revolutionized the way of life, learning, work and entertainment in just one human generation. ICTs increasingly transform the way people, businesses and public institutions interact.

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Total changes in all aspects of the society that are enabled by the use of ICT make the development of the information society.

The aim of the paper is to point to the importance of increasing efficiency and economy in the work of judicial authorities that enable contemporary ICTs to its benefits.

Electronic cyber court and cyber courtroom

Electronic - cyber court includes virtual courtrooms, online dispute resolution, electronic document submission and video conferencing. It enables the involvement of mediators and judges who have the skills, experience and knowledge in making urgent and complex decisions. The cyber court contributes to the faster, easier and cheaper solution of court proceedings.

The electronic courtroom, equipped with adequate video conferencing equipment, allows the judge, witness and accused person who is spatially dislocated to communicate and "live in a virtual space". By 2020, citizens will be able to do all the contacts with the administrative bodies, the holders of public powers, the courts and the health care system, except those contacts which in their nature require a physical presence, without leaving their apartment or workplace.

A virtual courtroom allows the indicted to be indirectly present at the video trial. In the courtroom, the Prosecutor's Office and, possibly, the accused' attorney are directly present, with the attorney being able to attend the trial and from the police station or detention where his client is located. This possibility is hampered by laws and regulations in Serbia, as well as in many other countries that allow video evidence testimony only in case of justified prevention of presence in the courtroom itself, as well as for security reasons. It is necessary to change them in order to save time and financial resources. The amendment would also refer to the recording of the trial process on the compact disc, which would exclude the recruiters' engagement. The process would start by filing a lawsuit and paying the fee electronically, then by determining the location of the cyber trial (location determined by the court). The cyber court, in accordance with the law in individual cases, can be open type so that interested parties can follow the court process through a video link.

The use of ICT reduces with the duration of court proceedings. It is also necessary to establish a system that is easy to handle in order to overcome the classic way of collecting, classifying, storing and downloading documents of a court process, for which only one person is in charge. Such a system would enable judges and interested parties to have regular access to court documents, and the real-time transcript would allow monitoring of the entire course in the trial, as opposed to the classic way of monitoring the trial in which the record is kept and every spoken word is recorded. At the end of the day the transcript would be indexed and added to the court database, which would make it easy to search.

The introduction of a virtual courtroom in court does not require big money investments in hardware and software from the parties. Each virtual courtroom should have a local network connected to the Internet and equipped with a computer system for support, presentation and transcript of documents, a sophisticated audio-visual system and video conferencing.

The creators of the first Australian virtual courtroom, Auscript and Counsel's Chambers Limited, are hoping that the classic courtroom will be replaced by modern cyber courtrooms.

Legal changes

In order to apply ICT in the judicial system, legislative changes are needed to allow information in electronic form to be treated as evidence and documents can be electronically signed. Online security can affect the integrity of judicial documents. On the other hand, this would allow public access to court documents in contrast to court documents obtained in paper form or raised at court counters, which can also be obtained electronically on a device similar to a banking ATM device operating in the new conditions. Queries can be posed from a number of legal areas such as: alternative dispute resolution, execution of judgments, housing and occupancy rights, divorce and other minor issues. The dialog starts with the list of legal areas on the device monitor. After selecting the desired area, the device sets up queries to which the user responds by simply typing the keyboard response. When a user collects all the necessary information, the document can be printed out, and the instructions received along with the documents indicate the activities that should continue to be performed. Some documents have to be certified by the court, some have to be submitted to court, some should only be excavated, while some documents can only serve as a guide.

Privacy

Public authorities must take into account the interest of the private person and the public interest, which will lead to the censoring of certain private or personal data. This would solve the problem of conflict between the public and the individual between the right of the public to obtain court information and the rights of every individual to maintain and protect their privacy. The process of designing and implementing an efficient electronic justice system involves the participation of all actors in the process (defendants, police officers, trial reporters, lawyers, staff responsible for maintenance of technical equipment, witnesses, etc.) from the very beginning of the process. In order to design a quality system, it is necessary to fully understand the problems of all participants in the trial, to solve it, and thus to improve the trial process.

In order to design an adequate system and the quality application of video conferencing in the courtroom, it is necessary to: apply research methods such as interviews and discussions in order to reveal attitudes; to form a personal profile of persons of different groups in order to meet the needs of stakeholders; conduct a flow analysis, which creates a visual representation of information or activities that include a day in the court, involving the defendant, lawyers, case history, records, and more. The flow analysis can then be used to identify so-called "bottlenecks" and find alternatives to achieve the same goals, but in a different way. Particular attention can be focused on activities that take place wrongly. It is then necessary to analyze the functioning of courtrooms throughout history, but also in the future, by focusing attention on social, cultural and technological trends over time, which will affect the future in their development. These advantages point to the necessity of implementing new technologies in the existing court practice and creation of a court of the twenty-first century with new visions. In order to achieve these goals, special attention should be paid to the modernization of the judiciary, the selection of high-quality video conferencing equipment and the engagement of experts in the field whose task would be to determine important viewing angles, screen positions, cameras, microphones, speakers.

Electronic complaints and archiving

The basics of cyber courtroom can be seen through analysis of electronic complaints and archiving. ICT development and computerization involves the transfer of classic documents into electronic form. The advantage of electronic submission of documents to courts and stakeholders saves time; reduces the cost of using paper; reduces travel expenses; eliminates duplication of data and ensures the reliability of their storage; enables the continuous submission of documents, not only during the working hours and on the working days of certain authorities. The advantage is a digital signature that guarantees the integrity of the document. Potential theft of electronic documents is beyond the provision of copies in the court database that is updated at regular intervals. Disadvantages of working with electronic documents are: interrupting data flows and entering the electronic court system; the inability of all persons to submit a document in electronic form (solution: submitting a document on paper that can be scanned and transferred in an appropriate electronic form).

In spite of all the benefits of the modernized judiciary, the defendants' lawyers generally consider that they can best communicate with prosecutors, witnesses, judges and the client live - in the courtroom. The problem with virtual courtrooms is the difficulty in cross-examination through video technology. Court interpreters do not match modern technology due to lack of contact with defendants. Unfairly for prisoners is "abolishing" their "day in court". It should be emphasized that one of the main obstacles to faster and more successful adaptation to technological innovations in many countries is the legislative system of civil law, where the most important preconditions for the validity of paper and the physical signature of the documents are. Cultural change and change in people's awareness are essential factors that are necessary for the successful introduction of ICT into the judicial system.

Application of ICT in the judiciary of Serbia

The development of the information society should be directed towards the utilization of ICT potentials for increasing labor efficiency, economic growth, higher employment and improving the quality of life of all citizens of the Republic of Serbia. The development engine of the information society consists of: - open, all accessible and high-quality Internet access; - developed e-commerce, including: e-government, e-commerce, e-justice, e-health and e-education.

The insufficiently regulated state of justice in Serbia is an ideal ground for the implementation of ICT, especially video technology. Even simple judicial processes are inadmissibly long lasting, often the processes are prolonged for two to three decades, and some never end. It is present with the lack of verified interpreters of certain languages, which leads to the statute of limitation after ten years of prolonging the courts. Failures of such a judiciary, as well as the entire state order, incompetence, lack of interest and lack of information of judges, even corruption, but also exerting pressure on judges from various parties imposes the need for a radical reform of the judiciary. Serbia looks at computerization among the last countries in the region, but cyber courtrooms or virtual courts in Serbia are still far from reality. Bearing in mind the poor situation in the Serbian judiciary, it is unrealistic to expect its modernization in the near future. In 2006, the Government adopted the Information Society Development Strategy in the Republic of Serbia ("Official Gazette of the Republic of Serbia" No. 87/06), which completely regulates the area of information society.

Two specially equipped courtrooms were opened in the District Court in Belgrade for the needs of the Department of High-Tech Crime, renovated with funds provided by the Ministry of Justice of Serbia. Renovation and equipping of courtrooms cost about 16 million dinars. Courts 3 and 4 are equipped with modern electronic equipment and a video link with the District Court building and there is a room for directing. The courtrooms also have cabins for protected witnesses with the technical possibility of distortion of image and sound, as well as cabins for translators and journalists.

e-Pravda provides a complete integrated system that supports the basic processes and operational activities of the judiciary and provides the basis for measuring the results of work according to standards to be established with indicators that the judiciary will only define to measure the achieved degree of reform goals (independence, transparency, accountability and efficiency). ICT infrastructure will enable the connection of all judicial authorities and other state bodies, which will enable the daily updating of data on judicial cases and efficient exchange of information and electronic documents of participants in the e-Pravda system and the environment, in accordance with the law.

Unique judiciary ICT system

The judicial information system was conceptually conceived as a unique information system that would cover the needs and key business processes of the Ministry of Justice, courts, the State Prosecution Office and the Penal Enforcement Bureau. The ISP implies the integration of the information systems of each individual organizational unit in a way to comply with all legal procedures and regulations defining the activities, competencies and responsibilities of these organizational units. Such a unique system should ensure the centralization and efficient organization of data without redundant and repeated data, to define data entry standards, generate reports and records, and transparent structure of process and data flows within, and between, institutions that would allow for further upgrading and improvement of the judicial system. The functionality of the information system should provide automation of business within the organizational units of the judicial system in such a way that all processes are implemented using appropriate subsystems of the information system, including data entry, input of complete documents, recording of all changes during the implementation of procedures in the daily activity of organizational units, simple search documentation in electronic form, efficient generation of reports from the system according to various set parameters. Such a system should also ensure the integrity of data, documents, objects, and files that are updated and used within the system. Shared data usage and unique input increase work efficiency, reduce the time frame of the procedures envisaged, the costs of printing and sending documentation, and the ability to produce various analytical and statistical reports based on data entered in the information system. Finally, the true dimension of a single information system can be seen in the ability to control the efficiency and quality of operation of all units within a single information system through automatic generation of reports, making comparative analyzes. Applying these measures indirectly affects the increase of the responsibility of the holders of judicial functions and other employees in the judicial sector. The goal of introducing a single information system is to optimize time resources, streamline financial and human resources, automate procedures and neutralize as much as possible the impact of human factors on efficiency, then to avoid as much as possible paperwork, enable electronic data exchange and documents between judicial institutions and other state and international institutions. The development and implementation of a single information system must also enable greater transparency of the work of judicial institutions and easier access to justice, through the availability of electronic and multimedia channels of communication with citizens and the general public.

Conclusion

The inevitable conclusion is that the legal world is far behind the business world regarding the application of modern technologies. One of the reasons is that the business world fully recognizes and uses the advantages of electronic storage and information sharing. Cultural change and change in people's awareness are essential factors that are necessary for the successful introduction of ICT into the judicial system. There is still a certain amount of resistance to the introduction of modern technologies into court processes, often behind the rejection of everything that is naturally hindered by unwillingness to personalize and master advanced technologies.

Before the judiciary, it is imperative to accept new technologies in order to solve a number of accumulated problems that should be singled out: a constant increase in the number of cases, the complexity of the case, jurisdiction, limited resources, pressure for improved access to justice and the necessity of raising the level of efficiency of the judicial administration. In the time of the judges' for a certain period, in addition to high expertise, judges will have to master the skills in the application of modern technologies in the administration of justice. The Internet provides the judiciary with a wide range of options and its application can help both the preparation of the trial.

In practical application, cyber courtroom benefits are manifested through the reduction of delays in the process, raising the level of security (it is easier to keep inmates in prisons than in transport), better experience for prisoners (especially those who do not like transport), improving cross-border legal cooperation and other. It is to be expected that the pace of innovation of the judiciary will accelerate and that cyber courtrooms will give full contribution to more efficient and more economical work. The development of electronic courtrooms in the world should be a guide to the Serbian judiciary primarily in overcoming inertia, which is recognizable beyond the borders of the country, as well as in raising the quality of services. The process of modernizing the judiciary is inextricably linked to social and cultural heritage. As changes are needed in these areas, patience and perseverance in the innovation of the judiciary is implied. The Internet with a number of its services makes it possible to relieve courts and increase their efficiency. The Internet can be used at all stages of the court proceedings, from electronic submission of documents, through the trial itself and virtual courtrooms, to the final court decision. Finally, modern technologies have opened many doors; it's just a matter of how and in what way all these opportunities will be used in the judiciary. The application of modern information technologies, standardized software and a unified system for the management of cases in the judiciary are necessary in order to efficiently implement the key principles of effective justice: independence, transparency, accountability and efficiency.

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Zakon o elektronskom dokumentu ("Službeni glasnik RS", broj 51/09) koji uređuje upotrebu elektronskog dokumenta, kao i vremenski žig.

Zakon o elektronskom potpisu ("Službeni glasnik RS", broj 135/04) koji implementira EU propise koji uređuju elektronski potpis.

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BASIC OBLIGATIONS OF THE SERVICE PROVIDER

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Abstract: *The question of determining the obligations of the service provider has great social, economic and legal significance. Service provider is the main provider of the service contract. Service contract is one of the most numerous contracts in practice. There is a general service contract for the provision of all services and a number of special service contracts for the provision of different special types of services. New special service contracts are being developed on a daily basis (for example, medical, information, financial services). They are more or less independent of the general service contract. There are a number of problems with service contracts. The first problem is non-existence of a developed definition of these contracts. Another problem is that it is difficult to determine which contracts are service contracts. The key problem is the lack of legal regulation in European countries for general and specific service contracts. Absence of legal regulation of rights and obligations of contracting parties (the service provider and the client), can lead to great differences in content of these contracts in practice, and can lead to the abuse of rights.*

Due to the mentioned problems, the aim of this paper is to systematize the basic obligations of the service provider of the general service contract. The basic obligations of the service provider are: a pre-contractual duty to warn, obligation to perform a particular service, obligations regarding the transfer of the service (subcontracting), obligation of skill and care, obligation to achieve results, contractual obligation to warn the client, obligation to comply with client's directions, obligation to transfer results, obligation to accept a unilateral contract change. This paper is based on the analysis of the law of European countries. In this paper, as the main source DCFR was used.[37]

Keywords: *obligations of the service provider, service provider, service contract, providing service, service*

INTRODUCTION

Next to the sales contract, the service contract takes a significant place. This contract is often concluded in various areas, such as medicine, information technology, agriculture, tourism, construction, sports, culture, art, financial sector. It is one of the basics of the economic system. At the same time, it is a classic and a modern contract. Continuous development of services leads to the development of the object of the contract. This also affects the determination of the rights and obligations of the contracting parties. Almost all business people, even those who sell, are engaged in providing some type of service. It is not possible to list all types of services. Examples for the classical services are design, building (construction), processing of goods, informational and advisory services, and for the modern services are web development, various medical treatment services. Specific legal rules have been developed for some specific services (construction, financial services and others). For

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[37] Principles, Definitions and Model Rules of European Private Law - DCFR: Draft Common Frame of Reference, *prepared by the Study Group on a European Civil Code and the Research Group on EC Private Law*, Book IV, *Specific contracts and the rights and obligations arising from them*, Part C, *Services*, Munich, 2009.

other services, the rules of the general service contract apply. **The provision of services is to provide the client with material and non-material benefits through the performance of intellectual and physical work**. The person providing the service is called the service provider. For the provided service, he is entitled to a fee from the client. The successful determination of the basic obligations of the service provider is the key to understand this contract. This is the basis for the successful functioning of the traditional and modern service sector. Special obligations are characteristic of specific service contracts.

1. BASIC LEGAL ISSUES OF THE GENERAL SERVICE CONTRACT

General service contract (shortened: service contract) is a contract by which one contracting party, the service provider, commits to perform a particular service, while the other contracting party, the client, is obliged to pay the price of the service. The client is usually a user of the contracted service, but the user of the service (recipient of the service) may be a third party. Although a special form is usually not required for the conclusion of a contract, in practice, this contract is often concluded in written form. Service providers are economic entities engaged in the provision of services for compensation. Clients are other business entities or citizens. The service can be precisely contracted or the contract may contain elements on the basis of which the service can be determined. To determine the service of major importance are the general terms and conditions of the service provider. Unless otherwise agreed, the client is obliged to pay the compensation and when the compensation is not contracted. In such a situation, compensation is determined on the basis of the general terms and conditions of the service provider and based on the customs. Services of any type may be the subject matter of service contracts. The service may consist of one or more actions. It can be intellectual and physical work. It is important that actions are possible and that actions are not prohibited by law. The service may be provided on a one-time basis or may be provided within a specified period of time.

By its legal nature, this is a special (*sui generis)* contract of commercial law. It is a general contract with numerous subtypes. The legal norms governing this contract are of a general nature and they are applied whenever there are no specific legal norms for the subtypes of this contract. Subtypes (special service contracts) of this contract for example are contracts for construction, processing, storage, design, information or advice, treatment, transport, insurance, financial service, servicing. There are different approaches in terms of legal regulations across countries. In some countries in Europe, this contract is not at all regulated specifically. In some of them there is a similar contract that has a different name and may have some differences.[38] In countries that know this contract explicitly, there are differences in the definition of a contract, in terms of the legal norms that regulate it, in subtypes and other differences. Contracts on financial services and insurance contracts are often considered to be separate (*sui generis*) commercial law contracts.[39] Similar is the situation with the employment contract. What distinguishes these independent contracts is the lower autonomy of the will of the contracting parties. Sometimes it is very difficult to determine whether a particular contract is a service contract, considering the existence of many mixed contracts in practice. Contemporary contracts if they can`t be subsumed under other traditional contracts such as sales, lease, loan, will most often be a subtype of service contracts. This contract can be concluded as a stand-alone contract or it can be contained as independent agreement in one act with another contract

[38] *For example see Articles 600 and 749 of the Serbian Law on Obligations*; Закон о облигационим односима, „Сл. лист СФРЈ" бр. 29/78, 39/85, 45/89, 57/89, „Сл. Лист СРЈ" бр. 31/93

[39] DCFR, IV.C. - 1:102: Exclusions

eg. with sales. The following definitions can be taken as examples of defining the term of this contract.

This is a contract under which one party, the service provider, undertakes to supply a service to the other party, the client, in exchange for a price, or otherwise than in exchange for a price.[40] Because of the lack of legal regulation of this contract, a very important source of knowledge and law is DCFR. In a service contract, a person who promises service is obliged to perform the services promised, and the other party is obliged to grant the agreed remuneration.[41] Similar definitions are contained in other legal sources.[42] The fact is that legal sources often remain almost just on the definition of a contract. In the contract (Service Level Agreement-SLA) rights and obligations are established between the service provider and the client.[43]

2. BASIC OBLIGATIONS OF THE SERVICE PROVIDER

2.1. Initial Consideration

Rights and obligations of the contracting parties of service contract are divided into general and special. Special rights and obligations are contained in the subtypes of this contract. General (basic) rights and obligations are contained in the general service contract legal norms (state legislature, customs) or derive from specific legal norms for special service contracts. Under this contract, the rights of each party correspond to the obligations of the other party. Due to the scope of this paper, further general obligations of the service provider will be analyzed, with a necessary reference to some special rights and obligations. The basic obligations of the service provider are: a pre-contractual duty to warn, obligation to perform a particular service, obligations regarding the transfer of the service (subcontracting), obligation of skill and care, obligation to achieve results, contractual obligation to warn the client, obligation to comply with client`s directions, obligation to transfer results, obligation to accept a unilateral contract change. In addition to these obligations, there are some others as well: obligation to allow client control, returning things given to use, submission of supporting documentation and others. Modern technologies create other modern obligations (first of all, IT services, medical services).

2.2. Pre Contractual Duty to Warn

The service provider is under a pre-contractual duty to warn the client if the service provider becomes aware of a risk that the service requested: may not achieve the result stated or envisaged by the client; may damage other interests of the client; may become more expensive or take more time than reasonably expected by the client.

This obligation is a pre-contractual obligation, which means that the service provider is obliged to notify the client until the contract is formed (more at: Contractual Obligation to Warn). Pre-contactual information duties are one of the hallmarks of modern EU consumer law.[44] Notification obligation exists when the service provider becomes aware of mentioned risks. This is a subjective criterion. The service provider is presumed to be aware of the risks

[40] DCFR, IV.C. - 1:101: Scope, paragraph (1)
[41] Deutsch Bürgerliches Gesetzbuch (BGB) vom 18.08.1896. (www.juris.de), Article 611
[42] Kodex des Österreichischen Rechts-Lexis Nexis, Allgemeines Bürgerliches Gesetzbuch (ABGB), Wien 2015, Article 1151
[43] M. H. Gillespie, J. R. Matthews, *Handbuch Service Provider*, Weinheim 2002, pp. 179.
[44] R. Schulze, J. Stuyck, *Towards a European Contract Law*, Munich 2011, pp. 49.

mentioned if they should be obvious from all the facts and circumstances known to the service provider, considering the information which the service provider must collect about the result stated or envisaged by the client and the circumstances in which the service is to be carried out.[45] This is an objective criterion. Risk always exist, so that the service provider is obliged to notify only the most important risks. Service provider can (doesn`t have) to notify the client about the risks, if the client already knows of the risks or could reasonably be expected to know of them. The client can`t reasonably be expected to know of a risk merely because the client was competent, or was advised by others who were competent, in the relevant field, unless such other person acted as the agent of the client.

The information about risk given to the client must be clear and sufficient in accordance with the circumstances of the case. If the contract is concluded in writing, the obligation to notify should be given in writing. After giving notice, a reasonable time should be left to the client to make a declaration about the conclusion of the contract.

The service provider is obliged to inform about three types of risks. The first are the risks, due to which the service can`t achieve two types of results; stated or envisaged by the client. When the service provider is obliged to perform the results envisaged by the client, is a factual question. A clear situation is when the parties are in long-term business relationships, because then the service provider better know the business intentions of the client. The second are the risks that the service requested may damage other interests of the client. Other interests are the business interests of the client, to whom provided service can cause unusual damage. For example, when the provision of the service causes a necessary termination of the clients work in a longer period of time. Usually, this does not apply to indirect damage, for example, for a cheaper price of service of other service providers. The third are the risks that the service requested may become more expensive or take more time than reasonably expected by the client. In this situation the price of the service is not defined as a fixed price, but it is calculated on the basis of the factors for example working hours, price of materials, etc. If the service provider does not inform the client of the specified risks, he will be late with other obligations or will not properly fulfill other obligations.

From the rule of equality of parties arises, the client's obligation to warn. The client is under a pre-contractual duty to warn the service provider if the client becomes aware of unusual facts which are likely to cause the service to become more expensive or time-consuming than expected by the service provider or to cause any danger to the service provider or others when performing the service.

2.3. Obligation to Perform a Particular Service

From the definition of a contract, the main obligation of the service provider arises. It is the obligation to perform a particular service. The service must be performed in a manner, on time and in the place as agreed. It is best to arrange all these questions in detail. In the absence of contractual rules, formal legal sources are applied. For determining the time and place of service, cash and non-cash obligations are distinguished. These contracts are often concluded by contracting parties from different countries. Then the question of legal sources is further complicated. Modern services, are often complex services. It is not enough to determine them by name, but they need to be described. General terms of service of service providers can often

[45] DCFR, IV.C. - 2:102: Pre-contractual duties to warn, paragraph (6)

be interpreted in many ways. Clients, are often with their content introduced only in the event of a dispute. Abuse of the right is prohibited during the execution of the service.

When performing the service, the service provider should take into account the best interests of the client and to cooperate with him. This basic obligation is concretized with the obligation of skill and care. For this and other obligations, some other special rules may have an advantage in the application (Mandate, special services, and similarly). Some services are characterized by other specific obligations. Such are financial services (for example bank secret). To enable the service provider to perform the obligations under the contract, the client is obliged to cooperate, for example to give information, directions, materials.

2.4. Subcontracting

The service provider may subcontract the performance of the service without the client's consent. This may relate to the service in whole or in part. The service can be performed by one or more other persons. When a personal performance is required by the contract, the service provider needs the consent of the client. Assuming this is an *inter parties* contract, but may be designated by the contracting parties as a *intuitu persone* contract. Client`s consent must be clear and given in the form of a contract. The consent may be given before, during and after the service is performed. Consent may be explicit or tacit, e.g. accepting the execution of the service by another provider.

Without the client's consent, any subcontractor engaged by the service provider, must be of adequate competence. The issue of adequate competence is a matter of fact. This is an unclear legal concept, which is closely connected with the client's consent. It is also connected with the obligation of skill and care and with one special obligation of the service provider. Therefore, the service provider must ensure that any tools and materials used for the performance of the service are in conformity with the contract and the applicable statutory rules, and fit to achieve the particular purpose for which they are to be used. In so far as subcontractors are nominated by the client, the responsibility of the service provider is governed with rules in part ,,Directions of the client" and ,,Contractual obligation of the service provider to warn".

2.5. Obligation of Skill and Care

The service provider must perform the service with the care and skill which a reasonable service provider would exercise under the circumstances and in conformity with any statutory or other binding legal rules which are applicable to the service. This is an obligation of skill and care. Care and skill must be reasonable; in the provision of the service there should be no significant deviation from the objectively common provision of the service. If the service provider professes a higher standard of care and skill the provider must exercise that care and skill. Service providers are often experts, who provide services professionally in accordance with the rules of profession and science. Such features of service providers are the basis for clients to conclude contracts with them. The service provider must exercise the care and skill expressed in standards which have been set by a relevant authority.

The obligation of skill and care require in particular the service provider to take reasonable precautions in order to prevent the occurrence of damage as a consequence of the performance of the service. This also *mutatis mutandis* applies if damage has occurred. Damage refers to damage to the client, but also to damage to other persons, things and the environment. This comes out from the general principle prohibition of causing other damage. Care and skill, among other things, include information to the client whether the service provider is a business, amount of compensation, execution of the service within a reasonable time. This is a general obligation that includes usual practices that are not explicitly contracted or arise from various legal rules, rules of profession and science. Some services may require the service provider to detect conflicts of interest. The service provider may be in the obligation of keeping a business secret (for example: Consulting contract).

2.6. Obligation to Achieve Results

Execution of the service itself is not sufficient. The service provider must achieve the specific result (or results) stated or envisaged by the client at the time of the conclusion of the contract. The supply of a service can be described as a process by which the service provider performs work undertaken according to the particular wishes and needs of the client, in order to achieve a particular result.[46] Specific stated result is an explicit statement of the client's will, which clearly stems from the contract. An example of a specific result is that the service is suitable for a specific purpose of the client. In order for this result to be binding on the service provider, it must be declared until the conclusion of the contract. After the conclusion of the contract, a special consent of the service provider is required. The result of the service must be reached by the time agreed to perform the service (unless something else comes out from the custom; medical services and similarly). The specific result envisaged by the client is a result which the client could reasonably be expected and the client had no reason to believe that there was a substantial risk that the result would not be achieved by the service. For example, when a client is in long-term business relationships with a service provider, he can expect the achievement of earlier results. This doesn`t apply when there was a mentioned substantial risk for which he knew or had to know. Substantial risk is a risk of considerable importance. It is a risk that should be reasonably considered as a risk that can prevent the outcome of the results.

Since clients often do not have the necessary knowledge about the service, in determining the result of the service, cooperation of the service provider is required. This primarily refers to the collection of information about the client's opportunities, needs and getting to know the client with the appropriate service capabilities. The price of these actions can be calculated in the price of the basic service or as a special service price. For example, such a service is a loan processing service. The service provider may also provide suggestions to the client regarding a service, that in his opinion are suitable for the client.

The client must notify the service provider if he becomes aware during the period for performance of the service that the service provider will fail to achieve result. The client is presumed to be so aware if from all the facts and circumstances known to the client without investigation the client has to be so aware.

2.7. Obligation to Comply with Client's Directions

The service provider must follow directions of the client regarding the performance of the service. Directions can be informative or binding. He must follow the directions which are part of the contract itself or are specified in any document to which the contract refers. These other directions are not physically contained in the contract as a document, but legally they are the content of the contract. These are the client's directions regarding the fulfillment of the obligations of the service provider. For example, a direction to observe the deadline for the

[46] M. Barendrecht, C. Jansen, M. Loos, A. Pinna, R. Cascao, S. van Gulijk, *Service Contacts*, Munich 2007, pp. 202.

obligation. The service provider must also follow the directions which result from the realization of choices left to the client by the contract. It is about specifying the service (quantity, quality, time and similarly), but not about the choice of its kind, unless otherwise agreed. This also applies to the directions which result from the realization of choices initially left open by the parties. It is in the interest of the client to make the selection as soon as possible. If the client fails to issue the directions, the service provider should invite him to do so within a reasonable time. In emergencies, the provider of the service must act in the best interest of the client. As soon as possible, he must seek further instructions. Clients often do not give instructions, because they do not have adequate knowledge.

2.8. Contractual Obligation to Warn

Contractual obligation of the service provider to warn is an obligation arising from the concluded contract. The service provider is presumed to be aware of risks mentioned later, if they should be obvious from all the facts and circumstances known to the service provider without investigation. Obvious risks are those seen without special examination of their existence. The service provider must warn the client if the service provider becomes aware of a risk that the service requested: 1. may not achieve the result stated or envisaged by the client at the time of conclusion of the contract, 2. may damage other interests of the client, 3. may become more expensive or take more time than agreed on in the contract. Service provider can find out about the risks during the preparation of the service and later, based on contact with the client, from third parties and similarly. The obligation to warn does not apply if the client already knows of the risks or could reasonably be expected to know of them. The client cannot reasonably be expected to know of a risk merely because the client was competent, or was advised by others who were competent, in the relevant field, unless such other person acted as the agent of the client. Just a notice of the service provider is not enough. The service provider must take reasonable measures to ensure that the client understands the content of the warning. A warning in writing is generally not required.[47] The warning must be serious and complete, customized to client characteristics. The type of risk, its quality, quantity, consequences and other important risk characteristics must be described. The warning must be given within a reasonable time and in a reasonable way.

2.9. Obligation to Transfer Results

Achieving the result or results of the service is not enough. For the execution of the service, the service provider receives a fee from the client. Where the service provider is a business, a price is payable unless the circumstances indicate otherwise. Therefore, the service provider is obliged to transfer (hand-over) the results of the service to the client. In some situations, the execution of the service implies the transfer of results (for example medical services). What is valid for the execution of the service is also valid for the transfer of results. Transfer of results can be considered as a special obligation or as the final stage in the execution of the service.

2.10. Obligation to Accept a Unilateral Contract Change

Either contracting party may by notice to the other party, change the service to be provided, if such a change is reasonable taking into account: the result to be achieved, the interests of the client, the interests of the service provider, the circumstances at the time of the change. In DCFR

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[47] M. Barendrecht, C. Jansen, M. Loos, A. Pinna, R. Cascao, S. van Gulijk, *Service Contacts*, Munich 2007, pp. 247.

a change is regarded as reasonable only in four cases.[48] The other party has to respect the changes to the contract. For example a change is regarded as reasonable if it is required by a change of circumstances which would justify a variation as variation or termination by court on a change of circumstances (performance of a obligation becomes so onerous because of an exceptional change of circumstances that it would be manifestly unjust to hold the debtor to the obligation). Any additional price due as a result of the change has to be reasonable and is to be determined using the same methods of calculation as were used to establish the original price for the service. The original price is the contracted price. The new price changes the original price. The new price may be higher or lower than the original one. The dispute over change will be made by the competent court. In so far as the service is reduced, the loss of profit, the expenses saved, and any possibility that the service provider may be able to use the released capacity for other purposes are to be taken into account in the calculation of the price due as a result of the change. The change may also refer to the time and place of service, the quality and quantity of the service. Possibility of unilaterally changing the type of service is a factual question.

CONCLUSION

There is a general service contract and there are special service contracts. Principally, by its legal nature special service contract is a subtype of the general service contract. The contracting parties are the service provider and the client. Obligations from the general service contract (basic obligations) are also the obligations of the special ones, unless legal norms exclude some obligations. The service provider has the main contractual obligation to perform the service and he has other related obligations.

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[48] DCFR, IV.C. - 2:109: Unilateral variation of the service contract, paragraph (2)

CHANGES BROUGHT BY THE INTERNET TO THE BUSINESS RELATIONSHIPS

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Abstract: *The informational society is the result of the most spectacular environment changes, following the key role information plays in the society. Within it, the main forces that modify the activity landscape of an organization, raises ambitious challenges to the personnel and determines them to adopt more flexible structures, were synthesize in contemporaneous studies [1]-[2] as being the digitalisation of the information, connectivity, globalization, the extraordinary progress of technology, the appearance of new types of intermediaries and the personalization of the market offers, of the messages and of the companies means of communication. Therefore in order to better understand the online business and the e-commerce concept we must also understand how Internet changed the way business is made. The Internet made possible the environment changes of the businesses that are today no longer restrained by the borders between countries (making worldwide growth for businesses possible), opening new communications paths, new ways of collaboration and coordination between consumers, traders and business partners. All this changes resulted in reconsidering older practices or adopting them to the new conditions or even more the creation of new practices. This is how new terms and concepts appeared: business got a new prefix becoming* ***e-business****, while commerce migrated towards* ***e-commerce****.*

Keywords: *Internet, e-business, e-commerce, business changes*

1. INTRODUCTION

Technology evolution constantly influences the way communication is made: this is simple, instant and accessible to more and more people.

The ***e-business*** term (electronic business) is a generic expression, first mentioned by IBM in 1990, which was used to define the use of Internet technologies for the improvement and the transformation of the business key processes. It is very important to understand that online business is not limited to only selling products through Internet. Electronic business also means staying in contact with the suppliers, with the possible business partners, with the clients but also promoting the companies' products and/or services using electronic means [3].

E-commerce (electronic commerce) is a particular electronic activity notion and can be defined as being the purchase and the selling of products and/or services using electronic means. The electronic commerce activity is currently one of the most dynamic net-economy developing areas. Internet allows not only to copy the classical ways of making commerce, but also perfecting them.

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While at the beginning electronic commerce only offered remote and online purchase services, once the Internet was widely used, new domains developed like: electronic procurement (e-procurement), online shops (e-shop, e-store, e-mall), virtual markets (marketspace), online auctions (e-auction), information brokerage, banking services (internet banking) or online stock exchange trading.

The most dynamic part remains the purchase of online goods and services.

2. CHANGES OF THE ORGANIZATION ITSELF

What concerns a company, the extraordinary progress of the computer and telecommunication technology determined key changes of its activities, not only just at client or business partner level but also with the world around it.

In an e-business there are three primary processes that are being improved:

1. *Production processes*, that include purchase, orders and stock resupply; processing payments; electronic links with the suppliers and the control of production processes;
2. *Client oriented processes*, that include promoting and marketing efforts, selling through Internet, processing of clients purchase and payment orders, but also the client support services;
3. *Internal affair processes* that include employee related services, training, internal information exchange, video-conferences and recruiting. Electronic apps improve the flow of information between production and selling that determines selling productivity improvement. Also, communication within working groups and the company electronic information transmission is made more efficient.

According to a study dedicated to the EU labour market, published by Eurostat, the percentage of employed persons aged 15 to 64 who usually work from home stood at 5.0% in 2017. This figure was highest in the Netherlands (13.7%), followed by Luxembourg (12.7%) and Finland (12.3%), and lowest in Bulgaria (0.3%) and Romania (0.4%). Working from home was slightly more common in the euro area (5.7% of employed persons) than in the EU as a whole.

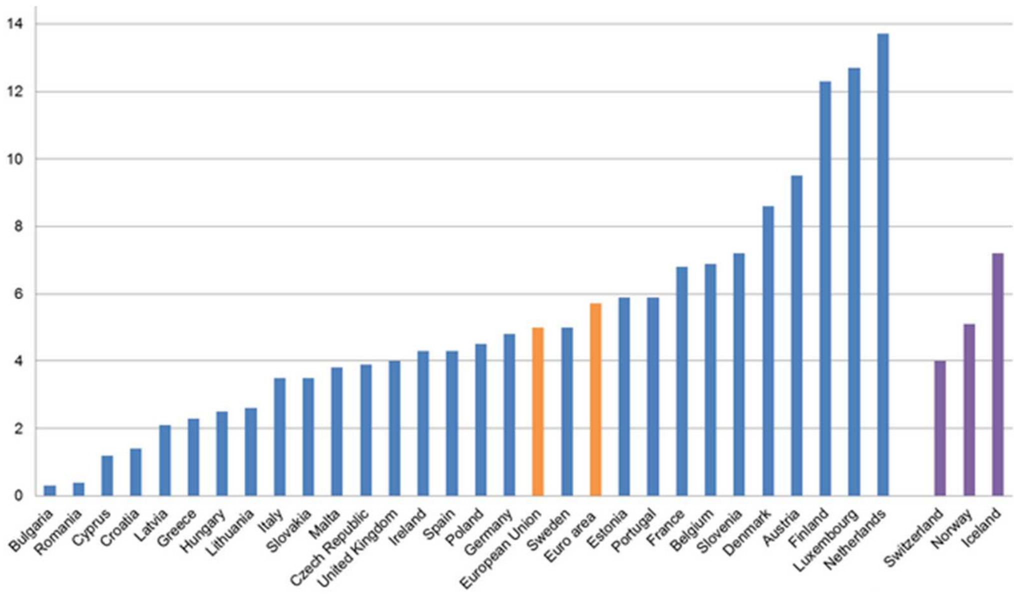

Figure 1: Employed persons aged 15-64 usually working from home in the EU (% of total employment)

Source: https://ec.europa.eu/eurostat/web/products-eurostat-news/-/DDN-20180620-1

Each year thousands of new tools and innovative programmes are being created with the purpose of optimising the work processes. The companies representatives have an increasingly difficult task at keeping up with the modern technologies, even more as this must match the industry in which they work and the organizational culture they represent. According to Walden University College of Management and Technology, communication through e-mail, instant messaging or even through social networks, have been among the most important influence sources of all business aspects. Technological progress brought the replace of memo or fax with emails, smartphones and tablets facilitate work outside the office, and keeping information in the cloud system rather than computers makes the information accessible everywhere and to anybody.

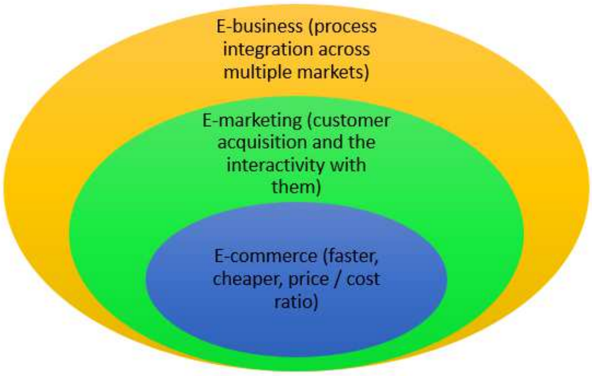

Figure 2: E-Business includes all types of electronic business

The majority of companies activities are based on digital informations, stored in computers or wireless devices and in order for them to flow from a sistem to another conectivity is necesary, which is obtained today through networks and telecommunication. The explosive development of the Internet has made communication almost instantaneous, anywhere in the world between millions of people, access to a global information base and a global market.

The companies are looking to the Internet and see its involvement in their activities as a must, with the main uses being the following [4]:

- ***searching and obtaining business information –*** a simple click allows access to milion of websites and resources for multimedia information, technical-scientific information or e-commerce;
- ***client communication, business partners, suppliers or beneficiaries*** trought ***e-mail*** (electronic email exchange), ***discussions*** (attending forums, specialized discussion groups or news groups) or ***chat*** (real time text or even audio-video conversations with people all over the world, useful especially among teams that are geographically dispersed);
- ***sale – purchase –*** anything can be either sold or purchased via e-commerce, provision of online services and actions;
- ***file transfer using FTP*** – files that contain price lists, product and software specifications, reports, posts, images etc., all can be downloaded to the computer;
- ***other use***– telephony, videoconferencing, etc.

Practically companies get to use the Internet in business in a variety of ways ranging from company communications, collaboration, e-commerce to strategic business alliances. All this global communication between employee, clients, suppliers and other business partners is made online. Interactive websites, email, chat, discussion groups, audio and video conferences allow that all information, either company internal or external, to be searched, analysed and shared.

"Companies need to adopt Internet technology if they do not want to risk to be left behind" say Kotler and Armstrong [1].

3. CHANGES TO CUSTOMERS

The key for a company success is the client, that is represented by both organisation and simple users and it is of great importance to study them in the new context. Clients are aware of the new services offered by the Internet and are becoming increasingly demanding and less patient [4]. Therefore the companies are faced with more and more pressure to become focused on the client, organized, to offer the best services and for removing those processed that add no value. The key aspect is defined here by Kotler & Armstrong [1] as being *the active and proactive adaptation*, meaning those company actions to modify the offer depending on the client order, or through which the company leaves the customer to design the offer.

In favour of an efficient communication with the consumers, the virtual environment offers unprecedented possibilities for adapting products and services. In the real world, sellers specialize in highly standardized production lines and the clients try to coordinate purchases in the middle of a vast products array, based on the displayed prices. In the numeric world that easily allows the information purchase and transformation, sellers are able to adapt their offer individually, for each client. More, the virtual environment allow them to respond quickly to the reactions of these customers.

In the Anglo-Saxon space there are two terms that are used to describe the concept of offer adaptation: ***customization*** for the active adaptation and ***customerization*** for the proactive adaptation. And because in this last case the individual clients are adapting the offer themselves, we speak more and more about the notion of ***prosumers*** rather than consumers.

One might think that the term prosumer is a new one. This impression is quite wrong as the term has been around for years, especially in the marketing world. Alvin Toffler was the first to use this term in his book The Third Wave, in 1980. He defined the prosumer as "someone who blurs the distinction between a consumer and a producer" [5].

The online environment brought new meanings to this notions, *prosumer* being today a mix between *producer* and *consumer*. With other words, this consumer is not only using some products but gets actively involved in the production processes, influencing the companies evolution direction and their comunication strategies.

Figure 3: The new digital consumer
Source: www.consumer-insights.com.pe

Prosumer is a kind of an unsolicited company adviser, that will bluntly and publicly articulate it's opinions, whenever it feels the need to do that. Prosumer is a powerful and informed consumer that is pleased with the role of opinion leader, role that it owns and exploits to the maximum.

Prosumers are trying hardly to be part of the production process. Each time when on a website, blog or on a Facebook or Twitter account, we see user suggestions what concerns a product ingredients, the way a service works or the design of some products, we are looking at the manifestation of a prosumer. They know about themselves that are informed and feel responsible to improve the products and services they consume.

Even if prosumer as a concept is not new, its spreading is (at least in Romania). By tradition, Romanian companies were very secretive what concerns the production process. Until a few years ago it was almost impossible to create a video like *"How It's Made"* in one of the Romanian factories. The same was also with the concept of *"Open doors days"*. The product fabrication and the services creation process was encrypted and shrouded in mysticism so that the user had to be satisfied with the few information that were offered.

In the meantime, things changed. The pressure coming from the customers, the need to know what they consume and the responsibility to assure that the products and services they are paying heavy money for are of quality, all this determining the companies to become more transparent and more open in the relationship with those who want to get involved.

4. COMPETITION CHANGES

The technology evolution help companies grow in a more rapid pace and deliver more performant services for their clients. In the same time, organizations feel the urge to develop a strategy to help them keep up to date, so that they can remain in the market, face competition and new demands from business partners.

Worldwide the classical commerce is gradually losing ground being replaced systematically and progressively by the electronic commerce in which selling, buying or exchanging goods and/or services, is made through Internet, by using numerous methods of payment/devices like mobile phone, wristwatch, key ring, computer etc. [6].

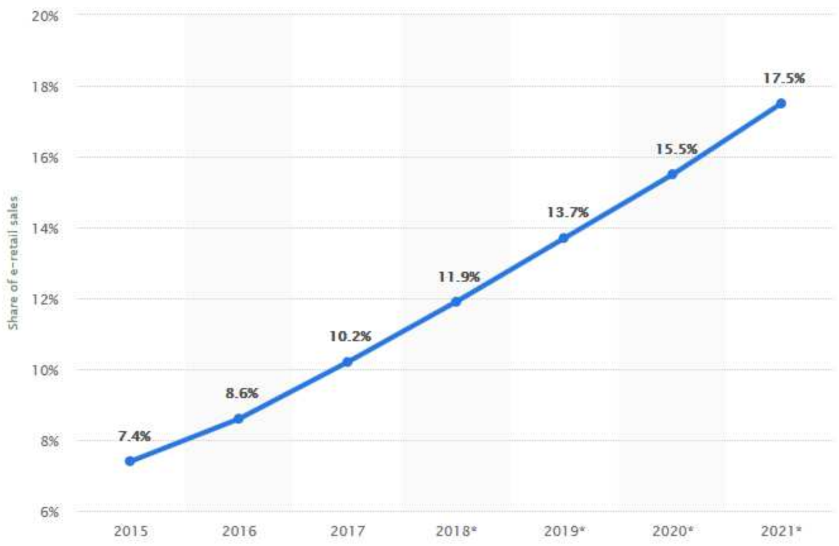

Figure 4: E-commerce share of total global retail sales from 2015 to 2021
Source: https://www.statista.com/statistics/534123/e-commerce-share-of-retail-sales-worldwide/

Company's reluctance to new technologies, the refusal to introduce the latest generation computer systems and the absence from the online environment can make it no longer being aligned with the times we live in, not to be able to cope with market demands or not to be visible for potential clients. If it does not align to the standards in which the competition is active, an organisation can lose opportunities and business partners, risking to remain isolated or even to disappear [7].

While the products digitalisation and their market growth greatly increased the competition on the vertical dimension of quality – creating markets of the “winner-takes-all” type and exacerbating the phenomenon of superstar in various areas (for example, mass media, sport, finances, corporate positions and more and more sectors such as health and university education) it also allowed the increase of competition on the horizontal quality dimension, by variety increase. While digitalization not only decreased the marginal costs of the digital products manufacturing but also the fixed costs, the progress of telecommunication made the market for digital products truly global, increasing the economic viability for an increasingly higher number of players for entering the markets for digital content, increasing a lot the available variety, to levels that were hard to imagine before the digital revolution [8].

The fact that access to Internet is so cheap allows *a small business to compete with multinationals*. More, the personal nature of small businesses can offer them an edge over large companies that have a more impersonal image. On the other side even if a bigger organisation can use more resources to be noticed on the Internet and to promote it’s webpage, it is possible that this may not be a competitive advantage over a small business.

Looking even further, global communication can allow small business to join into consortiums and together to have sufficient resources to compete with multinationals enterprises. Small companies can increase their power on the Internet especially by forming groups. Small industries, such as knitting or pottery, small consulting or other professional organisation can form consortium to improve their market position.

Last but not least, online competition means analysing main competition, no matter the business scale. It is necessary to know where the potential clients are, whom they will visit when using an important search engine for the product/service they are selling. The competition analysis is crucial in optimising their own website and must follow not just identifying competition on the Internet, but also the analysis of the content and popularity of the main competition website.

Amazon and Google run daily hundreds of controlled experiments on the web interactions of their clients. As soon as an individual creates an innovation, it can be shared more easily inside an organisation or a group, using various electronic channels: emails, wikis, social media (social networks), online forums etc., which makes them potentially more useful [8].

The increasing number of goods, services and processes digitalization, accompanied by enormous access to information (often from multiple sources), quickly removes barriers. More and more markets become „winner-takes-all" type and small quality differences between the best and the second best producer, translate in big market share differences.

On this market type, competition is based on inovation rather than price, that results in big market turbulence; beneficiaries are being quickly replaced by more successful innovators – for example Facebook vs. MySpace – in a way that resembles the „creative distruction" modell as presented by Joseph Schumpeter 60 years ago - Schumpeter J., (1942) „Capitalism, socialism and democracy".

5. CHANGES FOR SUPPLIERS

Internet allows access to an unlimited number of suppliers (raw materials, materials, equipment, services, labour, information, etc.) that are divided depending the way in which transactions are made like described below:

- *online catalogues* (companies can order directly after checking out the catalogues available in websites);
- *vertical markets* (set up in vertical business portals)
- *auctions websites* (there are many reverse auction websites for industrial products, where traders are displaying online their supply and invite suppliers to bid for winning the orders requests);
- *stock exchange markets* that can be either public or private;
- *purchase alliances* (more companies unite into a group that acts in their behalf). Suppliers and retailers are capable to collaborate on the product selling forecast, on the products flow and decisions what concerns product stock management by using collaboration networks based on the Internet [9].

The e-commerce B2B activity is referring to the commercial transactions that take place between two companies. This transactions are made through a B2B portal, that functions similar to an online shop, the main difference being that it is targeting companies rather than individuals. In a B2B portal the supplier company is presenting the products and services they offer, together with the prices, stocks and other useful details for the selling process, like customized discounts for different client types. Client company is accessing the B2B portal, is analysing the available offer and in case it is interested, it can place an order or an offer request depending on the situation [10].

Our world is surrounded by e-commerce market everywhere and B2B business scenario has earned itself the rightful place of being one of the most successful forms of business. Business-to-Business e-commerce is growing at a staggering pace.

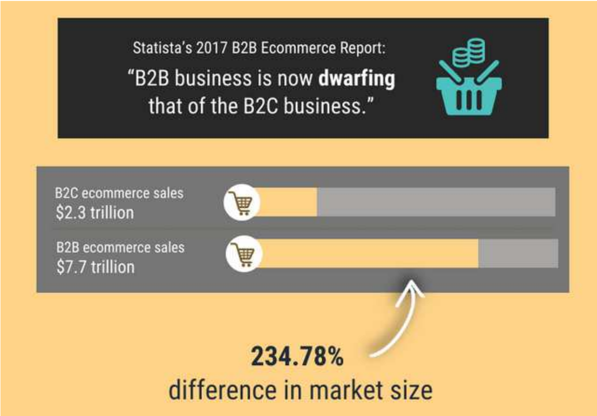

Figure 5: Global B2B Ecommerce Sales in 2017
Source: https://www.shopify.com/enterprise/global-ecommerce-statistics

By the close of 2017, B2C ecommerce sales hit $2.3 trillion worldwide. B2B ecommerce, on the other hand, reached $7.7 trillion. Those two data points represent a 234.78% difference in market size [11].

The dominance of B2B ecommerce means at least two things [12]:

- *self-service is on the rise*. Data from CEB Now Gartner found that "customers are 57 percent of the way through a typical purchase process prior to proactively reaching out to a supplier's sales rep." This doesn't eliminate the need for a sales staff, but it does give ecommerce a distinct advantage.
- *wholesale customers* — namely, independent retailers, small-to-medium franchises, and B2C outlets — *largely prefer a simplified ordering experience*. This eliminates the need to invest your wholesale portal with all the bells and whistles of B2C ecommerce.

Communication with suppliers through electronic media has the effect of decreasing the costs and time interval between order and delivery, of increasing the client satisfaction level, improvement of the goods qualities and of the services brought, birocracy reduction etc. [4]. Using the online environment in the relationship with suppliers presents also some problems, like the fact that by using the Web, many companies are looking for better suppliers, while other are complaining about the pour state of security systems.

6. CHANGES TO INTERMEDIARIES

Traditionally, economical transactions encompass three main participant categories: bidders, consumers and intermediaries that allow bringing together the first two categories. It is certain that the new system seriously confused this last component: the Internet can bring to the consumers and worldwide enterprises products and services with an added value much higher than those proposed by traditional intermediaries and at lower prices. It generally has repercussions on the major players on the market networks experiences, by completing or replacing the existing channels. In fact, it essentially expresses its disruptive effect. At the beginning of its usage as an environment for business, the Internet appeared as the perfect mean for ***"disintermediation"*** [50]**.** Than the dot.com era came, in which business people from all domains lived the hysteria of "*getting amazoned*" [51], materialized most of the time by the traditional intermediaries removal and selling online the products and services directly towards consumers. But those that were deluded by the euphoria of the Internet disintermediation did not take into account the specific aspects of the online retail commerce, billions of dollars being invested without success in actions that had the purpose of eliminating traditional intermediaries and replacing them with online shop. In the end it proved that this move was based on naive and unrealistic expectations (the offer simply exceeded demand). The next steps: ***re-intermediation*** has as representatives companies that provided services on the Internet to both consumers and organisations. In addition, companies with activities in the offline environment, developed their own online selling channels.

The typological analysis of the online intermediation act involves grouping and classification in the following models [4]:

- *disintermediation*: direct sale;
- *intermediation* itself: online brokerage, sales agents and e-tailing;
- *infomediation*: collecting and seling information about consumers and business;
- *metamediation*: organizing around an event or an important achizition.

The informational society is characterized by a significantly increased pressure at the distribution chain level, because of the apereance of new models, including: „mass" customization, decreasing product life cicle, the appearance of stocks „just in time". Facilitating real-time relationships between participants in the distribution processes had a significant impact on it becoming more efficient, as a direct result in the decrease of the stock levels and of the market fluctuation response time [13].

7. CHANGES IN PUBLIC INSTITUTIONS AND IN THE LARGE AUDIENCE

World Wide Web allows any company to create a library of documents accessible to any person with Internet connection thus helping to [14]:

- Improve the company image
- Improve client oriented services
- Make commercial transactions
- New markets acquisition
- Reducing the organizational expenses
- Satisfaction of customer wishes
- Increasing the reaction speed of a company to the environment changes
- Finding new business opportunities.

In this category we refer at banks, investment firms, stock holders, interest groups, consumer associations, ecologists, public administration, public opinion, etc.

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[50] In his book *"Business @ the Speed of Thought"* (Amaltea Publishing House, 2002), Bill Gates describes this phenomenon as follows: "Now that customers can get in touch directly with suppliers of products and services, the value added to simple transfer of goods and services is very small. Several analysts predicted the "death of the intermediary". Surely, the value of these intermediaries is approaching zero. If you are an intermediary, the promise of the Internet to offer cheaper prices and quicker services can "disintermediate" you, eliminating your role of assisting in the transaction between producer and consumer."

[51] Amazon was the company that launched the idea that the Internet would be the most effective way to do retail commerce.

According to Digital in 2018 in Eastern Europe Report, made by We Are Social and Hootsuite, 61% of the population aged 15+ has a bank account and only 12% has a credit card.

Figure 6: Financial inclusion factors in Romania in 2018

The percentage of individuals using Internet banking in Romania in 2016 was only of 5%, which places the country at the end of the European list [15].

Country	Norway	Denmark	Finland	Netherlands	Sweden	Estonia	UK	Romania
Internet banking users	91%	88%	86%	85%	83^{b}%	79%	64%	5%

Figure 7: Individuals using the Internet for Internet banking in 2016

In Romania, even if the financial world is young, it is strong. Almost all banks have well developed and up to date websites, the vast majority offer to their clients a series of online services like: contact methods using e-mail or forms, account accessibility 24 hours/day, online assistance, online payment tools (Internet banking), virtual cards, etc.

On the other hand, public can be as much a support as an obstacle in the path of the company interests. In the online environment, the most dangerous characteristic of today web surfer is its tendency to express dissatisfaction in the discussion forums. Very demanding when talking about the way online services are done or on the quality of the purchased goods, the web surfers do not hesitate to express their critics when they are contracted or disappointed. The vast majority of the companies with Web presence are interested to detect such opinions and take them into account, also take necessary actions for fixing the situation, especially in order not to lose their existing clients and for keeping serious chances in further attracting other consumer into their virtual space. A proof is the fact that there is an increased talk about the *relational digital marketing*, a concept that *consist* in *creating a strong and long term relationship with the virtual consumer*.
Related to this, on the Internet there are different associations, clubs, societies, organisations or other internet surfers groups of diverse nature that plead for the fundamental rights of consumers in the online environment.

8. CONCLUSIONS

In an era when connecting people to information had become a necessity, electronic commerce is a challenge. The development of the information and communication technologies allows commercial transaction to be made in a very short time and ***without*** intermediaries. Electronic commerce allow consumers to freely access the information they need and to become the owners of the desired goods in a matter of seconds.

Almost any person, company, private or public organisation was affected by the digital revolution. *Internet* transaction surpass all boundaries (geographic, location, culture, language, political, birocratic or legislative), determining the change of the business rules.

Today, people are increasingly busy and do not have the time required to satisfy their wishes in a direct way, because this would mean a waste of time they cannot afford. With so much available technology, men is trying to digitalize even routine activities in order not to lose a few hours in solving certain platitudes. That is why, today we prefer to sit in front of the computer and reach the virtual shop shelves to supply us with both products that are not in a traditional shop but also with common products or daily needs products.

In the Internet era, transactions are becoming more often initiated and controlled by consumers, that show a special interest to the information provided by the traders, having the tendency to react negatively at messages that only have the sole purpose to sell.

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ANALYSIS OF THE *TOURISM - ENVIRONMENT* RELATIONSHIP FROM AN ECONOMETRIC PERSPECTIVE; CASE STUDY: EUROPEAN COUNTRIES

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Abstract: *The upward trend of the tourism industry and its impact on the global economy is in contradiction with the degradation of the environment and the intensification of global warming. Therefore, naturally, one question arises: are tourism and environment allies or enemies? The right of mankind and the economic interest, must surpass the right of nature to survival? Statistical data reveal promising developments in the tourism sector and its contribution to the global economy. According to the report* "Travel & Tourism, Economic impact 2018, World"*, the total contribution of Travel & Tourism industry in 2017 reached 10.4% of GDP, with a 4% estimated increase in 2018. The effect of this industry on global employment is also a positive one, providing directly over 118 million jobs (3.8% of total employment). Taking into account indirect impact as well, the travel & tourism industry provides over 313 million jobs, meaning that one in 10 jobs worldwide is supported by this industry. In a world where increasing opportunities to ensure a large number of quality jobs is more and more important, tourism is seen as a catalyst for human development. On the other hand, mankind faces an increase in the average global temperature of 1 Celsius degree compared to the pre-industrial period, specialists drawing attention that there is a real danger of worsening this situation. In this context, the present paper aims at analyzing the two-way relationship between tourism and environment, base on a panel of statistical and econometric methods. Thus, data covering the last 10 years, provided by EUROSTAT for the 28 countries of the European Union are analyzed. The set of indicators is focused on three main pillars: Tourism pillar,* Environment*al Pillar and Economy and digital economy background Pillar. The statistical analysis of the data set includes Descriptive statistics tools, Principal Component Analysis, non-parametric statistical tests and statistical correlation and regression.*

Keywords: *Tourism demand, Sustainable tourism, Principal Component Analysis, Non-parametric test, Statistical regression and correlation*

1. INTRODUCTION. TRENDS IN TOURISM DEVELOPMENT IN EUROPEAN COUNTRIES

The enhancement of the globalization process, the development of infrastructure and information technology have given a significant boost to international tourism, which in 2017 recorded the highest increase in the last 7 years in terms of international tourist arrivals (1326 million arrivals, 7% increase compared to the previous year). Of these, Europe has just over 50%, followed by the Asia and Pacific Region (24%) and the Americas (16%). Europe is also witnessing an increase in international tourist arrivals above average (8% increase) [1]. According to the report "Travel & Tourism, Economic impact 2018, World", the total contribution of Travel & Tourism industry in 2017 reached 10.4% of GDP, with a 4%

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estimated increase in 2018. The effect of this industry on global employment is also a positive one, providing directly over 118 million jobs (3.8% of total employment). Taking into account indirect impact as well, the travel & tourism industry provides over 313 million jobs, meaning that one in 10 jobs worldwide is supported by this industry. [2] Europe holds the first two places in a world tourism destinations top, with France ranking the first (almost 87 million arrivals in 2017) and Spain ranking the second (almost 82 million arrivals in the same year). Italy, United Kingdom and Germany rank the 5th, the 7th and the 9th in the same world top [1].

Along with the decline in environmental quality as a result of human activities, concern for the sustainable side of tourism activity has grown [3]. Thus, there has been an increase in ecological tourism, tourist arrivals in ecological-type accommodation establishments having increased by almost 20% compared to 2008, reaching 84 million arrivals in 2017. During this period, there has been a steady, continuous increase in the indicator level, although it was more pronounced at the beginning of the period, before the global economic and financial crisis and more attenuated over the last two years (Figure 1). Analyzing the impact of human activities on the environment, we will consider the amount of waste generated and the greenhouse gas emissions. Thus, unfortunately, the amount of waste generated has not improved favorably over the past 14 years; there was a decline in the total amount of waste generated, but not a significant sustainable decline. With regard to the greenhouse gas emissions, there is a steady and continuous decline, even though still low, from 8436 kg per capita in 2008 to 6913 kg per capita in 2016 (for all economic activities). In accommodation and food service activities the greenhouse gas emissions decreased from 43 kg per capita in 2008 to 36.4 kg per capita in 2016 (Figure 2), with 2% average annual decrease.

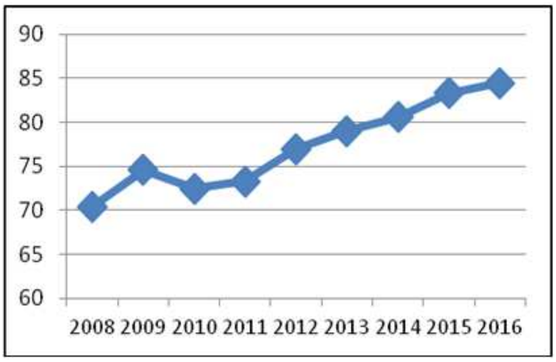


Figure 1: Tourists' arrivals in camping grounds, recreational vehicle parks and trailer parks (millions) 2008-2016 in EU28

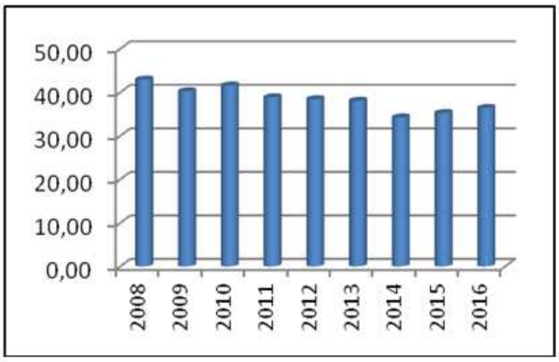


Figure 2: Greenhouse gases emissions in accommodation and food service activities (kg/inhabitant), 2008-2016, in EU28 (millions)

Source: authors' contribution, based on EUROSTAT data

The average expenditures per trip have increased between 2012 and 2016, reaching 432.66 Euro. Luxembourg and Switzerland are the top two countries in Europe (with over 800 Eur on average per trip), followed by Austria and Belgium (over 600 Eur on average per trip). In this top, Romania ranks the second last (with an average of 125 Eur per trip), preceded by Latvia (with an average of 124 Eur per trip). The increase in the number of tourist arrivals was accompanied by the increase of the employed population in this sector. Thus, in the last 10 years, the number of employees in accommodation and food service activities has increased from 9408 thousand persons (2008) to 10973 thousand persons (2017), respectively by 1.72% on average per year. At the same time, the number of low-educated employees decreased, increasing the number of those with upper secondary and post-secondary non-tertiary education, but also of those with tertiary education. This has led to an increase in the quality of tourism services and has determined, to a certain extent, the expansion of this sector.

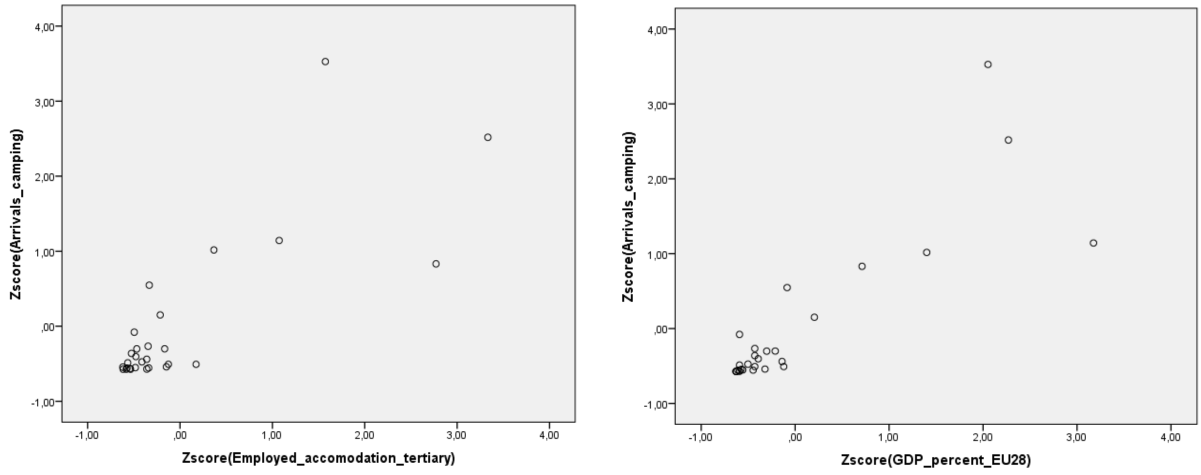
2. DATA AND METHODOLOGY

The analysis aims at answering the following question: Is there a tendency towards the sustainable tourism component? What are the main determinants? In order to study the relationship between the tourism activity and the natural environment and to identify the main factors that favor sustainable tourism, a set of seven variables has been selected to accurately illustrate three pillars: *Tourism pillar, Environmental Pillar and Economy and digital economy background Pillar. The values* of the selected variables were provided by EUROSTAT, covering 28 European countries (2016). Table 1 describes the variables, as follows:

Table 1: List of variables explained [4]

Variable	Pillar	Significance
Tourists' arrivals in camping grounds, recreational vehicle parks and trailer parks (number, 2016) (*Arrivals_camping*)	Tourism Pillar	Arrivals of residents and non-residents at ecological accommodation units, like: camping grounds, recreational vehicle parks and trailer parks
Employed persons with tertiary education in accommodation and food service activities (thousand), 2016 (*Employed_accomodation_tertiary*)		Number of people employed in accommodation and food service activities, with tertiary education (ISCED levels 5-8)
Average expenditure per trip (Eur), 2016 (*Average_expenditure_per_trip*)		Consumption expenditure made by a visitor or on behalf of a visitor for and during his/her trip and stay at destination (average per trip)
Greenhouse gases (in CO2 equivalent) in accommodation and food service activities, 2016 (kg per capita) (*GHG_accomodation_food*)	Environmental Pillar	Greenhouse gases emissions (CO2, N2O in CO2 equivalent, CH4 in CO2 equivalent) in accommodation and food service activities
Generation of waste (kg per capita) 2016 (*Waste*)		Quantity of substances or objects discarded, generated by economic activities or by households.
GDP - Percentage of EU28 total (based on million euro), current prices, 2016 (*GDP_percent_EU28*)	Economy and digital economy Pillar	The share of Gross Domestic Product at market prices of a country, out of the total EU28 indicator level.
Level of internet access - households (%) 2016 (*Internet_access*)		Percentage of households who have internet access at home (all types of internet use, people aged 16-74).

Analyzing the correlation between the selected variables, there are strong correlations between „Arrivals in camping grounds, recreational vehicle parks and trailer parks", „Tertiary employment in accommodation and food service activities" and GDP (values between 0.78 and 0.86 of the correlation coefficients) (Figure 3 a), b)). Also, Average expenditures per trip are moderately correlated with Internet Access level, on the one hand, and GHG emissions in accommodation and food service activities on the other hand.



a) b)

Figure 3: The correlation between Arrivals in camping grounds, recreational vehicle parks and trailer parks and Tertiary employment in accommodation and food service activities (a) and Arrivals in camping grounds, recreational vehicle parks and trailer parks and GDP (b)

Source: Authors' processing, based on EUROSTAT data, SPSS ver. 20

Since the variables analyzed have different measurement units, absolute or relative, they have been standardized. In the first step of the analysis, a reduction of the initial data set was performed, identifying a limited number of key components (factors) that retained an important share of the variability of the data. For this purpose, the Principal Component Analysis method (PCA) was applied. The opportunity, the adequacy of applying the PCA method was analyzed using the Kaiser-Meyer-Olkin Measure (KMO) and the Bartlett's Test of Sphericity. The KMO measure is 0.728, Significance level Sig. <0.05, allowing the method to be continued. Based on Initial Eigenvalues there were extracted three main components (factors), which explained more than 80% of the total variability in the data set (the first component explains 39.55%; the second component explains 22.24% and the third component explains 18.76% of the variability). (Tables 2 and 3).

Table 2: Factor contribution to the total variability

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2,984	42,634	42,634	2,984	42,634	42,634	2,769	39,553	39,553
2	1,637	23,387	66,021	1,637	23,387	66,021	1,557	22,238	61,790
3	1,017	14,526	80,547	1,017	14,526	80,547	1,313	18,757	80,547
4	,626	8,936	89,484						
5	,386	5,519	95,002						
6	,217	3,100	98,102						
7	,133	1,898	100,000						

Extraction Method: Principal Component Analysis.

Source: Authors' processing, based on EUROSTAT data, SPSS ver. 20

Analyzing the factor loadings that explain the correlation between each individual variable and each factor, one can observe that the first component is strongly positively correlated to GDP, Arrivals in camping grounds, recreational vehicle parks and trailer parks and Tertiary employment in accommodation and food services. The second component is strongly positively correlated to Average expenditures per trip and to Greenhouse gases emissions in accommodation and food service activities, while the third component is strongly positively correlated to Waste generated and moderately correlated to Internet access level:

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,728
Bartlett's Test of Sphericity	Approx. Chi-Square	80,166
	df	21
	Sig.	,000

Table 3: KMO and Bartlett's Test of Sphericity

Rotated Component Matrixa

	Component		
	1	2	3
Zscore(Arrivals_camping)	,943		
Zscore(GDP_percent_EU28)	,927	,159	
Zscore(Employed_accomodation_tertiary)	,913		
Zscore(Average_expenditure_per_trip)		,821	,306
Zscore(GHG_accomodation_food)	,181	,815	-,168
Zscore(Waste)	-,174		,865
Zscore(Internet_access)	,347	,424	,660

Table 4: Rotated Component Matrix

Source: Authors' processing, based on EUROSTAT data, SPSS ver. 20

Communalities table reveals the highest influence of the three factors on GDP, Arrivals in camping grounds, recreational vehicle parks and trailer parks and Tertiary employment in accommodation and food services, the main components explaining more than 80% of the variability of these variables. After applying the factor rotation procedure, the three main components extracted have the following structure (Table 4):

- the 1st component includes the variables: GDP, Arrivals in camping grounds, recreational vehicle parks and trailer parks and Tertiary employment in accommodation and food services; it was named Ecological tourism and its resources (financial, human resources)
- the 2nd component includes the variables: Average expenditure per trip and the Greenhouse gases emissions in accommodation and food service activities. It was named Financial and environmental trip costs.
- the 3rd component includes the following variables: Internet Access level and Waste generated and it was named Environment Pollution and technology. (Figures 4 and 5)

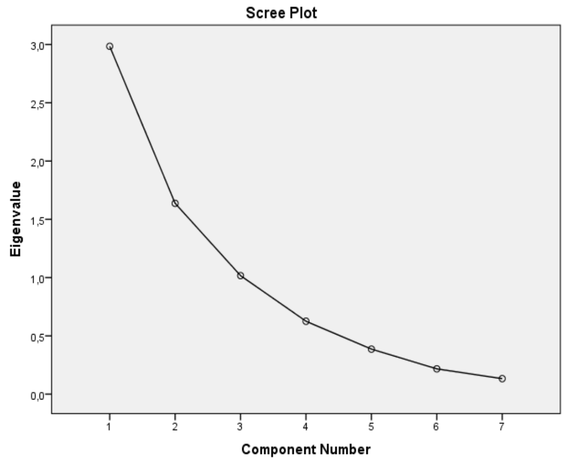


Figure 4: Scree Plot

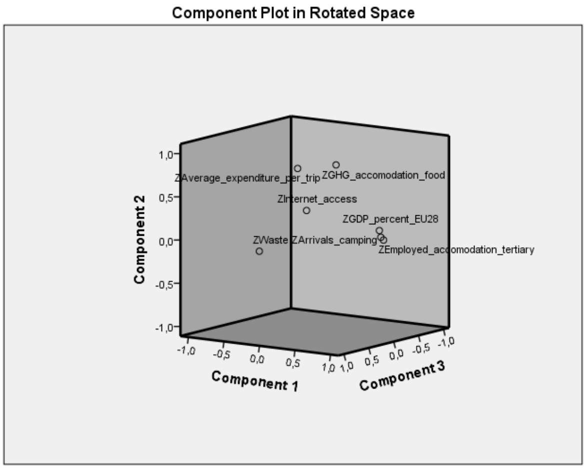


Figure 5: Component Plot in Rotated Space

Source: authors' contribution, using SPSS 20, based on EUROSTAT data.

Based on the estimated factor scores and the component score coefficient matrix provided, the three main factor regression equations are:

$$FS_{(1st\ comp.)} = 0,356 \cdot Zscore_{(Arrivals\_camping)} + 0,348 \cdot Zscore_{(Employed\_accomodation\_tertiary)} - 0,117 \cdot Zscore_{(Average\_expenditure\_per\_trip)} - 0,051 \cdot Zscore_{(GHG\_accomodation\_food)} - 0,029 \cdot Zscore_{(Waste)} + 0,339$$

$\cdot\ Zscore_{(GDP\_percent\_EU28)} + 0{,}097 \cdot Zscore_{(Internet\_access)}$ (1)

$FS_{(2nd\ comp.)} = -\ 0{,}078 \cdot Zscore_{(Arrivals\_camping)} - 0{,}091 \cdot Zscore_{(Employed\_accomodation\_tertiary)} + 0{,}548 \cdot Zscore_{(Average\_expenditure\_per\_trip)} + 0{,}602 \cdot Zscore_{(GHG\_accomodation\_food)} - 0{,}188 \cdot Zscore_{(Waste)} - 0{,}020 \cdot Zscore_{(GDP\_percent\_EU28)} + 0{,}138 \cdot Zscore_{(Internet\_access)}$ (2)

$FS_{(3rd\ comp.)} = 0{,}032 \cdot Zscore_{(Arrivals\_camping)} - 0{,}039 \cdot Zscore_{(Employed\_accomodation\_tertiary)} + 0{,}093 \cdot Zscore_{(Average\_expenditure\_per\_trip)} - 0{,}282 \cdot Zscore_{(GHG\_accomodation\_food)} + 0{,}707 \cdot Zscore_{(Waste)} + 0{,}022 \cdot Zscore_{(GDP\_percent\_EU28)} + 0{,}467 \cdot Zscore_{(Internet\_access)}$ (3)

The second part of the analysis has focused on identifying the main factors and their influence on the *Arrivals in camping grounds, recreational vehicle parks and trailer parks* (the *explained variable*). Among these factors, the variable: *Tertiary employment in accommodation and food services* was selected as *explanatory variable* and a rank-based non-parametric test: the Kruskal-Wallis test was applied. The analysis aims at identifying if the educational attainment level of employment in tourism activities determines significant differences in the tourists' arrivals at ecological types of accommodation establishments, for European countries. The following hypotheses were formulated:

H_0: the educational attainment level of employment in tourism activities does not have a significant influence on the tourists' arrivals at ecological accommodation establishments.
H_1: the educational attainment level of employment in tourism activities has a significant influence on the tourists' arrivals at ecological accommodation establishments.

According to the results of the analysis performed, there are sufficient reasons to reject the null hypothesis and to accept the alternative one, at 95% confidence level, therefore it is expected that the tourists' arrivals in ecological types of accommodation establishments (like campings, recreational vehicle parks and trailer parks) significantly differ based on the educational level of employment in touristic activities (Table 5).

Ranks

	Tertiary_empl_tourism	N	Mean Rank
Arrivals_camping	low	12	9,92
	moderate	11	14,27
	high	5	26,00
	Total	28	

a)

Test Statistics[a,b]

	Arrivals_camping
Chi-Square	13,510
df	2
Asymp. Sig.	,001

a. Kruskal Wallis Test
b. Grouping Variable: Tertiary_empl_tourism

b)

Table 5: Results of Kruskal-Wallis Test (a) Ranks; (b) Test Statistics
Source: Authors' processing, based on EUROSTAT data, SPSS ver. 20

3. CONCLUSIONS

In a world of globalization, characterized by an increase in the information flow, the touristic movement to various destinations is also stimulated. This phenomenon has positive effects on world GDP growth, the combined contribution of direct and indirect effects of tourism reaching 10.4% of GDP. The positive effect of tourism is, however, countered to a certain extent by the negative effect on the environment, which is why, in the last period, there has been an increasing emphasis on the practice of sustainable, environmentally friendly tourism [5][6]. In this context, there is an increasing interest of tourists for ecological tourist destinations, for ecological tourist services, close to nature.

Our study addresses the sustainable aspect of tourism, studying the inclination for sustainable tourism in European countries through economic variables grouped on 3 pillars: a pillar targeting the tourism activity, a pillar that focuses on the quality of the environment and a pillar that targets the economic framework of the European countries. Following the statistical analysis, the 7 variables studied were reduced to 3 main components, which kept more than 80% of the variation in the initial data set: a component that captures the demand for ecological tourism, but also the need for high quality human resources from an educational point of view; a component that includes the financial resources needed to support travel, but also the effects of greenhouse gas emissions on environmental quality; a component that captures the waste generation and the accessibility of tourism information, by developing information technology.

The quality of human resources in the tourism sector (reflected by the indicator *Employed persons with tertiary education in accommodation and food service activities)* has had a significant impact on tourists' arrivals at ecological types of accommodation establishments, meaning that tourists are guided in choosing their destination by the quality of services in this area. This can be a way of optimizing the demand for ecological tourism services.
The authors intend to continue the research in the future, by identifying other factors that will boost the demand for ecological tourism, as well as by quantifying these influences.

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URBAN TOURISM COMPETITIVENESS OF SELECTED EUROPEAN CITIES

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Abstract: *Tourism is an integral part of the global economy, and it is expanding rapidly. This growth is accompanied by challenges, among which overtourism is one of the most discussed. Tourism is attracted to urban areas mostly as a result of the built cultural heritage, urban amenities, lifestyle, cultural traditions, and cultural events. An increasing number of visitors often led to inconvenience for residents and can affect the value of the visited site. Sustainable development is from this aspect a way how to manage tourism development in the destinations so that they remain competitive.*
Prague and Budapest are both Capital cities and are one of the most visited urban destinations in their respective countries.
Indicators as Tourist intensity ratio, Tourist density ratio, Tourist penetration ratio, and Defert´s tourism function index, Defert-Baretje's index, Charvat´s index, and Schneider's index were calculated based on the data from 2017 to detect the current state of the intensity of visitors flow in the selected destinations.
Based on the results obtained in this study, it can be stated that urban tourism in Prague and Budapest will be challenged in its competitiveness if the number of arrivals with no attention to the quality of visits will continue to prioritize.

Keywords: *Urban Tourism, Competitiveness, Overtourism, Sustainable Development, Prague, Budapest*

1. INTRODUCTION

Urban destinations are recognized as the dominant economic engine of the global economy with the concentration of economic and social capital. They compete for investment, new technologies, financial support from different sources, as well as for incomes, which can be earned from visitors.

Tourism is to be considered a significantly important part of urban development, as it combines a competitive supply of tourism services, which corresponds to the expectations of visitors, and a positive impact on the development of regions and cities, as well as the general prosperity of their residents [1]. The competitiveness of urban tourist destinations becomes increasingly relevant to the countries that intend to control a large share of the rapidly growing tourism market.

Tourism has a positive impact on economic growth and employment in urban destinations; it helps to raise local awareness of the value of natural and cultural sites by supporting local handicrafts, cuisine, traditions or by offering alternative economic activities. Tourism is an

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essential aspect of the life of people in destinations and a means of achieving community development [2]. However, if unplanned or not adequately managed, tourism can be social, culturally and economically disruptive, and have a devastating effect on environments and local communities; it can disrupt the original lifestyle of the residents and can cause environmental deterioration, traffic congestion, and raise the living costs.

Urban tourism is one of the leading factors of economic increase in European cities [3]. The European Cities Marketing [4] reported that European cities continued their growth with a 6,5% increase in 2017 in total overnights compared to 2016. Domestic overnights (4,8%) grew more than international ones (7,5%). The average number of beds was 23 006 per city.
Tourism competitiveness for an urban destination is about its ability to optimize its attractiveness for residents and non-residents, to deliver quality, innovative and attractive tourism services to visitors as well as to gain market shares on the domestic and global marketplaces, while ensuring efficient and sustainable use of available resources supporting tourism [5].

In many urban destinations visitor numbers have been rising steadily for decades, and currently, there are around two billion tourist arrivals per year. Governments, tourist boards, and destination management organizations have for long focused on quantity of arrivals with no attention to the quality of visits. Overtourism reduces the quality of life for residents, creates a negative experience for visitors and can result in a decrease in the competitiveness of the destination.

2. COMPETITIVENESS OF URBAN TOURISM

Urban tourism „takes place in an urban space with its inherent attributes characterized by non-agricultural based economy such as administration, manufacturing, trade, and services and by being nodal points of transport. Urban/city destinations offer a broad and heterogeneous range of cultural, architectural, technological, social and natural experiences and products for leisure and business" [6].

According to the United Nations, in 2016, fifty-four percent of the world’s population lived in urban areas and, by 2050, this share is expected to reach sixty-eight percent. Cities account for 45% of global international travel with over half a billion trips taken to urban areas annually. Cities often serve as key gateways for travel to other destinations in the particular country or abroad. The World Travel & Tourism Council’s (WTTC) annual City Travel & Tourism Impact Report 2018 states that travel to cities has grown faster than total international travel demand in the past decade. According to the Oxford Economics’ Global City Travel (GCT), as cited in WTTC report, international trips to 300 of the largest city travel destinations accounts for over half a billion trips per year, which amount to 45% of global international travel. [7]

Along with other vital pillars, tourism constitutes a central component in the economy, social life and the geography of many cities in the world and is thus a key element in urban development policies. Without a doubt, urban tourism can generate income and employment in the urban area.

In the tourism literature there is a continual interest in the competitiveness of the destinations, e. g. in work in Buhalis [8], Crouch [9], or Dwyer and Kim [10]. Competition in tourism is very often identified with the price of products and is restricted to the micro-level [11].

However, many other variables also determine the competitiveness of a tourist destination [11], [9], [10].

OECD defines destination competitiveness as “the ability of the place to optimize its attractiveness for residents and non-residents, to deliver quality, innovative, and attractive (e.g. providing good value for money) tourism services to consumers and to gain market shares on the domestic and global marketplaces, while ensuring that the available resources supporting tourism are used efficiently and sustainably” [5].

Some authors e. g., Bovaird [12], Cheshire and Gordon [13], Lever [14], Meijer [15], Sinkienè [16], Kresl and Singh [17] analyzing urban competitiveness emphasized that urban areas are competing to attract investment, population, labor, funds, tourists. Thus, the city's competitiveness includes the conditions that make it attractive not only to entrepreneurs wishing to invest, incoming tourists or residents but also for existing residents and businesses.
Urban tourism competitiveness reflects the ability of the city to highlight its attractiveness for visitors, provide goods and services for them better than other cities do. The cities will be able to do so if the development of tourism will be managed sustainably.

The WTTC and McKinsey&Company report coping with Success Managing Overcrowding in Tourism Destinations [18] stated that challenges accompany the positive growth of tourism as overtourism. The report highlights that overtourism is a complex issue and as the stakeholders´ interests and objectives are diverse the solution is not always working for all of them.

4. METHODOLOGY

The analysis and data presented in this paper are based on primary and secondary research. In order to determine the current state as well as the dynamics and direction of the changes in the competitiveness of Prague and Budapest, indicators as Tourist Intensity Ratio (TIR), Tourist Density Ratio (TDR), Tourist Penetration Ratio (TPR) and Defert´s Tourist Function /DTF) Index, Defert-Baretje’s Index, Charvat´s Index, and Schneider’s Index were calculated [19], [20], [21], [22].

Table 1: Tourism indicators

Indicator	***Description***
Tourist Intensity Ratio (TIR)	The percentage of tourists to the residents
Tourist Density Ratio (TDR)	Percentage of tourists to land area = tourist arrivals/km^2
Tourism Penetration Ratio (TPR)	Number of tourists multiplied by average length of stay and divided by number of population multiplied by 365 multiplied by 1000
Defert’s tourist function index (DTF)	The number of total beds available in the selected area divided by number of residents multiplied by 100
Defert-Baretje’s index	Number of beds multiplied by 100 divided by the number of residents Multiplied by 1 divided by the surface of researched area, represented in km^2
Charvat´s index	The intensity of tourism development; the number of overnights divided by the number of residents multiplied by 100.
Schneider’s index	The intensity of tourist saturation; the number of tourists divided by the number of residents multiplied by 100

Determining the tourism potential, literature review, content analysis of documents and Asset Mapping [23], [24] was conducted.

For Asset Mapping the 2GIS application, a detailed and current information system Prague with a city map and introducingbudapest.com for Budapest, was used.

Data for the calculation of the tourism indicators were obtained from CzechTourism [25], Czech Statistical Office [26], Ministry of Regional Development of the Czech Republic [27], Prague City Tourism [28], [29], Hungarian Central Statistical Office [30], and TourMis [31]. According to the objective of the paper the research question was defined as follows: Can urban tourism be perceived as competitive and sustainable in Prague and Budapest cities?

4. RESULTS AND DISCUSSION

The area of Prague is for the performance of the state administration divided into 22 administrative districts, and 57 autonomous municipal districts with elected bodies (Table 2) [28], [26].

The Quality of Life Index of Numbeo ranked Prague 27th very high with 158,43 points as of November 2018. Quality of Life Index is an estimation of overall quality of life by using an empirical formula which takes into account purchasing power index, pollution index, house price to income ratio, cost of living index, safety index, health care index, traffic commute time index and climate index [32].

Prague´s historical center belongs since 1992 to the UNESCO World Heritage Sites. There are 1.330 protected objects in this area (including 28 national cultural monuments), 1.322 protected buildings, a large number of small architectural objects, technical monuments, and historic gardens and parks.

The most visited monument in 2017 was the Prague Castle, followed by Petřín Funicular, the Zoological Garden, the AquaPalace and the Petřín Lookout Tower [25].

Table 2: Basic characteristics of Prague and Budapest

Indicator	Prague	Budapest
Size of the area	496 km^2	525,14 km^2
Number of inhabitants	1, 273 million	1,750 million
Population density	2, 581 inhabitants/km^2	3, 332 inhabitants/km^2
Administrative districts	22	23

In 2017, seven million six hundred fifty thousand tourists arrived in Prague; by 7.4 percent more than a year ago [28]. The number of overnights in Prague increased in 2017 of 7,5% to compare to 2016 and reached 18. 055.838, while the average length of stay 2,4 nights remains unchanged. Prague, which ranks 18th globally, is the only emerging European city to feature in the top 50 cities by Euromonitor International [33].

Budapest is the Capital City of Hungary, and for the performance of the state administration, it is divided into 23 administrative districts (Table 2). The Quality of Life Index of Numbeo [32] ranked Budapest 158th high with 125.20 points.

Hundred and twenty hot springs supplying water of 35-76 degrees centigrade gave rise to a culture of spas in the Roman Age and made Budapest one of the most popular spa cities of Europe with more than 30 spa facilities. The city, including the banks of the Danube, the Buda Castle Quarter, and Andrássy Avenue, was listed a UNESCO World Heritage site in 1987. The most visited monuments in Budapest are the Parliament, the Fishermenś Bastion, St. Stephan Basilica, The St. Matthias Church and the Zoological Garden.

According to Euromonitor International, the number of visitors in Budapest reached 3,5 million in 2017 (an increase of 9.0% to 2016), while the number of overnights was over 10 million (11.1% growth to compare to 2016) making it one of the leading European performers regarding growth. The average length of stay was 2,5 days [33].

Annual tourism density in the cities included in the ECM report [4] was determined to be 8.33 overnights per citizen. Prague is the seventh place on the list of the ECM while to the first five places belong London, Paris, Berlin, Rome, and Madrid; Budapest is placed on the 53rd position.

The number of tourists coming to Prague and Budapest has been growing in the past decades, which is due to reasonably priced accommodation facilities (e. g., Airbnb), low-cost flights, and tourist attractions. Active Airbnb rentals in 2017 were estimated as of 4025 in Budapest; however, up to 90% of the owners of these properties offered for rent do not register the accommodation, so this information is not available on the Hungarian Central Statistical Office [30].

The WTTC annual City Travel & Tourism Impact Report 2018 ranks Budapest for fourth (95,7%) and Prague for ninth (54,8%) position among 72 cities, according to the share of country tourism.

International tourists spent during their stay in Hungary 88,7% (6,2 bn US$) of their total spending in Budapest; in the Czech Republic spent international visitors 87.4% (5,6 bn US$) of their total spending in Prague. The average ten years direct GDP growth in Budapest is 6.2% while in Prague 5.6% [7].

Regarding Travel & Tourism (TT) direct employment Budapest´s share on total TT direct employment in Hungary is 86.1%; Prague´s share on country´s TT direct employment is 41.1%. Budapest belongs to ten fastest growing cities in direct TT employment growth with 3.9% p.a. while Prague´s TT employment decrease by 2.0% p.a. on average in ten years [7].
For detection of the current state of the intensity of visitors flow in Prague and Budapest, different tourism indicators were calculated (Table 5) [26], [27], [28], [29], [30], [31].

Table 5: Indicators for Prague and Budapest (2017)

Indicator	Prague	Budapest
Tourist Intensity Ratio (TIR)	601	228
Tourist Density Ratio (TDR)	15, 429/km²	8, 188/km²
Tourism Penetration Ratio (TPR)	39,5	14,37
Defert’s tourist function index (DTF)	7,22	3,2
Defert-Baretje’s index	2,79	6,1
Charvat´s index	1, 418,37	530
Schneider’s index	600,94	228

Based on the analysis given, the following results can be stated. The Tourism Intensity measures provide an estimate of tourism potential, and in the context of the sustainable development of tourism, it can also be seen as an indicator of the possible tourism pressure. The ratio shows that Prague City (601) has a higher volume of tourism than Budapest (218) per 1000 of residents. The Tourist Density Ratio indicates that Prague welcomes two times more tourists per day per 1 km² than Budapest.

Budapest is larger regarding population and has a bigger central area where tourists can congregate. Prague's most visited city center is comprised of narrow streets in a small area of 2km². In his research Kádár [35] explored the relationship between urban pedestrian cross-network and sustainable tourism. He states that the more complex cross-network offers greater freedom of routing between two sights to locals and tourists. They can have better use of urban spaces and do not concentrate in certain parts of the city.

In Prague, the most important sights of tourists take one another, along a clear path. The branching paths are connected to only a few places. The town resembles a museum where the tourists move from room to room to discover new objects. In Budapest, the main sights are concentrated on the Buda side, while on the Pest side the use of space by locals and visitors is much more balanced.

Prague´s Tourist Penetration Ratio indicates more than two times higher number of tourists per day per 1000 residents than Budapest in the long term; the number of residents in Budapest is higher in Prague.

The Defert's tourist function index for Prague City (7.22) indicates low tourist intensity and that the tourism function of the City is submerged in other urban function. The Defert´s index value for Budapest (3,2) indicates no tourist intensity. It must be added that this result will be different if only the Prague City Center and the Budapest City Center and the 7th district area would be measured.

The Defert-Baretje´s index indicates whether tourism development encourages intensive construction of accommodation facilities. The value of the index for Prague is less than 4 and indicates that tourist activity in the destination is low. Tourists' activity in Prague already reached its peak, and currently, this activity is slowed down. The number of accommodation facilities dropped from 845 in 2012 to 787 in 2017, which means a decrease of seven percent [28]. Prague, according to current tourism statistics, was the only region in the Czech Republic in 2017, where the number of overnight stays in commercial accommodation facilities decreased by 1.1 percent; the reason can be seen in the full offer of e. g., Airbnb facilities [36].

The value of the index for Budapest is 6,1 which is in accordance with the objective of the development strategy which expects to add 2,600 hotel rooms to the current market till the end of 2018.

The intensity of tourism development (the Charvat's index values) is nearly triple for Prague as for Budapest. The number of overnights is a valuable indicator of economic development as incomes achieved in this way remain to the local population, with the possibility of investing in further development.

Schneider's index indicates the tourist turnover intensity of specific destination through the number of tourist arrivals. It reflects the intensity of tourist saturation, which refers to the balance between the tourist and general spatial planning for the needs of the local community. The value of the index in Prague shows nearly a triple tourism saturation comparing to Budapest.

5. CONCLUSION

Tourism is an integral part of urban development, as it combines competitive tourism services, impacts the development of cities, and generates income and jobs to their residents.
The analysis carried out in this study demonstrates disproportions in the range of the indicators. The low value of the Defert-Baretje's index and Charvat´s and Schneider´s indexes for Budapest indicate possibilities for further tourism development.

Based on the results obtained in this study, the research question stated for this study can be answered for Prague that urban tourism in this city is reaching its peak and the borders of sustainability. The impact of the sharing economy on Prague's short-term accommodation market is significant, but hard to track.

The indexes calculated for urban tourism in Budapest indicate that tourism can be further developed. The problem of the further development of urban tourism in this city can be seen in a huge number of tourists in accommodation facilities, often in residential areas that are not included in statistics. Overtourism reduces the quality of life for residents and creates a negative experience for visitors. The city realized its real impact first in 2017 when there were marches in the streets and graffiti saying "Tourists go home."

Governments, tourist boards, and destination management organizations have for long focused on quantity of arrivals with no attention to the quality of visits. If this attitude does not change, both cities will be challenged in competitiveness.

The opportunities for future research can be seen in widening the research and calculating the indicators for time series data.

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ANALYSIS OF ASSETS OF LISTED COMPANIES IN THE TOURISM SECTOR IN CROATIA

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Abstract: *The tourism sector is a generator of growth of the Croatian economy. Natural beauty, clear sea, mountains, and endless plains are not enough for growth of the tourism sector. Today's tourists are looking for more than just natural beauty. Companies in the tourism sector need constant investments in maintaining their properties, investing and current standards improvement.*

The main goal of this paper is to determine how the companies in the tourism sector, listed on the Zagreb Stock Exchange, use their assets. The analysis of the listed companies in the tourism sector is based on three indicators: Return on Assets, Total Assets Turnover, and Current Asset Turnover. These three indicators are calculated for the period of the years 2017, 2012 and 2008. The data are processed statistically with the SPSS program. The results show that a company's management was more efficient in 2017 than in 2012 or 2008 in using its assets to generate profit or revenue.

Keywords*:* *Return on Assets (ROA), Total Assets Turnover, Current Assets Turnover*

1. INTRODUCTION

The tourism sector is a generator of growth of the Croatian economy and is, therefore, the main branch on which the state budget has relied on years. According to the information of the Croatian National Bank [1], tourist sector has realized revenue in the amount of 9.5 billion EUR in the year 2017, in the year 2012 6.83 billion EUR and in the year 2008 7.46 billion EUR. The share of travel revenue from tourism amounts to 19.6 % in total GDP.

The companies listed on the Zagreb Stock Exchange in the tourism sector should lead the way for the development of tourism in Croatia. This research includes 26 companies in the tourism sector, including hotel companies, marines and camp activities. Only 26 companies have published their financial statements for all three investigated years: 2017, 2012 and 2008. The year 2017 is the last year of published financial statements and represents the latest situation, the year 2012 in Croatia is the year of the beginning of pre-bankruptcy settlements and 2008 is the first year of the world's financial crises.

The main aim of this paper is to determine how well the company's assets are being used to generate revenue or profit in the tourism sector on the Zagreb Stock Exchange. The analysis of the listed companies in the tourism sector is based on three indicators: Return on Assets (ROA), Total Assets Turnover and Current Asset Turnover. These three indicators calculated for the period of the years 2017, 2012 and 2008 in order to show how efficient was the management of a touristic company listed on the Zagreb Stock Exchange during the researched period.

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2. THEORETICAL BACKGROUND

Efficiency ratios as asset turnovers and profitability ratio as the return of assets evaluate how well a company uses its assets to generate revenue or profit. “When analysts rapidly assess the financial position of a company, they first look at the two key categories of profitability and degree of indebtedness“ [2].

Efficiency or activity ratios used in this paper are total assets turnover and current assets turnover. An analysis of the property turnover "is not actually a real property turnover, but a coefficient that tells how many monetary units of total assets create cash revenue units” [3].

The total asset turnover measures the efficiency of a company's assets in generating total revenue or sales. It tells how many Croatian kuna of the total or current asset creates the amount of sales or total revenue. Return on assets (ROA) is a profitability ratio that provides information on how much profit a company is able to generate from its assets. Generally, a higher amount or ratio is favored because there is an implication that the company is efficient in generating profit or revenues. A lower ratio shows that a company is not using the assets efficiently and has internal problems.

In the Vizek research [4] the development of Croatian tourism sector during the ten years from 1997 to 2006 is analyzed. “The results of the analysis point to the conclusion that Croatian tourism shows good results in the form of a strong increase in tourism revenues, a reduction in unit labour costs, labour productivity growth, employment and GVA in the industry Hotels and restaurants. The problems of Croatian tourism are reflected in insufficient level of investment…, emphasized seasonal tourism, associated inadequate accommodation capacities and negative business results of a large part of the business Hotels and restaurants” [5].

In the Kim and Baker research [6] ratio analysis was used to examine notable financial trends within four major sectors of the hospitality industry for the period 1997-2001, namely lodging, restaurants, airlines and the amusement sector. Some of the results are:” Both ratios of profitability, net profit margin, and ROA, are significantly higher in the segment of hotels and motels than in the segment of amusement and recreational services" [7].

3. THE GOALS, BASIS, AND HYPOTHESIS OF THE RESEARCH

The main aim of this paper is to determine how well the company’s assets are being used to generate sales or profit in the tourism sector on the Zagreb Stock Exchange. The result shows how efficient the management of a touristic company listed on the Zagreb Stock Exchange during the research period and shows if the situation today is better than in 2012 and 2008.
The research described in this paper is based on information obtained from the financial statements of 26 companies from the tourism sector listed on the Zagreb Stock Exchange in 2017, 2012 and 2008.

In the research, the following Return on Assets (ROA), Total Assets Turnover, and Current Assets Turnover were calculated according to the formulas shown in Table 1.

Table 1: The main formulas

Description	Numerator	Denominator
Return on Assets	Net profit	Total Assets
Total Assets Turnover	Total revenue	Total Assets
Current Assets Turnover	Total revenue	Current Assets

The following statistical hypotheses are used for confirmation of the main aim:

The first statistical hypothesis:

- **H0**: There is no statistically significant difference in ROA depending on which year ratio is calculated
- **H1:** There is a statistically significant difference in ROA depending on which year ratio is calculated

The second statistical hypothesis:

- **H0:** There is no statistically significant difference in Total Assets Turnover depending on which year ratio is calculated
- **H1:** There is a statistically significant difference in Total Assets Turnover depending on which year ratio is calculated

The third statistical hypothesis:

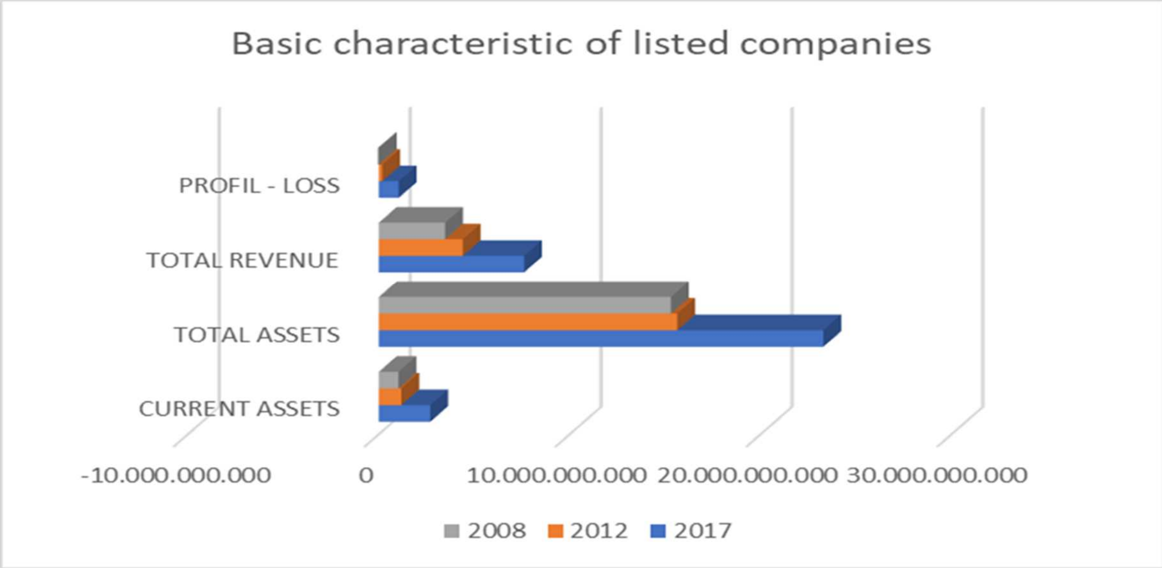
- **H0:** There is no statistically significant difference in Current Assets Turnover depending on which year ratio is calculated
- **H1:** There is a statistically significant difference in Current Assets Turnover depending on which year ratio is calculated

For the statistical analysis, this paper uses Descriptive Analysis, a nonparametric test like the Friedman test and Wilcoxon signed-rank test. The Friedman test is the non-parametric alternative to the one-way ANOVA with repeated measuring. The non-parametric test is used because data samples are not normally distributed, and the assumption of normality is violated. Friedman test is based on mean rank, not mean value. The test compares the ranked value with expected values in a chi-square analysis.
The statistical study used the software IBM SPSS.

4. RESEARCH RESULTS

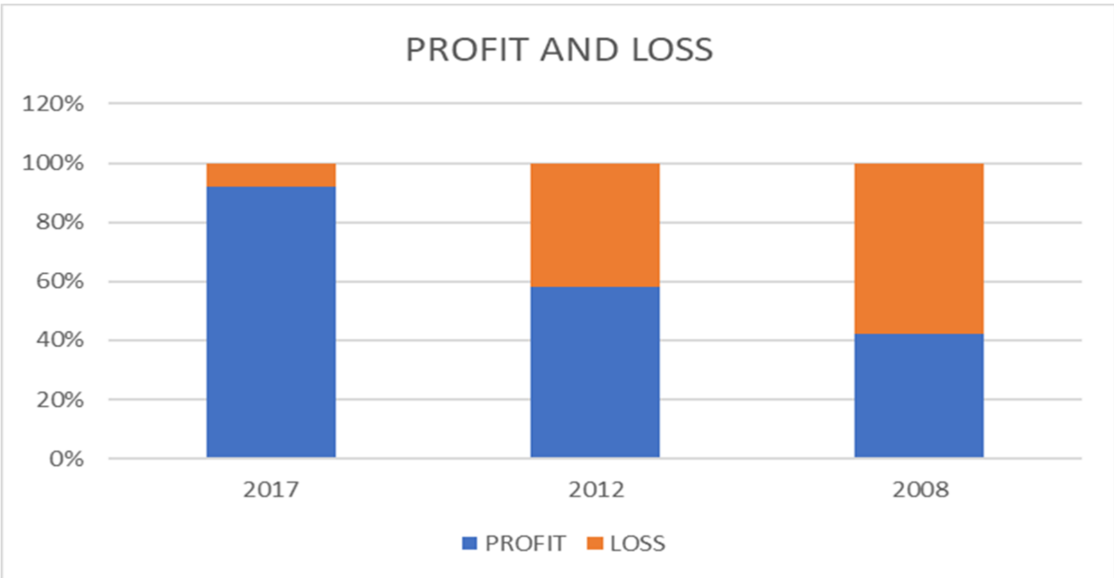
This research involved 26 companies which published annual reports in the years 2017, 2012 and 2008 on the Zagreb Stock Exchange. Hotels, marinas or camping activities are the main business activities of all 26 companies in this research in the tourism sector.

Chart 1: The Group Results of the listed Companies



The common characteristic of the researched companies for the years 2017, 2012 and 2008 is shown in Chart 1. It is a visible trend of increase of all examined variables for every examined year, especially in 2017. Current assets of the group in 2012 are increased by 14% according to 2008 and 129% in 2017 according to 2012. Total assets of the group in 2012 are increased by 2% according to 2008 and 49% in 2017 according to 2012. Total revenue of the group in 2012 is increased by 27% according to 2008 and 73% in 2017 according to 2012. The financial result of the group (profit minus loss) in 2008 was a loss, but in 2017 profit has increased by 474% than 2012.

Chart 2: Profit and Loss



In 2017 profit was realized in 92% of companies, in 2012 in 58% and in 2008 in 42% of the companies, as shown in Chart 2. From 2012 to 2017 19% of the companies in the group were involved in the pre-bankruptcy settlement in an attempt to save companies from bankruptcy.

Table 2: Friedman Test for ROA

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum	Percentiles 25th	Percentiles 50th (Median)	Percentiles 75th
ROA 2017	26	3.72	5.06	-3.35	20.86	0.73	2.43	5.75
ROA 2012	26	-0.87	10.72	-46.33	20.06	-2.65	0.93	3.56
ROA 2008	26	-2.96	10.21	-49.41	11.39	-4.36	-1.72	0.16

Friedman Test

Ranks

	Mean Rank
ROA 2017	2.73
ROA 2012	1.96
ROA 2008	1.31

Test Statistics

N	26
Chi-Square	26.385
df	2
Asymp. Sig.	.000

a. Friedman Test

The result of the Friedman Test for ROA is shown in Table 2. There is a statistically significant difference in ROA, $\chi2(2) = 26.385$, $p = 0.000$. Because $p < 0.05$ we will reject the first null hypothesis.

Table 3: Friedman Test for Total Assets Turnover

Descriptive Statistics

	N	Mean	Std. Deviation	Min.	Max.	Percentiles 25th	Percentiles 50th (Median)	Percentiles 75th
TOTAL ASSETS TURNOVER 2017	26	0.33	0.32	0.01	1.79	0.20	0.28	0.36
TOTAL ASSETS TURNOVER 2012	26	0.24	0.12	0.01	0.58	0.16	0.24	0.34
TOTAL ASSETS TURNOVER 2008	26	0.22	0.13	0.00	0.61	0.11	0.21	0.31

Friedman Test

	Mean Rank
TOTAL ASSETS TURNOVER 2017	2.38
TOTAL ASSETS TURNOVER 2012	2.12
TOTAL ASSETS TURNOVER 2008	1.50

N	26
Chi-Square	10.692
df	2
Asymp. Sig.	.005

a. Friedman Test

The result of the Friedman Test for Total Assets Turnover is shown in Table 3. There is a statistically significant difference in Total Assets Turnover depending on the year for which the ratio is calculated $\chi2(2) = 10.692$, $p = 0.005$. Because $p < 0.05$ we will reject the second null hypothesis.

Table 4: Friedman Test for Current Assets Turnover

Descriptive Statistics								
	N	Mean	Std. Deviation	Min.	Max.	Percentiles		
						25th	50th (Median)	75th
CURRENT ASSETS TURNOVER 2017	26	10.00	27.15	0.88	141.23	1.59	3.68	6.55
CURRENT ASSETS TURNOVER 2012	26	6.15	4.50	0.64	16.37	2.95	4.63	9.43
CURRENT ASSETS TURNOVER 2008	26	4.23	3.27	0.00	13.87	2.06	3.60	6.30

Friedman Test

Ranks

	Mean Rank
CURRENT ASSETS TURNOVER 2017	1.92
CURRENT ASSETS TURNOVER 2012	2.27
CURRENT ASSETS TURNOVER 2008	1.81

Test Statistics[a]

N	26
Chi-Square	3.00
df	2
Asymp. Sig.	.223

a. Friedman Test

The result of the Friedman Test for Current Assets Turnover is shown in Table 4. There is no statistically significant difference in Current Assets Turnover depending on the year for which the ratio is calculated. $\chi2(2) = 3.00$, $p = 0.223$. Because $p > 0.05$ we will accept the third null hypothesis.

Friedman Test ROA and Total Assets Turnover ratio have shown a statistically significant difference in the value of the Ratios between the years. Before continuation with Post hoc analysis with Wilcoxon signed-rank test, it is needed to conduct the Bonferroni correction. A Bonferroni adjustment of the results from the Wilcoxon test is necessary because multiple comparisons are made and there is a possibility of a Type I error that will show that a result is significant when it should not be (a Type I error). In the calculation of Bonferroni adjustment, it will take the significance level into consideration which is initially used (in this case 0.05) and divide it by the number of three tests what we are conducting. So, in this example, we have a new significance level of 0.05/3 = 0.017. This means that if the *p*-value is larger than 0.017 we do not have a statistically significant result.

Table 5: Wilcoxon Signed Rank Tests for ROA

Test Statistics[a]

	ROA 2012 - ROA 2017	ROA 2008 - ROA 2017	ROA 2008 - ROA 2012
Z	-2.993[b]	-4.407[b]	-2.603[b]
Asymp. Sig. (2-tailed)	.003	.000	.009

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

The result of the Wilcoxon signed-rank tests for ROA is shown in Table 5. There was a statistically significant difference in ROA depending on the year χ2(2) = 26.385 p = 0.000. Post hoc analysis with Wilcoxon signed-rank test was conducted, with applied Bonferroni correction, resulting in a significance level set at p < 0.017. Median ROA for the year 2017 was 2.43 (0.73 to 5.74), for the year 2012 it was 0.93 (-2.65 to 3.56), for 2008 it was -1.72 (-4.36 to 0.16). However, there was a statistically significant change in ROA in 2012 vs 2017 (Z = -2.993, p = 0.003), ROA in 2008 vs 2017 (Z = -4.407 p = 0.000) and ROA in 2008 vs 2012 (Z= -2.603, p = 0.009).

Table 6: Wilcoxon Signed Rank Tests for Total Assets Turnover

Test Statistics[a]

	TOTAL ASSETS TURNOVER 2012 - TOTAL ASSETS TURNOVER 2017	TOTAL ASSETS TURNOVER 2008 - TOTAL ASSETS TURNOVER 2017	TOTAL ASSETS TURNOVER 2008 - TOTAL ASSETS TURNOVER 2012
Z	-2.603[b]	-2.832[b]	-2.400[b]
Asymp. Sig. (2-tailed)	.009	.005	.016

a. Wilcoxon Signed Ranks Test
b. Based on positive ranks.

The result of the Wilcoxon signed-rank test for Total Assets Turnover is shown in Table 6. There was a statistically significant difference in Total Assets Turnover depending on the year. χ2(2) = 10.692, p = 0.005. Post hoc analysis with Wilcoxon signed-rank test was conducted with applied Bonferroni correction, resulting in a significance level set at p < 0.017. Median Total Assets Turnover for the year 2017 was 0.28 (0.20 to 0.36), for the year 2012 it was 0.24 (0.16 to 0.34) and for the 2008 it was 0.21 (0.11 to 0.31), respectively. There were significant differences between the Total Assets Turnover in 2012 vs 2017 (Z = -2.603 p = 0.009), between the 2008 vs 2017 (Z = -2.832, p = 0.005), and between 2008 vs 20012 (Z = -2.400, p = 0.016).

5. CONCLUSION

The information on ROA and Asset Turnover give a manager, investor, or analyst an idea on how efficient a company's management is at using its assets to generate income or profit. According to ROA in 2017, every kuna invested in assets earned 3.7 lipa in profit. In 2012 and 2008 ROA the trend was negative due to big losses of listed companies in the tourism sector. According to Total Assets Turnover, every kuna invested in total assets earned 0.33 kuna of total revenue in total revenue in 2017, 0.24 in 2012 and 0.21 kuna in 2008. According to Current Assets Turnover, every kuna invest in current assets earned 10.00 kuna of revenue in 2017, 6.15 kuna in 2012 and 4.23 kuna in 2008.

According to the results of this research, we can conclude that the situation in 2017 is better than in 2012 and 2008. Not only is the result of the year better, but also the use of the company's assets.

For further research, the percentage of occupancy needs to be seen, as well as the fact is it the good result of the business year or pre-bankruptcy settlement.
Natural beauty, clear sea, mountains, and endless plains are not enough for growth of the tourism sector. Calculated indicators show that a company's management was more efficient in 2017 than in 2012 or 2008 in using its assets to generate profit or revenue. Listed tourism sector

recognizes that it needs better management of its assets in order to get better results and satisfied guests.

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SOCIO-DEMOGRAPHIC CHARACTERISTICS AS INFLUENCE FACTORS ON THE COMPLAINANT'S LOYALTY - THE TRAVEL AGENCIES OF SERBIA AND CROATIA

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Abstract: *Failures are inevitable, especially in service companies where production and consumption take place simultaneously, and the human factor participation is dominant. In addition to knowing factors of influence to the loyalty of satisfied users, it is necessary to determine the existence and influence of factors on the retention of dissatisfied users. The research presented in the paper is based on determining the differences in the complainant's loyalty regarding their socio-demographic characteristics. Therefore, the research subject is the impact that socio-demographic characteristics have on the complainant's loyalty to travel agencies from Serbia and Croatia. The aim of the research is to determine the statistically significant differences to the complainant's loyalty in relation to the user's socio-demographic characteristics. The empirical part of the research was carried out by a survey technique. The results of the conducted empirical research confirmed the findings and claims of foreign authors regarding the place of residence and the impact of the service users' monthly income to the loyalty to a specific travel agency. The purpose of this paper is to point out the possibility of using complaints and service recovery in order to build better and long-term relationships with the users of travel agency services. The obtained results may indicate to travel agencies the importance of knowing their service users' profile. By disposing with a unique user database, a specific travel agency creates the preconditions needed for quick measures and actions in situations of user dissatisfaction.*

Keywords: *travel agencies, complaints, loyalty, socio-demographic characteristics*

1. INTRODUCTION

A travel agency operates as a forwarding company or only produces services that meet the needs of its users while temporarily changing their place of residence, or by organizing a trip [1]. Since tourism products are complex (consisting of a large number of different products and services), users are not passive recipients; rather, they are more of employees with half the work that actively influence the attitudes and behavior of employees. Users and employees are an integral part of a service company and they create values more efficiently and effectively through knowledge, understanding and trust [2]. The main task of a travel agency is to deliver superior value to its users. The prerequisite for delivering superior value is maintaining quality relationships with customers. A travel agency should develop a strategy that maintains a stable portfolio of users over time if it wants to stay on the market in the long run [3]. Despite the importance of travel agencies in tourism distribution, little attention

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has been paid to new challenges and possible success strategies to increase loyalty to travel agencies [4].

As mistakes are an inevitable consequence of human activities, so will the travel agency with the best management have at least one of ten users who will not be satisfied with the service it receives. The process of managing user complaints is being increasingly mentioned as an important precondition for the application of marketing relations in tourism (Alvarez, et al., 2011; Swanson, Hsu, 2011). Some authors point out that if current users are the most productive source of additional or re-engagement, the users lost are likely to be the second best source of additional business [5]. Companies should raise users' awareness about the importance of appeals for providing enhanced services. Proactive encouragement of complaints reminds users that their complaints are desirable [6].

On the other hand, an unhappy user is a "potential bomb" full with negative comments and emotions. Their explosion could seriously damage the reputation of the company. Research has shown that users will tell their five closest acquaintances about the manner in which their complaint is handled, but if users receives a good service at the beginning, they will only inform three [7]. Therefore, it is necessary that travel agencies and their travel agents recognize critical situations and undertake emergency actions to solve problems [8]. The actual importance of quality handling of complaints cannot be the same for every company. Some authors state that access to complaints varies depending on the characteristics of users and complaint situations that a company faces. The severity of the problem relates to the degree of economic or non-economic loss that the user considers to be the result of a service error for him/her. Attributing the responsibility to the travel agency refers to the extent to which the user considers that the cause of the problem is the agency and not him/her and that therefore the particular travel agency is responsible for his/her dissatisfaction. Differences in perceiving the severity of problem and assigning responsibility can result from different psychographic and socio-demographic characteristics of users [9].

Failure to meet customer expectations i.e. unfavorable experience, results in user dissatisfaction [10]. Service providers need to understand the negative comments and emotional aspects of their users are detrimental to the image of a specific travel agency. Lack of understanding of service users disturbs this relationship. In their research some authors come to a conclusion that recovery after a complaint process is equally if not more important than providing a good service at the beginning. It is pointed out that it is of utmost importance in the process of service recovery that users have the means by which they can express their dissatisfaction [7]. The focus of this paper will be on the loyalty of complainants - users of tourist agency services in Serbia and Croatia.

Early researches on service processes focused more on employees and factors influencing the user's tendency to lodge a complaint. However, in this paper, attention is focused on understanding the behavior of users after the service recovery and their subsequent post-purchase decisions. The objective and the problem of the research is the influence that the socio-demographic characteristics have on the loyalty of complainants to tourist agencies from Serbia and Croatia. As neighboring countries, Serbia and Croatia have intertwined cultural and historical heritage. However, the results of the conducted research have shown that some factors affecting the loyalty of complainants, i.e. tourist services users of these two countries, differ. Thus this paper points to the need to know the data about factors that influence loyalty of users after the service recovery process as a prerequisite for knowing the profile of users of that particular travel agency. By disposing of a unique database of users, a travel agency creates preconditions needed for quick measures and actions in situations of user dissatisfaction.

2. REVIEW OF LITERATURE

The tendency to appeal is the tendency of the user to complain. In research dealing with post-consumer behavior or user behavior, the determinants of the impact on the disadvantage of the disadvantaged users to complain are the demographic and socioeconomic characteristics of the user. According to individual authors, the inclination to appeal includes personality, attitudes and lifestyles as variables that affect the user's tendency to complain when dissatisfied. The socio-demographic characteristics of the user include age, gender, average income, education, place of residence [9]. Different user characteristics are variables which were used to determine the existence of differences in user's complaint behavior [11].

According to the results determined by Heung, V. C. S. and Lam, T. (2003), female users are more involved in the complaint process, and they convey to others their satisfaction or dissatisfaction with how their complaints are handled. Women, young and highly educated users tend to complain more. Young and middle age groups are more involved in complaints than older age groups [12].

Reynolds, K. L., and Harris, L. C. (2005) conclude that users, who are typically younger, highly educated, earn above average income, do a professional job, have women and have children [13].

Tronvoll, B. (2007) states that younger users are more likely to complain, while disgruntled low-income users are insufficiently represented among those who complain [14].

Phau, I. and Baird, M. (2008) found that respondents aged 40 or above expect more from products and services compared to other age groups. According to this research, respondents aged 54 or above potentially have more free time than those who are younger and are therefore willing to spend more time and invest more effort in making a complaint. The results of the research conducted by these authors show that respondents with some type of higher level education have less chances to complain than users with lower education level. Phau, I. and Baird, M. (2008) came to the conclusion that there is no link between income and different levels of complaint behavior [15].

The results of the research conducted by Homburg, C., Fürst, A., and Koschate N. (2010) show that women, as users of services, devote more attention to user service issues, unlike men. These authors come to the conclusion that older users create a need for the company to provide a fair treatment for handling their complaint process. Also, with regard to user's education level, the results of the research support the assumption that users having higher education are able to evaluate the handling of complaints by a company and its outcome is better than those with lower levels of education [9].

The work of the authors Metehan, T. and Yasemin, Z.A. (2011) points out that users older than 40 start to expect more from the services they purchase, and also they do not have much interest in terms of social expectations and perceptions, so therefore they are more prone to complain. Also, respondents older than 54 may have more time available than those who are younger and are therefore willing to spend more time and invest more effort to file a complaint. In the study by these authors, education is another variable, the influence of which on the complaint behavior is questioned. A high education level is treated as a demographic variable that can be linked to a greater propensity of the user to lodge a complaint, notify injustice and form higher expectations of the services. The results also show that users with higher income buy more, and therefore can be expected to complain more. The assumption is that individual users with higher incomes have greater personal resources that allow them to express their dissatisfaction more easily [11].

Based on the literature review, it can be concluded that there is no compliance in terms of interpreting the impact of particular user characteristics. A database of permanent, loyal users is a key resource for survival of a company. Therefore, employees need to improve and strengthen their contacts with users. It is important to keep users focused on achieving consistent levels of loyalty and, consequently, of profitability. Since failures are inevitable, it is necessary to provide adequate service recovery and win back the loyalty of users who have filed a complaint in response to unsatisfactory values provided by a particular company. The prerequisite for ensuring the loyalty of previously dissatisfied users is to have information about them. In order to implement an adequate service recovery program, it is necessary to have a database of currently dissatisfied, and then loyal users.

3. METHODOLOGY OF RESEARCH

This paper analyzes the impact of socio-demographic characteristics of users - complainants, on their loyalty to travel agencies. The conducted research aims to establish a statistically significant difference in the loyalty of complainants with respect to their socio-demographic characteristics (gender, age, monthly income and residence). The starting point for the realization of this goal is to conduct research and collect data. The research was conducted in Serbia and Croatia in the form of structured testing through a questionnaire distributed online. A questionnaire consisting of two parts was composed based on the review of the relevant literature (Homburg, Furst & Koschate, 2010; Mattila, 2001; Karatepe, 2006). Questions related to the socio-demographic characteristics of the user (gender, age, monthly income and residence) are included in the first part of the questionnaire. The second part of the questionnaire deals with the loyalty of the complainant. Respondents responded to the statements offered in the second part of the questionnaire by giving grades 1 to 5 (1 - I completely disagree, 5 - I completely agree).

Starting from the main topic as well as research goals of this paper, and taking into account the previous research on this topic, the main hypothesis - that will be the subject to testing with the intention of proving it - is as follows:

H_0: There is a statistically significant difference in the loyalty of complainants among tourist services users of various socio-demographic characteristics.

The set hypothesis H_0 is broken down into the following four, auxiliary hypotheses:
H_1: There is a statistically significant difference in the loyalty of complainants among users of the different types of tourist services
H_2: There is a statistically significant difference in the loyalty of complainants between users of tourist services of different ages
H_3: There is a statistically significant difference in the loyalty of complainants among tourist services users of different amounts of monthly income
H_4: There is a statistically significant difference in the loyalty of complainants between tourist service users with different place of residence.

The survey was conducted in Serbia and Croatia between September 2016 and January 2017, covering 116 respondents from Serbia and 106 respondents from Croatia. Table 1 shows the description of the sample, separately for Serbia and separately for Croatia.

Table 1: Description of the sample of respondents from Serbia and Croatia

VARIABLE		**SERBIA**		**CROATIA**		
		ABSOLUTE FREQUENCIES	**PERCENTAGE %**	**ABSOLUTE FREQUENCIES**		**PERCENTAGE %**
Gender of respondents	Male	44	37.9		21	19.8
	Female	72	62.1		85	80.2
Age of respondents (in years)	18-27	69	59.5		10	9.4
	28-37	26	22.4		13	12.3
	38-47	11	9.5		8	7.5
	48-57	8	6.9		15	14.2
	58-67	2	1.7		20	19.9
	68 and more	-	-		40	37.7
Level of Education	Elementary school or less	1	.9		-	-
	High School	37	31.9		17	16.0
	University or college	51	44.0		64	60.4
	Master	23	19.8		24	22.6
	Doctorate	4	3.4		1	.9
Monthly income	Up to EUR 200	37	32.8	Up to EUR 200	2	1.9
	Between EUR 200-300	15	12.9	Between EUR 200-300	7	6.6
	Between EUR 300-400	23	19.0	Between EUR 300-400	11	10.4
	Between EUR 400-500	11	9.5	Between EUR 400-500	12	11.3
	Between EUR 500-600	16	13.8	Between EUR 500-600	19	17.9
	Over EUR 600	14	12.1	Over EUR 600	55	51.9
Place of residence	City	100	86.2		95	89.6
	Village	16	13.8		11	10.4
Number of family members	1-2	31	26.7		20	19.8
	3-4	62	52.6		81	75.5
	5 and more	23	20.7		5	4.7
Travels per year	Once per year	33	28.4		6	5.7
	2-3 times per year	44	37.9		27	24.5
	4 and more times per year	14	12.1		70	67.0
	I do not travel every year	25	21.6		3	2.8
Average annual travel spending	Below EUR 100	28	24.1	Below EUR 100	-	-
	EUR 100-200	17	14.7	EUR 100-200	17	16.0

of the household	Over EUR 200	71	61.2	More than EUR 200	89	84.0
How many times services of the travel agency last travelled with have been used so far?	Once	76	65.5		22	20.8
	Two or three times	30	25.9		55	51.9
	Four or more times	10	8.6		29	27.4

Source: *Calculation by the authors*

The answers to the questions and evaluations of the statements from the questionnaires were processed using the statistical software IBM SPSS 21. Kolmogorov - Smirnov test and Sapiro - Vilkov test was used to check the normality of the schedule. The distribution of the results of the continuous variables by gender and the place of residence is not normal, so Man-Vitney U test was used to test the auxiliary hypothesis. To test other auxiliary hypotheses (age and amount of monthly income), Kruskal-Volis test was used as non-parametric technique because the distribution of results was not normal.

4. RESULTS OF RESEARCH AND DISCUSSION

4.1. Determining statistically significant differences in the loyalty of complainants relative to tourist service user gender

The assumption about the normal distribution was not confirmed, and the determination of a statistically significant difference in the complainant's loyalty with respect to the gender was investigated using the Mann-Whitney U test as a non-parametric alternative of the t test of independent samples (Table 2). In order to consider the result of Z approximation as statistically significant difference, the significance should be less than the required limit value of 0.05.

Table 2: Statistics of test [a]

Country		**Loyalty of the complainant**
SERBIA	Mann-Whitney U	1482,5
	Wilcoxon W	4110,5
	Z	-,584
	Asymp. Sig. (2-tailed)	,559
CROATIA	Mann-Whitney U	796,5
	Wilcoxon W	1027,5
	Z	-,771
	Asymp. Sig. (2-tailed)	,441

Source: *Calculation by the authors*

Table 3: Mean value of rank and median

Country		Gender	N	Mean Rank	Median
SERBIA	Loyalty of the complainant	Male	44	60.81	4.0
		Female	72	57.09	3.6
		Total	116		
CROATIA	Loyalty of the complainant	Male	21	48.93	4.0
		Female	85	54.63	4.0
		Total	106		

***Source:** Calculation by the authors*

The Mann-Whitney test did not reveal any statistically significant difference in loyalty between male (Md = 4.0, n = 44) and female (Md = 3.6, n = 72) in Serbia, U = 1482.5, Z = -0.584, p = 0.559, r = 0.05 (low impact). Male and female in Serbia are equally loyal to travel agencies.

The Mann-Whitney test did not reveal any statistically significant difference in loyalty of male (Md = 4.0, n = 21) and female (Md = 4.0, n = 85) in Croatia, U = 796.5, Z = -0.771 , p = 0.441, r = 0.07 (small effect). Male and female in Croatia are equally loyal to travel agencies.

The Mann-Whitney tests in Serbia and Croatia did not determine any statistically significant difference in the loyalty of complainants with regard to their gender, and it can be concluded that there is a statistically significant difference in the loyalty of complainants between tourist service users of the different gender; H_1: There is a statistically significant difference in the loyalty of the complainant between tourist service users of the of different gender, is not accepted.

The assumption about the normal distribution was not confirmed, and the determination of a statistically significant difference in the complainants' loyalty with respect to the age of the respondents was investigated using the Kruskal-Wallis test as a non-parametric alternative to a single-factor analysis of the variance of different groups (Table 4). If the value of the test is statistically significant, the results are converted into ranks, so mean ranges and median values are compared.

Table 4: Ranges

Country		Age of respondents	N	Mean Rank
SERBIA	Loyalty of complainants	18-27	69	59.62
		28-37	26	51.40
		38-47	11	52.27
		48-57	8	73.69
		58-67	2	85.75
		Total	116	
CROATIA	Loyalty of complainants	18-27	10	39.25
		28-37	13	44.88
		38-47	8	47.25
		48-57	15	40.63
		58-67	20	57.33
		68 and more	40	
		Total	106	64.03

***Source:** Calculation by the authors*

Table 5: Statistics of the test [a,b]

Country		**Loyalty of complainants**
SERBIA	Chi-Square	4,662
	df	4
	Asymp. Sig.	,324
CROATIA	Chi-Square	11,430
	df	5
	Asymp. Sig.	,043

Source: *Calculation by the authors*

The Kruskal-Wallis test did not disclose a statistically significant difference in the loyalty of complainants with regard to age of respondents in Serbia (Gp1, n = 69: 18-27, Gp2, n = 26: 28-37, Gp3, n = 11: 38-47 year, Gp4, n = 8: 48-57 years, Gp5, n = 2: 58-67 years), c2 (4, n = 116) = 4.662, p = 0.324. Respondents of different age in Serbia are equally loyal to travel agencies.
The Kruskal-Wallis test revealed a statistically significant difference in the loyalty of complainants with regards to age of the respondents in Croatia (Gp1, n = 10: 18-27, Gp2, n = 13: 28-37, Gp3, n = 8: 38-47 Gp4, n = 15: 48-57, Gp5, n = 20: 58-67 and Gp6, n = 40: 68 and older), c2 (5, n = 106) = 11.430, p = 0.043. Complainants' loyalty is highest among respondents aged 58-67 years (Mean Rank = 57.33, Md = 4.0), and the youngest respondents who are aged 18-27 (Mean Rank = 39.25, Md = 3.7).

The Kruskal-Wallis tests in Serbia and Croatia did not reveal a statistically significant difference in the loyalty of complainants with regard to age of the respondents, hence it can be concluded that the hypothesis H_2: There is a statistically significant difference in the loyalty of complainants between tourist service users of the of different age, is not accepted.

The assumption about the normal distribution was not confirmed, and the determination of the statistically significant difference in the loyalty of complainants relative to the monthly income of the respondents was investigated using the Kruskal-Wallis test, as a non-parametric alternative to a single-factor analysis of the variance of different groups (Table 6). If the value of the test is statistically significant, the results are converted into ranks, so mean ranges and median values are compared.

Table 6: Ranges

Country		**Monthly income of respondents**	N	Mean Rank
SERBIA	Loyalty of complainants	Up to EUR 200	37	62.92
		EUR 200-300	15	70.23
		EUR 300-400	23	64.28
		EUR 400-500	11	42.77
		EUR 500-600	16	51.94
		Over EUR 600	14	44.61
		Total	116	
CROATIA	Loyalty of complainants	Up to EUR 200	2	74.50
		EUR 200-300	7	36.64
		EUR 300-400	11	48.32
		EUR 400-500	12	32.71
		EUR 500-600	19	54.24
		Over EUR 600	55	60.20
		Total	106	

Source: *Calculation by the authors*

Table 7: Statistics of the test [a,b]

Country		**Loyalty of complainants**
SERBIA	Chi-Square	8,748
	df	5
	Asymp. Sig.	,120
CROATIA	Chi-Square	11,776
	df	5
	Asymp. Sig.	,038

Source: *Calculation by the authors*

The Kruskal-Wallis test did not disclose a statistically significant difference in the loyalty of complainants with regard to the amount of monthly income of respondents in Serbia (Gp1, n = 37: up to EUR 200, Gp2, n = 15: EUR 200-300, Gp3, n = 23: EUR 300-400, Gp4, n = 11: EUR 400-500, Gp5, n = 16: EUR 500-600, Gp6, n = 14: over EUR 600), c2 (5, n = 116) = 8,748, p = 0.120. Respondents with varying levels of monthly income in Serbia are equally loyal to travel agencies.

The Kruskal-Wallis test revealed a statistically significant difference in the loyalty of complainants with regard to the amount of monthly income of respondents in Croatia (Gp1, n = 2: up to EUR 200, Gp2, n = 7: EUR 200-300, Gp3, n = 11: EUR 300-400, Gp4, n = 12: EUR 400-500, Gp5, n = 19: EUR 500-600, Gp6, n = 55: over EUR 600), c2 (5, n = 106) = 11,776, p = 0.038. The loyalty of complainants is highest among respondents with monthly income up to EUR 200 (Mean Rank = 74.50, Md = 4.3), and the smallest among respondents with monthly income between EUR 400 and 500 (Mean Rank = 32.71, Md = 3.4).

The Kruskal-Wallis test in Serbia did not reveal while in Croatia it revealed a statistically significant difference in the loyalty of complainants with regard to monthly income of the respondents, hence, it can be concluded that the hypothesis H_4: There is a statistically significant difference in the loyalty of complainants among tourist services users of different amounts of monthly income, is partially accepted.

The assumption about the normal distribution was not confirmed, and the determination of the statistically significant difference in the complainants' loyalty with respect to the place of residence of the respondents was investigated using the Mann-Whitney U test, as a non-parametric alternative of the t-test of independent samples (Table 8).

Table 8: Statistics of the test [a]

Country		**Loyalty of the complainant**
SERBIA	Mann-Whitney U	675.5
	Wilcoxon W	5725.5
	Z	-1.008
	Asymp. Sig. (2-tailed)	.313
CROATIA	Mann-Whitney U	283.5
	Wilcoxon W	349.5
	Z	-2.510
	Asymp. Sig. (2-tailed)	.012

Source: *Calculation by the authors*

Table 9: Mean value of rank and median

Country		Place of living	N	Mean Rank	Median
SERBIA	Loyalty of the complainant	City	100	57.26	3.6
		Village	16	66.28	4.1
		Total	116		
CROATIA	Loyalty of the complainant	City	95	56.02	4.0
		Village	11	31.77	3.6
		Total	106		

Source: *Calculation by the authors*

The Mann-Whitney test did not reveal a statistically significant difference in the loyalty of the respondents residing in cities (Md = 3.6, n = 100) and villages (Md = 4.1, n = 16) in Serbia, U = 675.0, Z = -1,008, p = 0.313, r = 0.09 (a small influence). Respondents from the city and villages in Serbia are equally loyal to travel agencies.

The Mann-Whitney test revealed a statistically significant difference in the loyalty of respondents residing in cities (Md = 4.0, n = 95) and villages (Md = 3.6, n = 11) in Croatia, U = 283.5, Z = -2.510, p = 0.012, r = 0.24 (small to medium influence). Loyalty to travel agencies is higher among respondents from cities compared to respondents from villages.

Bearing in mind that the Mann - Whitney U test in Serbia did not disclose a statistically significant difference in the loyalty of complainants with regard to the place of respondents' residence, while in Croatia it did reveal a statistically significant difference, it can be concluded that the established hypothesis H_5: There is a statistically significant difference in the loyalty of complainants between tourist service users with different place of residence, is partially accepted.

After examining statistically significant differences in the loyalty of the complainant relative to the individual socio-demographic characteristics of the respondents (i.e. tourist service users) through four individual hypotheses:

H_1: There is a statistically significant difference in the loyalty of complainants between tourist service users of different gender - *it is not accepted*;
H_2: There is a statistically significant difference in the loyalty of complainants between tourist services users of different age - *it is not accepted*;
H_3: There is a statistically significant difference in the loyalty of complainants between tourist services users of different amounts of monthly income – *it is partially accepted*;
H_4: There is a statistically significant difference in the loyalty of complainants between the tourist service users of the with a different place of residence - *it is partially accepted*;

it can be concluded that the above assumption H_0: There is a statistically significant difference in the loyalty of complainants between tourist service users of various socio-demographic characteristics, ***is partially accepted***.

5. CONCLUSION

The results of the conducted research partially confirmed the existence of a statistically significant difference in the loyalty of complainants among users of different socio-demographic characteristics. Respondents from Serbia of different gender, age, income level and place of residence are equally loyal to travel agencies. Male and female in Croatia are equally loyal to travel agencies. The results of the study also showed that among the respondents from Croatia the loyalty of complainants was at the highest level among the respondents aged 58-67, and the smallest among the respondents aged 18-27. Among the respondents from Croatia the highest level of loyalty is among respondents with monthly income up to EUR 200, and the smallest among respondents with monthly income between EUR 400 and 500. Loyalty to tourist agencies is higher among respondents residing in cities in Croatia compared to the respondents from the village.

The results of certain research conducted in travel agencies have shown that a negligible number of satisfied users would contact the agency after the trip, to thank and congratulate them on good organization [8]. Some travel agencies have a policy to contact their former users at least six times a year. When users only contact the travel agency on their own initiative only when they are dissatisfied and use this occasion to give reasons for their dissatisfaction, then this should be used as an opportunity to maintain user relations. Submission of a complaint by an unsatisfied user and afterwards a service recovery can be used to retain dissatisfied users and to build better and longer-term relationships. Gathering information about dissatisfied users provides travel agencies with the opportunity to launch a recovery service. Creating a database with user profiles can help agencies overcome inter-organizational communication problems. The advisory role of employees and personalized services for each user of a specific travel agency provides a wide range of alternative solutions and is only possible when information about service users is available.

Complaint behavior is a field of research that identifies all aspects involved in service failure. The identified partial acceptance of the main hypothesis is sufficient to show that the influence of certain socio-demographic characteristics upon the loyalty of complainants is affected. After conducting the research, certain questions that may serve as the starting point for future research arise. In addition to examining the impact of the socio-demographic characteristics of the complainant, new research can be based on determining the impact of psychographic factors on the loyalty of the complainant.

In modern, competitive conditions based on a struggle to retain each user, it is necessary to improve employee sales techniques, strengthen customer relations and encourage their engagement in communication with the travel agency. When users are dissatisfied, actions taken by the travel agency must be faster and directed towards the right users. Dissemination of customer information and building relationships based on mutual trust is an adequate basis for achieving high turnover with adequate profitability and consistent levels of loyalty.

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SPATIAL PLANNING AS AN INSTRUMENT FOR TOURISM DEVELOPMENT IN PROTECTED NATURAL AREAS - EXAMPLE OF SPECIAL NATURE RESERVE UVAC, SERBIA

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Abstract: *Tourism development produces various positive and negative effects in the planning and management of protected areas, especially in vulnerable and sensitive areas that are under increased pressure from visitors. Spatial planning, which is based on adequate spatial development in accordance with environmental protection, as well as projections of the volume and structure of tourist demand, aims at integral observation of tourism in accordance with the possibilities and characteristics of the area. It represents the only means for resolving developmental contradictions between nature and tourism, aims to transform this conflict into a positive/sustainable direction of interdependence between tourism development and nature protection.*
The paper deals with the problem of sustainable tourism development in the Special Nature Reserve "Uvac", relying on the solutions defined in the Spatial Plan of the Special Purpose Area of the Special Nature Reserve Uvac (SPSPA SNR Uvac). The Special Nature Reserve Uvac represents a natural good of exceptional importance (natural good of the first category). The tendency has been that through planning solutions and propositions, to solve the active problems, define clearer tourist products and prioritize activities in short and long term future. The results presented in this paper will contribute to better understanding of the problems, limitations, but also opportunities for sustainable tourism development in this and other protected areas.

Keywords: *tourism development, spatial planning, protected natural area, conflicts, sustainable development*

1. INTRODUCTION

In the Republic of Serbia, the spatial plan, as a multidisciplinary complex document, defines: objectives, strategic development determinations, rules and regimes of protection, arrangement, and use of space, position and capacities of priority tourist sites in accordance with the quality of resources and the possibility of rational infrastructural equipping, phases, measures, and instruments of implementation, as well as the need for further elaboration by appropriate urban plans and programs.

Spatial planning is promoted as one of the instruments of sustainable development that can offer integrated territorial development, whose basic task is the planning of sustainable territorial development as a general strategic framework for general and sectoral policies [1]. In strategic

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planning and direction of the sustainable development of tourist areas and centers, spatial and environmental planning have an integrative role that manifests itself through spatial planning and environmental quality management [2], [3].

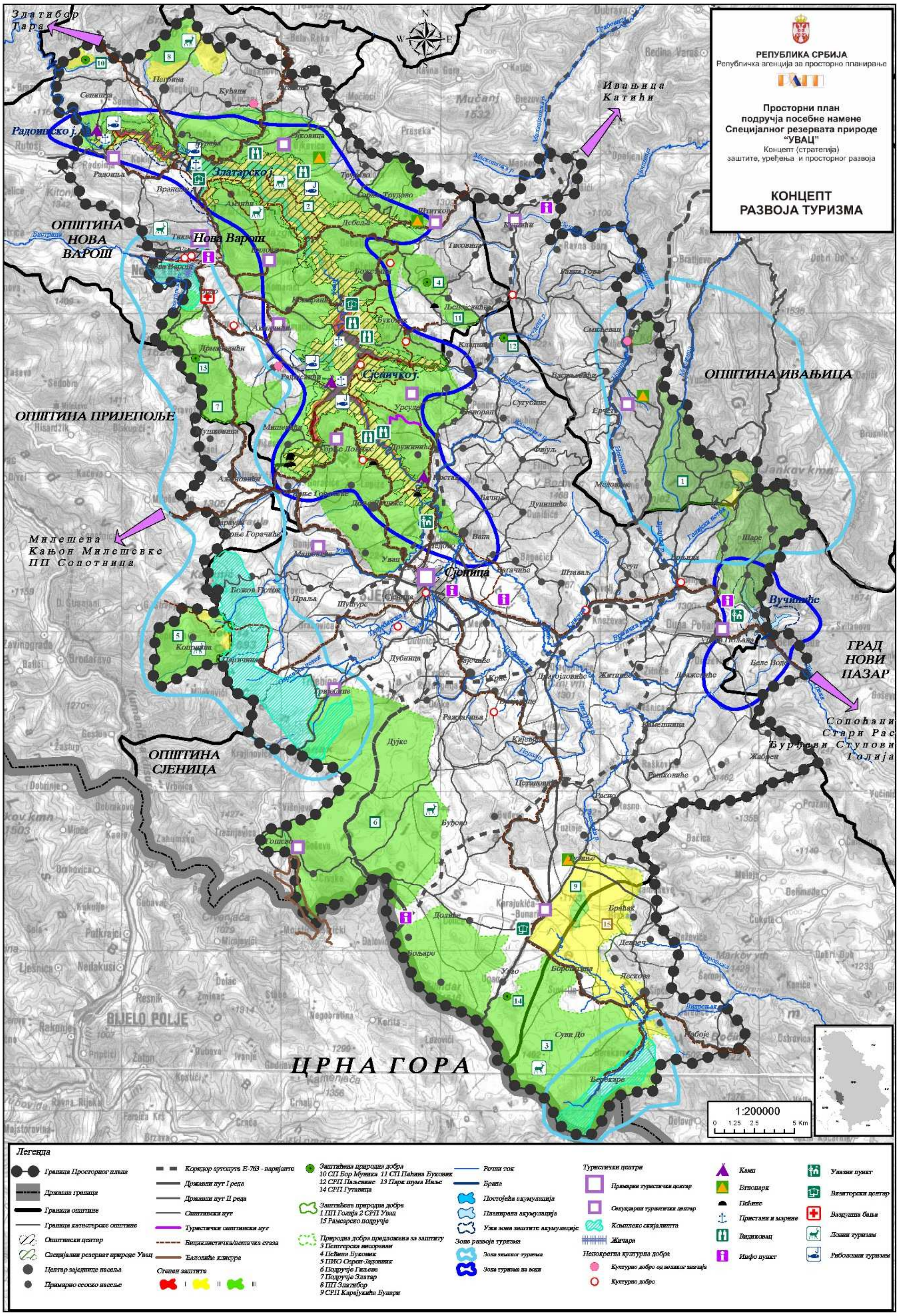
The research subject in this paper is Spatial Plan for Special Purpose Area of the Special Nature Reserve Uvac (SPSPA SNR Uvac) with a special emphasis on the concept of tourism development proposed in this plan. The aim of the paper is to point out the importance and role of the spatial plan as an instrument for tourism development, following the example of the Special Nature Reserve Uvac (SNR Uvac). The research results can serve as a basis (starting point) for planning development in similar areas.

2. STUDY AREA

The area of the SNR Uvac is located in the far southwestern part of Serbia and partly borders with Montenegro. In regional-geographical terms, the planned area belongs to the area of Stari Vlah, and, in administrative terms, to Zlatibor, Moravica, and Raška administrative districts.

The subject of analysis in this paper is the Spatial Plan for Special Purpose Area of the SNR Uvac, which includes the area of the SNR Uvac with its protected zone (Figure 1). The protected zone of SNR Uvac covers the Uvac River basin around the protected area of the SNR Uvac upstream from the Radoinja water dam profile and the Boroštica river basin on Pešter Field.

Figure 1: The area covered by Spatial Plan for Special Purpose Area of the SNR Uvac



(Source: SPSPA SNR Uvac, 2010)

3. POTENTIALS, LIMITATIONS AND OBJECTIVES OF TOURISM DEVELOPMENT

Potentials of the planned area for tourism development are: water wealth (lakes, watercourses, springs and karst springs, groundwater, mineral springs); the existing network of I and II class state roads, and the planned Belgrade-South Adriatic highway and the Belgrade-Bar railway in the immediate vicinity of the area; diverse flora and fauna (griffon vulture population, etc.); natural resources proclaimed and envisaged for protection (Uvac, Pešter Field, etc.); diverse, representative, and attractive relief elements (curved meanders of Uvac); Đalović gorge, Pešter Plateau, etc.; three large speleological structures (Ušačka, Ledena, and Tubića caves); cultural goods; high-quality and competent staff of the SNR Uvac administrator; good geo-strategic location of the area and attractive wider, regional, tourist context; rich ethnological capacities (tradition, events, crafts, cuisine, customs, etc.); private initiative and privatization of accommodation facilities.

The basic problems and limitations of the planned area for tourism development are: low level of area protection and development management; ecological problems – the unresolved issue of waste communal waters coming from settlements, Sjenica landfill and numerous solid waste dumps, disposal and elimination of wood processing waste; disorder and lack of equipment of public spaces and facilities for visitors' stay and recreation, lack of visitor centers; low level of accessibility to attractive tourist sites; low level of utility equipment, uncompleted technical infrastructure and lack of coverage of public roads with modern roadway; low level of marketing penetration onto the national and European market; illegal construction; lack of regional cooperation – local understanding of development; abandoned accommodation facilities; unfinished hotel privatization; lack of unique tourist offer within and outside of SNR Uvac [4], [6].

3.1. Objectives

The main objective is tourism development in line with the requirements of preserving and improving the quality of the environment and preserving natural values and resources, as well as tourism development in line with interests and stimulating the development of local communities, primarily communities in the rural areas [4].

The specific objectives of tourism development are:

- Integrating the tourist offer of the area with the regional offer and development of specific tourist products according to the requirements of foreign and domestic tourist demand;
- Conceiving, organizing, promotion, and completion of specific tourist offer and attractive programs in the planned area;
- Increasing traffic accessibility and interconnecting tourist areas in order to unify and secure all-year tourism offer;
- Completion of public utility and tourist infrastructure for the needs of tourism development and increasing service standards of existing and planned tourist capacities;
- Initiating and stimulating the development of complementary tourism activities;
- Activation of the local population in the rural area and their housing fund for tourism development [4].

4. MAIN CONFLICTS IN THE AREA OF SNR UVAC

For the planning and implementation of protection and sustainable development of the area of SNR Uvac, it is necessary to establish a strategy for reducing the opposing interests of sustainable protection of strategic natural resources and natural values in relation to tourism development and other economic activities and local community development.

The main conflict in this area occurs between the protection of nature and natural values and tourism and other economic activities. Based on the underlying principles of sustainable development, it is essential to establish a balance between sustainable protection of values and resources and sustainable development of the area.

This can be accomplished by establishing appropriate regimes for the protection and use of space with natural values and resources, sustainable development of tourism and other economic activities, controlled spatial planning, stimulating corporate social responsibility and natural values and resources protection management [2], [3].

There can also be a conflict between the local population and the protection of natural values and resources, as well as between the local population and tourism.

The basic principle for mitigating these potential conflicts is the realization of benefits for the local community, as follows:

- Inclusion of the local population in activities on the protection and presentation of natural resources (water, forests, etc.);
- Providing compensation or compensation programs (primarily in tourism) for damage caused by restrictions within the regime of protection of natural resources;
- Contribution to the local economy, promotion and use of local products in tourist offer, and education of the population to promote natural values and involve them in the provision of tourist and complementary services;
- Establishing a balance between the benefits of tourism and other economic activities crucial for the maintenance and development of the local community [4].

Realization of this principle implies undertaking of a number of actions, primarily related to infrastructural equipping of the area to meet the needs of the local population and providing new jobs and additional sources of income for the rural population. The feedback effects would be the preserved demographic resources of rural areas and the network of settlements, developed activities complementary to the protection and use of space, and the involved local population in the protection, arrangement, and promotion of natural and cultural resources and the values of the area.

5. SUSTAINABLE TOURISM DEVELOPMENT CONCEPT

One of the basic development opportunities of the subject area is sustainable tourism development. It implies the development of a tourism economy in line with environmental capacities. On the one hand, the goal of this concept is to familiarize a large number of visitors with the tourist values of this area and to activate other complementary activities that would enable tourism development or its products (animal husbandry, forestry, production of healthy food, beverages, textiles, etc.), while, on the other hand, these activities should be organized in a way that does not endanger the ecological balance of the area and the rich flora and fauna [2].

The basic concept of tourism development is based on the functional networking of the tourism industry and activities at the broader regional level and the internal organization of the tourism industry and activities at the local level.

The dominant tourist products and tourism forms in this area will be based on rich natural and anthropogenic resources and the values of the area: mountains; lakes and rivers; cultural and historical heritage; climate benefits – health-rehabilitation tourism; ethnographic and ethnic diversity – event tourism; tradition and villages – rural-ethno tourism; geostrategic position and traffic connections – transit tourism; natural and anthropogenic rarities and phenomena – educational and ecological tourism; accommodation capacities – congress tourism; hunting and fishing tourism [4].

All forms of tourism products should work harmoniously, i.e. potential users should combine several aspects of tourism [5]. The unity of content is of a distinct regional character and implies the existence of common itineraries with neighboring municipalities and regions. At the same time, the internal organization of tourism requires the involvement of conventional and traditional production into a single economic system that would allow greater employment of the local population, rise in competitiveness, and slow down demographic loss in certain parts of the area (especially in the countryside). The basic starting point is the activation of all the potentials of the planned area so that the user first gets to know about the advantages and tourist values of this region, reach the destination through organized or individual and comfortable transport, find accommodation in high-quality facilities, spend time rich in content, and return. The need for education of managers and population about the role and significance of tourism, marketing breakthrough on the Serbian and European market, increased traffic accessibility by building state and local roads and quality accommodation are a prerequisite for the realization of this concept [4].

For the successful implementation of the planned concept of tourism development in the area of SNR Uvac, the following priorities for tourism development have been defined:

- Full valorisation and better organization of the use of tourism potentials and tourist offer – identity of space and competitiveness;
- Networking with neighboring and far regions in the unique tourist zone of Western Serbia – inter-municipal cooperation;
- Reconstruction, adaptation, and construction of necessary transport infrastructure that would enable greater accessibility to local and regional tourist sites;
- Reconstruction and construction of accommodation capacities in attractive tourist destinations (centers, secondary centers, and points);
- Establishment of visitor centers, entry and info points;
- Implementation of permanent, multidisciplinary education of experts and population for tourism development;
- Promotion of marketing tourism through promotional and information programs; at the same time, insisting on existing tourism brands and the promotion of new ones [4].

6. CONCLUSION

The spatial plan represents an effective tool for solving contradictions and conflicts between environmental protection and tourism. In this way, this contradiction can be transformed into the interdependence of tourism development and nature protection, because it should be noted that tourism is an activity whose development is directly influenced by the conditions in the natural environment [2].

It is necessary to emphasize that an important prerequisite for increasing efficiency in implementing planned decisions on sustainable tourism involves adequate and continuous information and involvement of key stakeholders and the community in the spatial and environmental planning process.

In the area of the SNR Uvac Spatial Plan, tourism should be a more important economic branch in the future. Tourism development will be realized in accordance with the requirements of preserving natural resources and values, while respecting the interests of local communities. It is necessary to secure the area opening in terms of traffic and integrate the tourist offer of the area with the regional offer. Priority is the conception, organization, promotion, and completion of specific tourist offer and attractive programs in the planned area, completion of public utility and tourist infrastructure for the needs of tourism development, increasing standards of services within existing and planned tourist capacities, activation of the local population in the rural area and its housing fund for tourism development.

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BIRD SPECIES IN DELHI-“BIRDWATCHING” TOURISM

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Abstract: *A great poet William Wordsworth once wrote in his poem “The world is too much with us” that we do not have time to relax in woods and to see birds chirping on trees. According to him we are becoming more materialistic and forgetting the real beauty of nature. Birds are counted one of beauties of nature and indeed they are smile giver to human being. When we get tired or bored of something we seek relax to a tranquil place to overcome the tiredness. Different birds come every morning to make our day fresh. But due to drainage system, over population, cutting down of trees and many other disturbances in the metro city like Delhi, lots of species of birds are disappearing rapidly. Thus a conservation and management system need to be required to stop migration and disappearance of birds. With the government initiative and with the help of concerned NGOs and other departments we need to settle to the construction of skyscrapers. As we know bird watching tourism is increasing rapidly in the market, to make this tourism as the fastest outdoor activity in Delhi, the place will have to focus on the conservation and protection of the wetlands and forests, management of groundwater table to make a healthy ecosystem, peaceful habitats and pollution-free environment for birds. Delhi will also have to concentrate on what birdwatchers require, including their safety, infrastructure, accessibility, quality of birdlife and proper guides. A little struggle and effort is needed to make the extreme changes, which will create well maintenance of the bird species for future bird lover tourist.*

Keywords: *Bird species, problems, conservation, management, bird watching tourism*

INTRODUCTION

Early morning, sunrise, fresh air and the sweet calls of the birds makes Delhi a unique place which has its own share of birds and bird lovers. The number of small wetlands and the conserved forests following the Aravalli ranges attracts many areal visitors towards the arid topography of Delhi. After Nairobi in Kenya, Delhi used to be the world’s second most bird-rich capital city due to its forest cover and wetlands in its surroundings. The number of bird watching destinations in and around Delhi, which attract the bird lovers are the “Okhla Bird Sanctuary”, “the Delhi Ridge”, “Sultanpur National Park”, “Surajpur Wetlands”, “Asola Wildlife Sanctuaries”, “Basai Wetlands”. The extent of Okhla Bird Sanctuary is four square kilometres. It is located at the door of Noida in Gautam Budh Nagar at Uttar Pradesh. River Yamuna is passing by the OBS leaving the territory of Delhi and enters Uttar Pradesh. More than 320 bird species can be seen here in OBS with 20 water bird species, 44 woodland species, and 43 migratory water birds. The green Delhi Ridge forest is truly a gateway for reserved birds and other animals for bird watchers and wildlife lovers. The life of birds in this

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ridge are rich with seasonal and of various types like Rose Finch, Green Heron, Woodpeckers, Booted Eagles, etc., which are among the 200 bird species found in this region. The beautiful Sultanpur National Park which is also called as Sultanpur Bird Sanctuary is situated 1 hour distance from South Delhi and half an hour from Gurgaon is a vast marshy land with varied bird species of resident and migratory birds like little Egret, Black Necked Stork, Weaver Bird, Eurasian collared dove, Cattle Egret, Siberian Cranes, Greater Flamingo, etc. This park is a heaven for birds and also bird watchers. Surajpur wetland is situated on the fringes of Greater Noida. It is a biodiversity park where birds like Asian Openbill Stork, White-necked Stork, Black-crowned Night Heron and Black-headed Ibis, rare birds like Bristled Grassbird, Black-necked Stork and Sarus Crane, etc., are found. This park has 186 species of birds belonging to 44 families. Asola-Bhatti wildlife sanctuary is situated at the south of Delhi, at Asola near Tughlaqabad in Delhi. 193 species of birds are seen here in the sanctuary. Biogeographically it is a best place for restoration of bird species. Basai Wetland is situated in the Gurgaon District of Delhi NCR. This wetland conserves high diversity of birds with at least 282 bird species recorded of 2017. This wetland is the hotspot for birding. Tourists and Media come here to have E-photography and to make documentary movies for channels, advertisements and publications. Red headed Vulture, cattle egret, greater flamingo, water pipit, common crane etc. are the beauty of Basai Wetland. Due to rapid civilization of human beings, the wetland has become a major threat for birds and other animals. Due to unsustainable development and rapid urbanization, the wetlands, open forests and pastures are in danger zone for the survival of varied bird species. Agricultural lands are also transformed into an industrial land which is causing pollution to air and underground water-table, causing threat for bird's survival. As the biodiversity is in tremendous loss, conservation and management is needed for better sustainable tourism.

LITERATURE REVIEW FOR RESEARCH

We have studied selected literatures for the present paper. We have noticed several observations of different researchers in the given field. Given literature has suggested numerous methods to preserve and save migratory and local birds. We have learnt from different monitoring systems used in other countries. For the literature review, we are giving names of selected articles.

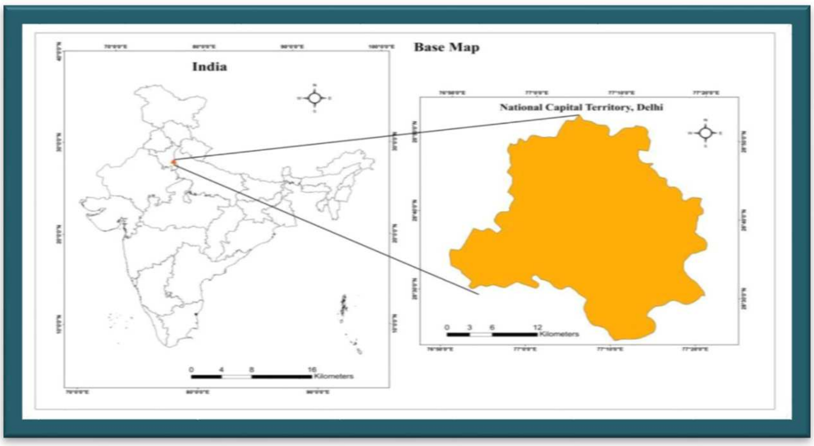
1. (http://ceur-ws.org/Vol-1498/HAICTA_2015_paper54.pdf) Bird watching and Ecotourism: An Innovative monitoring system to project the Species of Lesvos Island to Potential Ecotourists. Chryssoula Chatzigeorgiou, Ioanna Simelli, Apostolos Tsagaris. – The given work comprises with rare species of birds in Lesvos Island. The place is known for birds, and meant especially for the tourists who love to watch different words. This article also tells about the active and passive eco-tourism and also teaches us how to save it. [19]
2. (http://www.diva-portal.org/smash/get/diva2:706189/FULLTEXT01.pdf) A Bird watching Database System. By. Conny Andersson. Department of Information technology, Uppsala University, Uppsala, Sweden. 2013. – The article refers to the bird watching database in order to analyse different developments and new trends for the populations of birds. The article has a vital information with the tables of database of birds species. [20]
3. (https://indiabiodiversity.org/biodiv/content/documents/document-8d97689a-1553-455f-a4df-c7cee6821890/486.pdf) The book of Indian Birds by Salim Ali. Publ. The Bombay natural history society, Bombay, India. 1941. – The book describes the descriptions and illustrations of common and uncommon Indian birds. The book also provides the scientific names of the local birds as their names can be vary from area to area. The book has helped us to find out names and differences of local birds. [21]

4. (https://www.researchgate.net/publication/305307630_A_checklist_of_the_birds_of_India/download) A checklist of the Birds of India by Praveen J., Rajah Jayapal and Aasheesh Pittie. The research paper witnesses records of the selected birds species within the Indian political boundaries. In the paper we have noticed data of counted birds species with the geographical land area of Republic of India. This update of birds species will help us to locate the some of the birds species with their dwelling area. [22]
5. (http://www.moef.nic.in/downloads/public-information/Chap-2-new.pdf)
Identification manual on Birds by Ministry of Environment and Forests – This is a manual of Exotic and Indian birds with their specifications. In this manual we read the categorizations of birds species on names, identifications, legal status, trade and affected states. We find out some common and special species of birds with the coloured image. This given manual helped us to see the status of birds in the above given category. [23]

STUDY AREA

Delhi is located at 23.38 degree north and 77.13 degree east in the Northern part of India and bounded by Haryana State on the Northwest and South, Rajasthan state on the Southwest and Uttar Pradesh state on the east. The metropolis city is demarcated into three parts with the Gangetic plains forming the major part, the Yamuna flood plain and the Delhi ridge. The flood plain is filled with rich and fertile alluvial soil. The land stretches about 51.9 km long and 48.48 km wide. Delhi does not follow any specific pattern geographically and it is widely erratic fields in the north to the dry parched hills which branches out of the Aravalli Hills of Rajasthan in the south. The extreme end of Delhi spans from Sarup Nagar in the northern part to Rajorki in the southern part. Towards the extreme west is Najafgarh and extreme east is the holy Yamuna River, Shahdara and Bhajanpura which are major shopping centres. The main city of Delhi ends in Saket on the south and central northern area is Connaught Place whilst the western boundary limits at National Highway - 8. [7]

Figure: India map showing part of Delhi through GIS software



OBJECTIVE

- To study the conservation pattern of the area.
- To study the present problems of the conservation of birds of the given area.
- To find out the better solution and policies to conserve and manage the bird species for better bird watching tourism.

METHODOLOGY

- Primary data from the Ministry of Environment, Delhi.
- Primary data from the field survey report.
- Appliance of Arc GIS software to show the study area.
- Appliance of statistical techniques to study the birds of the area.
- Secondary data from the District Census Hand Books, newspapers, internet sources, wildlife books and magazines, officials and semi-officials published reports, research articles and works of individual scholars.

ANALYSIS AND DISCUSSION

Many different species of migratory birds travel here for nesting during the winter and enjoy the weather up to the offspring, which makes the site colourful and beautiful. Many tourists gather to discover the colourful birds that nestled along the hidden place. For some of them bird watching is not only the hobby but also it is a mental satisfaction and fulfilment of capturing the memories of the beautiful birds in the camera which is incredible and truly indescribable. Only the bird lovers know the techniques of watching the birds in the bushes and jungles. They have the thrill of observing the movements in the forests or on the trees and run after the call of the birds or stick patiently under the tree where they have nested.

Delhi is facing zero sparrow species, which were once home to Delhi. The reason is tall buildings, over population, industries and factories and the most critical problem, which are killing the sparrows, is the mobile phones and mobile towers. The radiation is the big issue going on which is decreasing the migratory birds and the local birds. Today not a single sparrow can be seen in Delhi NCR.

<u>Special sightings of rare birds in Delhi NCR from 2013 to 2018 are shown below:</u>

Yamuna Biodiversity Park spread over 457 acres. Special sightings – Grey-headed lapwing, mallard, ferruginous pochard, red-crested pochard and garganey.

YEAR	SPECIES SPOTTED
2018	104
2017	103
2016	91
2015	109
2014	95
2013	100

Kamla Nehru Ridge spread over 200 acres. Special sightings – Woodshrike and White-eared Bulbul

YEAR	SPECIES SPOTTED
2018	45
2017	55
2016	57

Tughlakabad Biodiversity Park spread over 200 acres. Special sightings **–** Sirkeer Malkoha and Common Woodshrike.

YEAR	SPECIES SPOTTED
2018	53
2017	26

Tilpath Valley Biodiversity Park spread over 172 acres. Special Sightings **–** Yellow Wattled Lapwing and yellow-eyed Babbler.

YEAR	SPECIES SPOTTED
2018	42
2017	26

Common Pochard is now rare in NCR**.** But (International Union for Conservation of Nature) IUCN's latest report is proof of how wetlands here are either disappearing or are not able to support aquatic and bird life any more. The IUCN red list now has a total of 180 bird species in India in the threatened category as against 173 last year. In NCR, several water bodies are polluted to support plant life. In parts of the Yamuna, there is no Hydrilla or vallisneria and other aquatic plants which many water birds feed on. “This is a very worrying report. Northern lapwing, a beautiful green bird, prefers marshlands. If you notice, marshlands are being encroached rapidly by infrastructure projects. The steppe eagle likes feeding on reptiles and insects but its food is depleting. Diclofenac use is severely impacting the raptors, “said Faiyaz A Khudsar, scientist in charge, Yamuna Biodiversity Park. BNHS in its statement said, “Older BNHS studies had revealed that just like steppe eagle three vulture species--white-backed, slenderbilled and long-billed--have been severely affected by veterinary diclofenac. Subsequent research had also highlighted the diclofenac threat to red-headed and Egyptian vulture.

According to Bikram Grewal the Okhla Bird Sanctuary has recorded around 350 great cormorants by the second week of November 2018 compared to 450 in 2017 and 475 in 2016. Similarly, only three northern shovellers have been recorded against 18 in 2017, which itself was a huge drop from 96 in 2016. The same can be said about common pochards — only two have been seen in 2018 against 21 in 2017 and 77 in 2016. The park has also recorded arrival of five northern pintails compared to seven in 2017 and 28 in 2016, and that of three gadwalls against 24 in 2017 and 142 in 2016. “We have seen a sharp drop in numbers compared to 2016 and a slight drop against last year’s counts. The pollution and the resultant haze could be affecting them. We have seen shovellers do a recce of the waterbody but they did not return after that and may have proceeded to parts of Haryana,” said Faiyaz Khudsar, scientist in charge at the park. During winter, pollutants get trapped, making it difficult for the birds to identify their sites, he added. Jaswinder Waraich, another birder, said locations like Okhla, Yamuna Khadar and Dhanauri had recorded a drop, but some are reporting good sightings. “They have taken time to arrive and the numbers are slowly picking up in NCR,” said Waraich. NCR has recorded a drop in overall bird species on the Big Bird Day — an annual birding event across the region where birders set out to record different species with 238 species counted in 2018 as compared to 268 in 2017. Bird species across different locations in the capital also recorded a slight drop compared to last year; however, there has been significant increases in locations like Tughlakabad, Tilpath Valley and Okhla bird sanctuary when compared to data from last year. The important sightings recorded this year included the oriental scops owl — last seen in 2011 on the outskirts of NCR and extremely rare for the region; a brown-hawk owl which was sighted at Asola and a pair of grey-headed lapwing at the Yamuna Biodiversity Park. “We are studying if the migratory owl species have become residents in the capital or not,” said Dr Surya Prakash, zoologist, JNU. Birders across the region feel the overall drop in numbers could be due local climate change which may be affecting the migratory pattern of certain species, forcing them to leave early. “By this time last year, a lot of the species hadn’t left but this time temperatures have been very high and a few species have left. There has been little rainfall this winter and the temperature has been warmer than normal which could have resulted in this drop,” said Nikhil Devasar, organiser of the event. According to the results, bird species almost doubled at Tughlakabad this year, increasing from 26 last year to 55 this time around while Tilpath Valley recorded 42 species this year as compared to 26 last year. Faiyaz Khudsar, scientist in-charge at the Yamuna Biodiversity Park, said the increase at these locations could be due to better protection. “Grazing at Tilpath and Tughlakabad was reduced this year which has protected the scrublands and resulted in an increase in insect and invertebrate diversity. This in turn attracts more bird species to the area,” he said.

Okhla also recorded a significant improvement with 99 species recorded this time around as compared to 71 last year. Team captain Jaswinder Waraich said the increase could be attributed to careful scanning of the area and increased available of food this year. “The important sightings at Okhla this year included booted eagle, mallards, grey bushchat and greater spotted eagle,” said Waraich. With the Asian Waterbird Census (AWC) 2018 currently underway in Delhi-NCR, the findings of the first few days at Okhla Bird Sanctuary have revealed that the bird count has almost doubled since 2017. There has also been an increase in the number of species at the sanctuary. This year’s count at Okhla Bird Sanctuary revealed 11,622 water birds as compared to 6,183 birds, which were recorded last year. In addition, the number of different species has also risen to 63 as compared to 53 in 2017. These include nine species that fall under the IUCN red-list of threatened species. The Okhla Bird Sanctuary is one of the 466 Important Bird Area sites located in India. The census was carried out by Wetlands International South Asia, in collaboration with Gautam Buddh Nagar Forest Division, and a team of 30 members from different universities and Bombay Natural History Society. AWC Delhi state-coordinator and ecologist TK Roy said that the census has also revealed sighting of two uncommon species at the sanctuary this year — the northern lapwing and the common shelduck. “This a good sign for the ecology of the area. Both birds are not very common to the area. In fact, the northern lapwing has been sighted in India after several years. The count of species has also risen this year and there has been a steady growth in the numbers over the past two years. This shows that there has been a revival at Okhla,” Roy told TOI. In 2016, 3,113 birds were recorded at Okhla, which consisted of 46 different species. The same number has increased to 11,622 this year, consisting of 63 different species. The oriental darter, painted stork, black-headed Ibis, common pochard, greater spotted eagle, ferruginous duck, wooly-necked stork, northern lapwing and the river lapwing are among the IUCN red-list threatened species sighted at Okhla this year. Roy attributed the considerable increase in number of bird count to more northern shovellers arriving at Okhla in 2017, along with a mixed flock of black-headed and brown-headed gulls. “These birds would earlier spend their day around Yamuna and come to Okhla at night. This year, however, they are staying at Okhla all day. This has resulted in an increase in the overall count of birds,” Roy added. The numbers could have been even more, Roy said, but for the repair work at Okhla barrage in October, which saw a number of waders leave the sanctuary. The census, which continued till January 21, covered other locations like the Yamuna floodplains, Delhi zoo, Sanjay Lake, Najafgarh drain and Surajpur wetlands. Hundreds of birders gathered at wetlands, forests and biodiversity parks of the capital to spot and document as many bird species as possible. They were participating in Big Bird Day 2018, an annual national event started by a birding group, Delhi bird. About 38 teams from Delhi-NCR participated in the event, each having 10-40 birders. The results, which will take a couple of days to be compiled, play a crucial role in documenting the number of birds and diversity in the country. In all, more than 10,000 birders from across the country participated. In Delhi-NCR, birding sites like Dighal, Sultanpur, Basai, Asola, Najafgarh, Yamuna Khadar, Mangar Bani, Dhanauri, Dadri, Okhla Bird Sanctuary, Aravalis, Yamuna Biodiversity Park etc. were explored. “It’s very difficult to give the trends right away. We haven’t got any reports of exceptional sightings from Delhi-NCR yet,” said Nikhil Devasar, one of the organisers who spent a part of the day at Dighal. Yamuna Biodiversity Park recorded 104 species this year as compared with 103 last year. Rare sightings included the Grey-headed lapwing, Ferruginous pochard, mallard, Red-crested pochard and garganey. “The Grey-headed lapwing is an important sighting and we have been seeing for two weeks now. It is a rare bird for Delhi...the count also helps us to know the right habitat and environment. A high count of bird’s means that the habitat is thriving,” said Faiyaz A Khudsar, scientist in charge, Yamuna Biodiversity Park.

At Kamla Nehru Ridge, the number of species spotted went down to 45 in 2018 from 55 in 2017. Woodshrike and White-eared bulbul were the rare sightings in the area. However, numbers at Tughlakabad Biodiversity Park and Tilpath Valley rose significantly in 2018 to 52 and 43 species recorded respectively as compared with just 26 species at each of the locations in 2017. The sightings at these locations included a Sirkeer malkoha, common woodshrike, Yellow wattled lapwing and Yellow-eyed babbler, among others. M Shah Hussain, scientist in charge at Aravalli Biodiversity Park said, “A total of 900 birds of 79 species were spotted during the count period. Important bird species that were seen in Aravalli Biodiversity Park included Jungle bush quail, Eurasian eagle owl and Oriental skylark”. He added, “Tufted duck was also sighted at Neela Hauz Biodiversity Park after its restoration. The highlights, Jungle bush quail and Eurasian eagle owl, are rare for south Delhi”. *Sharp fall in Numbers over Last Year at Yamuna Floodplains*. The population of waterbirds in the Yamuna floodplains has gone down considerably this year, though the number of species sighted rose from last year’s 23 to 32 this time around, the latest findings of the Asian Waterbird Census (AWC) 2018 have shown. The number of water and water dependant birds were recorded at 594 in 2018 – a sharp drop from the 2,640 birds last year, which experts attribute to human interference on the floodplains, climate change and pollution. “Due to global climate change, shrinking wetland habitats and changing trends of long distant winter migratory birds, there has been a reduction in the numbers at Yamuna. Last year, the majority of these numbers consisted of black-headed gulls, which have now gone to Okhla this year,” AWC state coordinator TK Roy told TOI. The census, which was simultaneously being conducted across 27 countries, were conducted at Yamuna floodplains between Wazirabad barrage and the Nizamuddin Bridge on January 13, by volunteers from several universities, Greenpeace, experienced birders from Delhi and the AWC Delhi state coordinator and ecologist, TK Roy. Last year’s census recorded 1,996 black-headed gulls at the Yamuna floodplains; however these numbers fell to just 99 this year. Among the other birds which fell in numbers were the common sandpiper, great cormorant, whiskered tern and ruff. Roy said that out of the 32 species, only the river lapwing is classified as threatened according to the IUCN red list, which rose from 10 last year to 12 this time. The count identified 13 species from the 32 as resident water birds, with the remaining 19 as winter migratory birds. The AWC in 2016 had recorded 24 species with 598 birds in total. The AWC began on January 6 in Delhi and continued till January 21. Among the areas covered, include the Okhla Bird

Sanctuary, Najafgarh drain, Yamuna floodplains, Delhi zoo, Sanjay Lake and Surajpur wetlands. Findings at Okhla had shown that the number of birds has almost doubled in 2018, increasing from 6,183 birds in 2017 to 11,622 birds in 2018. Roy said the final phase of the census is currently underway at Delhi zoo, with the results likely to be out in the next few days. It was a fruitful morning for birders as 18 different teams set out across different parts of Delhi NCR for the 3rd annual edition of the summer bird count, results of which came out. A total of 174 species were recorded in 2018– a sharp drop from the 195 species which were recorded in 2017. However birders attributed this to an early summer and the fact that the count was organised by the end of May instead of early May, so no "winter migrants" were recorded. "In the previous years, the summer bird count was held in early May and we usually had 35-40 lingering winter migrants making it to our total species count. To avoid that, we have held the count much later in 2018 and therefore we have seen a drop in the number. As a result only 10 lingering migrants were recorded," said Kanwar B Singh, a birder and organiser of the event. Singh said that 90 birders took part last year, including two teams consisting only of children. A team led by Brigadier Arvind Yadav covered the bird habitats along the Najafgarh drain, with a total of 108 different species recorded there, including the oriental pratincole that breed there during the summer months. The team also managed to sight a ruddy-breasted crake – an uncommon bird usually found in the reed beds. At the Yamuna floodplains, a total of 90 species were recorded which included summer breeding residents like little tern, cotton pygmygoose, white-tailed stonechat and river lapwing among others. For the first time in the count, the neighbouring district of Rewari was also covered with a team led by Dr Parikshit Yadav recording 103 species. A number of uncommon and important sightings were also made in Mangar and Damdama Lake which included the sighting of the Indian pitta – a breeding visitor to forest patches in the area.

August 26, 2018, morning brought cheer to the community of birders in Delhi-NCR, after a rare migratory bird, the Rufous-tailed Scrub Robin, was sighted at the Aravali Biodiversity Park. The bird was spotted for the first time in the Aravali Biodiversity Park last year. According to birders, sightings during the same time of the year (for two consecutive years) might indicate the bird has made Gurgaon its monsoon migratory destination. However, in 2018 they have again spotted the bird in the same month. This gives them hope that Aravali Biodiversity Park habitat is inviting the bird, and that Gurgaon could be its monsoon migration destination," said Amit Sharma, an avid birder who spotted the bird along with two other enthusiasts, Gaurav Yadav and Janardan Barthwal. Birder Gaurav Yadav, from DLF Phase 4, said, "I have been birding for the last two years. It's very rare that one sees a Rufous-tailed Scrub Robin here." As per birders, the Aravali Biodiversity Park has done a great job in growing and maintaining native species of the Aravalis, which is now attracting birds. Pankaj Gupta of NGO Delhi Bird Foundation agreed, saying, "Native plantation in the Aravali Biodiversity Park is definitely paying off in protecting and inviting rare species. It provides a safe habitat to birds. Food is also in abundance." While the Rufous-tailed Scrub Robin has been recorded in scrub forests of Rajasthan and Gujarat, there are only 3-4 sighting records of the bird in the last 10 years in Delhi-NCR. Some 2-3 years ago, there were reports of the bird being sighted in Dadri and Surajpur areas of Noida. Vijay Dashmana, chief ecologist at the Aravali Biodiversity Park said, "The sighting shows that we need more city forests to conserve flora and fauna of the Aravalis."

Numbers at Yamuna Biodiversity Park:

SPECIES	2016-2017	2017-2018	2018-2019
Great Cormorant	475	450	350
Northern Shoveller	96	18	3
Common Pochard	77	2	2
Northern Pintail	28	7	5
Gadwall	142	24	3
Tufted duck	11	9	3

Blame to climate change for number of species found in Delhi NCR:

	SPOTTED SPECIES	
LOCATION	2017	2018
Dighal	167	165
Najafgarh jheel	160	156
Sultanpur	129	120
Okhla Bird Sanctuary	71	99
JNU	90	94
Dhanauri	85	96
Garhi Mandu	51	44
Yamuna Biodiversity Park	103	104
Kamla Nehru Ridge	55	45
Tughlakabad	26	55
Tilpath Valley	26	42
Asola	95	94

CONCLUSION

The conclusion part of the present research consists of the present scenario of the endangered species of birds in the given wetlands or in the bird century. We have deeply read the observation and research of the others bird lovers in India; those put their sorrow to the pathetic decreasing condition of the birds in Delhi-NCR. As we have discussed about the disappearance of home sparrow in large number. We can find them only in the forest area and with some number. The reason of disappearance of many local birds come under the modern infrastructure of official as well as residential buildings. Local birds hardly find space for their nest and rest in the evening. Maximum increase of vehicles in the residential area disturb the tranquillity of birds as the vehicle sound interrupt their communication and dwelling conditions. New technology has diverted their sense of understanding directions. Government is sanctioning new mobile companies and these telecommunication companies keep increasing and decreasing mobile radiations as per their comfort and benefit. A bird can travel thousands of miles without any scientific methods. It naturally has a sense of finding suitable direction. However, the birds lost their directions because of radiations from mobile tower. Even rays from mobile phones kill them. If we estimate the consequences of radiations from the mobile tower, so we can imagine it with somebody who stand under the tower even for a few seconds. The radiations will make paralyzed him with several health issues. Thus, we must think over the current situation of down fall of the migratory as well as local birds. These effects badly on bird watching tourism in Delhi-NCR. We have noticed other reasons like air pollution, damaging of floodplains and climate change every year. We have suggested some solutions for stopping rapid disappearance of given bird species, solutions for increasing arrival of migratory birds, birds deterrent methods, large cage trapping system and other valuable solutions, so that we can save the lives of these colourful and innocent and homeless species. We also agree to the fact that insects eat green leaves of trees and destroy them and birds eat these harmful insects, thus to save the trees we should motivate and follow solutions in order to increase the number of birds.

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ENHANCING NAUTICAL TOURISM OFFER BY CREATING AN INTEGRATED TOURISM PRODUCT

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Abstract: *The subject of this paper is based on the theoretical elaboration of the offer that includes additional services in the charter segment of nautical tourism products in the Republic of Croatia. Nautical tourism is one of the most profitable and the most perspective tourism segments that are developed in Croatia, but within nautical tourism, apart from infrastructural requirements, there is a growing demand for a suitable superstructure that would further enrich the existing offer of additional services and increase competitiveness on the international nautical market. One of the possibilities to improve nautical tourism offer and thus the issue of seasonality represents the inclusion of various complementary tourism forms that have less expressed seasonality into an integrated nautical tourism product.*

The aim of this paper is to define more precisely complementary forms of tourism that can be integrated with nautical tourism, i.e. to explain the current offer of additional services of nautical tourism in the Republic of Croatia, and to explore boaters' attitudes on the new offer of additional services for boaters who sail along the Croatian Adriatic.

The empirical part of the immediate research is related to the views of foreign boaters on the offer of additional services during their stay on a vessel in the Adriatic Sea, as well as the attitudes and perception of the profession on possibilities to enhance the current service by integrating other complementary forms into nautical tourism.

The authors have carried out a research whether enjoying natural beauties and activities such as swimming and sailing are enough for boaters or the boaters while sailing want to extend their activities to other forms of tourism such as cultural tourism, and whether enhancing the offer of additional services would have an impact on the increase of boaters' consumption. The survey was carried out by a questionnaire. An additional goal has been to point out to unused potentials such as cultural heritage, gastronomy, sport, recreation and other activities that can be integrated with nautical tourism. The seasonality effect would be reduced by developing an integrated nautical product and the position among competitors on the European and world market would be enhanced. The contribution of work is manifested through the views and opinions of boaters who sailed and stayed in the Croatian part of the Adriatic in 2017. This study has proved that foreign boaters are very interested in cultural values and other activities as elements of nautical offer, but they are currently all poorly presented to the boaters so the boaters aren't familiar with cultural and other potentials that Croatian coast has. It is obvious that boaters are willing to increase their expenses while sailing to expand their experience and take part in additional activities other than the usual ones. It has been proven that their integration into a nautical product would further strengthen the attractiveness of itineraries and routes boaters take and at the same time boaters' satisfaction with Croatia as the nautical destination. Therefore, this paper presents new knowledge on boaters' attitudes and satisfaction regarding the subject of the research.

Keywords: *nautical tourism, offer of additional nautical services, nautical product*

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1. INTRODUCTION

Coastlines are perceived as a highly valuable natural resource in all aspects, especially in tourism for every country, including Croatia. Nautical tourism has developed as the result of an advanced demand and human needs taking into account the presence of natural resources.[68] The importance of nautical tourism for developing countries derives from boaters' consumption who are one of the best consumers in tourism. The latest researches on nautical tourism indicate that tourism consumption will grow faster than any other cost. However, the current problem of nautical tourism in the Republic of Croatia is the absence of services that would enable boaters to increase additional consumption while sailing. In order to increase the development of the nautical product, it is necessary to improve the cooperation: among some types of tourism, within the very nautical tourism industry, and between stakeholders of nautical tourism and tourist boards.

The basic research hypothesis according to the subject of the research states: the creation of an integrated nautical product as a part of the additional services' offer of nautical tourism will increase the satisfaction of boaters who sail and stay in the Republic of Croatia. In order to prove the hypothesis, the authors carried out a field survey on foreign boaters who sailed along the Croatian coast in 2017 using a survey method and the instrument by which the results were obtained was a questionnaire.

2. COMPETITIVE POSITION AND QUALITATIVE ANALYSIS OF NAUTICAL TOURISM CONDITION

General factors of nautical tourism development such as climatic conditions, natural beauties, purity of the sea, landscape, and indented coastline are essential for achieving a competitive advantage in developing nautical tourism. Even though the spatial and natural basis provides a very high degree of satisfaction, their mere existence is not enough for achieving greater balance of income and expenditure. Due to frequent changes in the market and the emergence of demanding service users, there is a need to harmonize all elements of this system in order to achieve a more successful market development.[69]

The most prominent factors when choosing a destination are the location, which means country's natural position and the attractiveness of the location. A large number of islands in the Croatian part of the Adriatic Sea offer a multitude of itineraries and options for yachtsmen, and especially attractive is the fact that each island has a rich cultural heritage and a historical story that can be used in order to create a nautical product which will differ from the competitors. The abovementioned elements should be especially valued and offered to boaters as a recognizable feature of the destination.

The lack of nautical tourism in Croatia is evident from the tourism offer, its service and the level of services in marinas. Furthermore, it has been noticed that a well-developed overall nautical product, which would meet the tourism demands of boaters, has not been established, nor has the initiative to improve nautical tourism products. Therefore, a major disadvantage of nautical tourism in Croatia is the tourism offer.

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[68] Luković, T., Gržetić.Z. (2007.), Nautičko turističko tržište u teoriji i praksi Hrvatske i Europskog dijela Mediterana, Hrvatski hidrografski institut, Split. p.31

[69] Dundović, Č., Kovačić, M., Badurina-Tomić, P.(2015) Prilog istraživanju postojećeg stanja i tendencije razvitka nautičkog turizma u Republici Hrvatskoj. Pomorski zbornik, Vol.49-50, No.1, p.217

This refers to the offer of services in marines and the lack of capacities, i.e. the number of berths. According to the data of the Croatian Bureau of Statistics, 70% of the total income realized in nautical tourism ports in 2017 was realized from the basic berthing service.[70] This datum leads to the following conclusion: new services and facilities are needed in order to achieve additional growth in the total revenue and competitiveness in comparison to other Mediterranean countries, and to increase the satisfaction of boaters with the overall tourism offer which would extend their stay.

It has been noted that boaters are least satisfied with the offer in culture, sports, entertainment and shopping, i.e. additional services. Any type of activity which would extend an active stay in the marina or at a destination is essential. Nautical demand trends will condition the development of these elements of the offer, if the aim is to be competitive on the international market. However, the impression is that the offer is not fulfilling the demand in the Croatian nautical tourism, which points to the scope for the development of quality offers.

3. COMPLEMENTARY SERVICES AND FORMS OF TOURISM

In accordance with modern sociological trends, there is a significant decrease in interest in tourism destinations offering only opportunities for meeting the basic needs which are characteristics of mass tourism, while the demand for a quality, safe and profound vacation, which includes more entertainment, culture and a more emphasized need for physical activities, constantly grows. The analysis of cultural and historical resources developed for the purpose of the Cultural Tourism Development Strategy of the Ministry of Tourism of the Republic of Croatia has shown that Croatia, besides compact urban and rural historical areas, UNESCO sites and sites which can potentially become international tourist attractions, has a high concentration of quality cultural institutions, rich intangible cultural heritage presented on various festivals and traditional ceremonies, and rich heritage of legends and myths which can easily weave into almost every locality and thus be presented as a tourism story.[71] It should be pointed out that these historic attractions are situated on sailing routes, but are poorly integrated or not integrated at all into the nautical products. The integration of cultural and nautical tourism would create a special and complete experience for boaters while sailing.

4. RESEARCH

Two surveys were conducted by the author of this paper in the period from March to April 2018 in order to investigate the problem of the research which was defined at the beginning of the paper and to determine the opinions of the professionals (stakeholders of nautical tourism) and boaters about the offer of additional services within nautical tourism. Two questionnaires were also drawn up as experts' opinions were examined, i.e. opinions from employees involved in nautical tourism industry, and users of services - boaters. Survey questionnaire for professionals (N=45) has been used to examine their views on the quality of additional services for boaters, and on the complementarities and importance of nautical and cultural tourism which are to be integrated into a unique product. The second questionnaire was filled by foreign yachtsmen (N=38) who sailed the Adriatic Sea. This questionnaire examined the satisfaction with additional services and nautical offer while sailing along the Croatian Adriatic Sea, their knowledge about cultural potentials of the route they sailed, and their interest in complementary forms of tourism during their voyage.

[70] The Croatian Bureau of Statistics: NAUTIČKI TURIZAM: Kapaciteti i poslovanje luka nautičkog turizma u 2017. (Internet), available at: https://www.dzs.hr/

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4.1 RESEARCH CARRIED OUT AMONG THE PROFFESIONALS

Table 1: Mean ratings of respondents' variables - business stakeholders

	N	Mean	Std. Deviation	Std. Error Mean
The importance of cultural heritage and cultural resources within nautical offer	45	4.58	.690	.103
The cultural heritage of central Dalmatian cities and islands should be better integrated into a nautical product	45	4.27	.539	.080
An integrated cultural nautical product will have an impact on the (better) promotion of the Republic of Croatia and a possible boaters' return within a different form of tourism	45	4.27	.447	.067
The inclusion of additional activities in nautical tourism will positively affect nautical consumption	45	4.47	.505	.075
The quality of additional services in marinas and ports within nautical tourism	45	2.80	.786	.117
Integration of cultural heritage into a nautical product increases the attractiveness of nautical itineraries	45	4.38	.576	.086

Table 1 shows mean ratings or average degrees of respondents' agreement with a particular statement. The rating ranges from 1 (completely disagree) to 5 (completely agree). According to the data presented in Table 1, it is visible that all average ratings are high except the average rating of the quality of additional services that is 2.80 according to opinions of business stakeholders of nautical tourism.

Table 2: Testing mean ratings of examined variables - business stakeholders

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Rate the importance of cultural heritage and cultural resources as an element of nautical offer	15.328	44	.000	1.578	1.37	1.79
The cultural heritage of islands should be better integrated into a nautical product	15.754	44	.000	1.267	1.10	1.43
An integrated cultural nautical product will have an impact on better promotion of the Republic of Croatia and boaters' return within a different form of tourism	19.000	44	.000	1.267	1.13	1.40
The inclusion of additional activities in nautical tourism will positively affect nautical consumption	19.501	44	.000	1.467	1.32	1.62

The quality of additional services in marinas and nautical tourism ports	-1.706	44	.095	-.200	-.44	.04
The attractiveness of nautical itineraries is increased by integrating cultural heritage into a nautical product	16.057	44	.000	1.378	1.20	1.55

In the next step, the specified variables have also been proved by the t-test, i.e. the statistical significance of the abovementioned indicators have also been determined. The data in Table 2 has proved whether the observed variables are also statistically significantly higher, i.e. whether business stakeholders of nautical tourism agree with the statements. The conclusion on the significance has been made on the basis of comparing empirical significance with a predetermined significance of 5%. Namely, if the empirical significance (Sig. 2-tailed) of an individual t-test is less than 5%, it will be concluded that business stakeholders of nautical tourism agree with a certain statement.

Mean rating of *the importance of cultural heritage and cultural resources as an element of nautical offers* is 4.58, while the corresponding empirical significance is 0% ($\alpha \approx 0\%$) < 5%, it is therefore concluded that business stakeholders of nautical tourism give an above average rating to the importance of cultural heritage and cultural resources. It is further concluded that they believe that *the cultural heritage of the central Dalmatian cities and islands should be better integrated into a nautical product,* that *an integrated cultural nautical product will have a positive impact on the promotion of the Republic of Croatia and on the return of boaters within a different form of tourism,* that *the inclusion of additional services (such as autochthonous products, thematic tours, etc.) in nautical tourism will positively affect nautical consumption,* and that *the attractiveness of nautical itineraries will be increased by integrating cultural heritage into a nautical product.* Mean rating of *the quality of additional services in marinas and nautical tourism ports* is 2.8, while the corresponding empirical significance is 9.5% > 5%. It is therefore concluded that business stakeholders of nautical tourism give an average rating to the quality of additional services.

4.2 RESEARCH CARRIED OUT AMONG BOATERS

Table 3: Mean ratings of examined variables - boaters

	N	Mean	Std. Deviation	Std. Error Mean
Cultural heritage can be a motive when choosing nautical destinations	38	4.21	.704	.114
The familiarity with cultural potentials of the Croatian coast and islands	38	3.05	.928	.151
The attractiveness of nautical itineraries is increased by integrating cultural heritage into a nautical product	38	4.34	.745	.121
The integration of cultural heritage into a nautical offer will positively affect the satisfaction of boaters	38	4.34	.627	.102

Table 3 shows average degrees of respondents' agreements (foreign boaters) with survey statements as well as an average rating on the familiarity with the subject. It is visible that average degrees of agreement of foreign boaters with survey statements exceed average rating, while the average rating of the familiarity with cultural potentials of the Croatian coast and islands is 3.05. In the next step, the specified average variables have also been proved by the t-test, i.e. the statistical significance of the abovementioned indicators has also been determined.

Table 4: Testing mean ratings of examined variables - boaters

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Cultural heritage can be a motive when choosing a nautical destination	10.606	37	.000	1.211	.98	1.44
The familiarity with cultural potentials of the Croatian coast and islands	.349	37	.729	.053	-.25	.36
The attractiveness of nautical itineraries is increased by integrating cultural heritage into a nautical product	11.101	37	.000	1.342	1.10	1.59
The integration of cultural heritage into a nautical offer will positively affect the satisfaction of yachtsmen	13.192	37	.000	1.342	1.14	1.55

An average degree of agreement of foreign boaters with the statement that *rich cultural heritage is one of the motives when choosing a nautical destination* is 4.21, while the corresponding empirical significance is 0% ($\alpha \approx 0\%$) < 5%. It is therefore concluded that foreign boaters believe that rich cultural heritage could be one of the motives when selecting a nautical destination.

Mean rating of *the familiarity with cultural potentials of the Croatian coast and islands* is 3.05, while the corresponding empirical significance is 72.9% > 5%. It is therefore concluded that foreign yachtsmen are not significantly acquainted with the cultural potentials of the Croatian coast and islands. It is further established that they agree with the statements that *the attractiveness of nautical itineraries would be increased by integrating cultural heritage into a nautical product,* and that *the integration of cultural-historical heritage into the Croatian nautical offer would positively affect the satisfaction of users when choosing Croatia as a nautical destination.*

Table 5: Interest of foreign boaters in other activities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	36	94.7	94.7	94.7
	No	2	5.3	5.3	100.0
	Total	38	100.0	100.0	

Table 5 shows the answers of foreign boaters regarding their interest in other activities other than the usual ones such as enjoying natural beauties, swimming and sailing. It is evident from the Table 5 that 36 respondents or 94.7% are interested in other activities.

5. SUGGESTIONS FOR FURTHER DEVELOPMENT OF NAUTICAL TOURISM

Current events in the international nautical market indicate that Croatia is becoming one of the most desirable nautical destinations. Due to the current situation, it is necessary to transform the present offer of nautical tourism with great knowledge, feeling and above all, innovation. The entire offer both in marinas and nautical tourism ports, as well as in charter companies, needs to be enriched and redesigned in a high quality manner.

The need to define and develop new products by expanding the entire offer and complementary services based on boaters' wishes and requirements arises in order to create a competitive position in relation to the environment and competition and to achieve the increase of the overall socioeconomic indicators in the areas of activity and organization including indirect and direct factors.[72] As the coast and islands, besides valuable natural resources, have a rich cultural heritage, it is evident that these two resources of high value must be interconnected and offered to boaters as an integrated product and thus positioned on the strong international nautical market.

The offers of marinas and ports in creating the offer for boaters must be complemented by the offer of nearby destinations, which can be achieved through the active participation of tourist boards where marinas are located and where boaters stay. The integration among various selective forms of tourism increasingly becomes a necessity which must be recognized by the most capable stakeholders of nautical tourism with a strong vision.

The aforementioned suggestions and the further expansion of the nautical infrastructure would help to realize the mission of the nautical tourism system of the Republic of Croatia, i.e. a quality service would be ensured for every boater in order to satisfy his needs as well as socioeconomic prosperity of the location where the activity is carried out.

6. CONCLUSION

Natural resources are a God-given potential which can lead the Croatian nautical tourism to the very top of the international nautical market, however in order to surpass competitive destinations the mere possession of resources is not sufficient. Therefore, it is necessary to develop other parts of the nautical tourism system such as its infrastructure and accompanying services which require actions of stakeholders and the state. The current development is based solely on natural beauties and the indented coastline, which presents an attractive "pull factor" for boaters when choosing their nautical vacation destinations, however these elements are insufficient for boaters during their vacation compared to competitors' offers.

The research has proved that foreign boaters are very interested in culture but are not familiar enough with cultural and other potentials of the Croatian coast due to their current poor presentation. It has been proved that their integration into the nautical product would further strengthen the attractiveness of itineraries and routes along which boaters sail, and also the satisfaction of boaters with Croatia as a nautical destination. It is therefore necessary to create interesting nautical products that will reflect and be intertwined with the autochthonous tradition and culture, and be interconnected with other complementary island activities in order to enrich stay of boaters on the Adriatic with an unforgettable experience which will certainly result in their later return. Nautical tourism can only maximize its effects through synergic

[72] Hrvatski hidrografski institut, op.cit., p.146

interaction of different types of tourism. Therefore, by creating an integrated product which would include elements of other tourism forms, diversification of products could be achieved and thus the position on the strong international market. This type of product can enable market positioning in relation to the direct and indirect competition, and most of all provide additional value to boaters.

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INFLUENCE OF SOCIAL NETWORK ON PROMOTION IN TOURISM SECTOR

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Abstract: *The global increase of users of social networks have big impact on way of business communications and social networks became main way of communication in all businesses, particularly in the tourism sector, as well as service activities in which the communication with consumers and clients is very important for a success of business. The aim of this paper is to highlight the importance of using social media in tourism and hospitality. In this paper we will present the importance for constant interaction with consumers and customers, in order to monitor their opinions, attitudes about the company and the quality of services provided, as well as their satisfaction with these services and thus enhance the effects and results of operations. All this is more easily with the proper use of social networks.*

Keywords: *tourism, social media, business*

1. INTRODUCTION

Social media is a media for interaction, information exchange respectively, which is used by digital technologies and internet application, with increased application of mobile technologies. The media comes in various shapes such as: internet forums, social blogs, magazines, micro-blogs, wiki, podcasts, photos, videos, pages for social networking and linking, and at the same they could have increasing application as informative, educational, professional and other features. [1] American company Nielsen published a research which shows that 67% of internet users visit social networks on regular basis. [2]

Today, marketing on social networks is almost an indispensable part of the communication strategy of all successful companies. Social network users constantly communicate about the products and services of various companies, which is the exact reflexion of their advantage. One of the principals and most important features that social networking provides is interaction with users in real time. Based on a research conducted by Digital Safari agency in Serbia in 2015, which encompassed 100 companies with business conduct in Serbia, more than two thirds of the participating companies used social networks in their daily business conduct. [3]

2. STATISTICAL DATA ON SOCIAL NETWORK USE IN 2017

Following research analyses social network use on the global level obtaining 4 the most popular networks.

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Table 1: Insight of trends when it comes to the use of social networks in 2017 (top 4) [4]

Facebook	***Twitter***	***Instagram***	***YouTube***
More than 2 billion users use Facebook every month, which is annual growth of 17%	Twitter Monthly Active Users (MAU) Worldwide 326 million, out of which 68 million are from the United States	There are more than 700 million Instagram users, whereas more than 400 million are active on daily basis.	More than 300 hours of a content is uploaded every minute
There are 1.15 billion mobile daily active users (Mobile DAU) for December 2016, an increase of 23 percent year-over-year	6000 tweets are published each second, half billion each day	More than 15 million businesses have registered account, and more than a million of them are advertised every month	More than 5 billion video clips are viewed every day
Each day, users upload more than 300 million photos	83% of world leaders have twitter account	Every day, users share 95 million photos	
Average time spent per Facebook visit is 20 minutes.	66 percent of the businesses who have 100 or more employees have a Twitter account	68% of Instagram users are women, and for 17% of teenagers Instagram is the most important social network	80% of people between the ages of 18 – 49 will look for something on YouTube at least once.

3. USE OF SOCIAL NETWORKS IN SERBIA

According to the latest research, most of the population in Serbia use Facebook social network (Statistics “ITMagazin”, December 2017). [5]

“Digital Safari” Agency conducted an annual research on Facebook page use in business conduct. Research included 100 Company’s representatives, and obtained results indicating that 52,7 % of subjected Companies have one Facebook page, 40,7% of the Companies have a few, and 6,6% have none. [3]

Table 2: According to the statistics, there are 4 mostly used networks in Serbia

Facebook	***Google +***	***Linkedin***	***Twitter***
3.5 billion users	550 thousand users	380 thousand users	280 thousand users

4. TOURISM AND SOCIAL NETWORKS

New wave in internet application in all aspects of life, were brought by social networks, and tourism is an activity where social networks definitely have the greatest potential. Photo sharing, video content, status, location, advice on whether it is interesting and fun, whereas fun and entertainment are the most common reasons of its presence on Facebook, Twitter, Instagram, etc. In that way, though interesting contents via social networks, the hotel or destination could increase its attractivity, recognition, enhance the brand and most importantly attract more guests and increase the income. All this create different customers experience. [6]

Online word-of-mouth comes in various forms, such as comments on discussion boards or interactions on social networking services. With its convenience, safety, and trustworthiness, this approach is considered to assume greater validity and thus a better reflection of consumer product evaluation compared with traditional information sources. [7] Prior experience facilitates the entrepreneur's inclusion in social networks, subsequently fostering opportunity discovery. [8] Social networks have the potential to unite groups of people within a global network to solve fundamental problems. [9]

Tourist organizations, hotels, apartments and travel agencies slowly comprehend the importance, and especially the great benefit they could achieve by using social networks in their business. Many agencies are very successfully conducting business as online agencies, such as Trip Advisor, Booking.com and others. Many hotels use social media for various purposes, such as promotions, advertising of services and products, attracting more guests, establishing and fostering ongoing relationships with members of online communities, creating image, and others.

Following information were obtained by researching on-line market: [10]

- more than 20% of time spent on internet, people spent on social networks
- one in five social network users posts photos and comments from the trip, while half of them claim that they have decided on at least one trip under the impression of pictures and comments of their Facebook friends
- 68% tourists use mobile devices for maintaining contact with their friends during the trip
- in average, hotels have an average on 240 comments on their sites
- 57 % of tourist sites visitors read comments of the travelers
- 97 % of the readers believe in everything that was written
- 87% claims that the comments from the site influenced on selection of the hotel
- 49% of tourists won't book the hotel without guests' comments on the website
- the more pictures and comments, the site / profile is more successful, sites / profiles with more than 20 photos of the property are rated as the most reliable
- 84% of users find on Facebook basic source of ideas and useful travel information
- 52% of social network members post their travel photo on profile
- 50% is willing to change the travel plan under the influence of comments
- the most read tourist sites / profiles are the ones containing travel books and advices from professional guides or experienced travelers

Reasons for using social networks in order to promote tourism, travel agencies and organizations are the following: [11]

- High targetizations,
- Measurability,
- Accessibility and low prices.

What is very important for tourist subjects is that they can promote their offers free of charge and reach the widest group of potential guests. It is especially important that they have the opportunity to get in touch with foreign guests and expand their area of operation.

The tourist and catering offer should be presented on social networks for three main reasons, which are: [11]

- Increasing the recognition and creating image,

- Increase in turnover and revenues,
- Gathering feedback and improving business conduct.

5. COMPARATIVE ANALYSIS OF SOCIAL NETWORK USE BY TOURIST AGENCIES IN SERBIA

BIG BLUE

Besides the package tours for attractive resorts around the world, this agency offers in its portfolio well-known European ski centers during winter months, as well as group and individual arrangements for European and world metropolises, distant destinations, islands, cruises ... Also, Big Blue provides the service of hotel reservation system on its site. As far as social networks are concerned, they use: Facebook, Twitter and Instagram. **Facebook page** of this agency is up to date. They publish, on daily basis, current offers with detailed information on destinations. The page is followed by a large number of people, about 25,000. **Instagram** account is also actively used, but is based exclusively on their package tours, while on Facebook page they also publish some information about specific destinations. They have around 24,000 followers on this network. There is lesser activity on **Twitter** account than two aforementioned networks, but it is not left behind. What they publish predominantly are the texts about the destination offered in group package tours. There are about 3400 followers on this account. This agency has active accounts on 3 social networks only, but all three accounts are updated and used actively, providing enough information to parties of interest. [12]

GLOB METROPOLITEN TOURS

This agency from Belgrade organizes trips, excursions, and also in its portfolio provides transportation service and airplane fares. It uses following social networks: Facebook, Instagram, Twitter and YouTube. Their Facebook page is not up to date. They publish their offers occasionally, 3-4 times a month. They have small number of Facebook follower, about 3200. **Instagram** profile is a bit more active, they publish offers and events; however they don’t have many followers, more precisely around 2000. Great deal of posts is not related to tourist offers, but to some events members of the agency participated to. As for the **Twitter** account, it is also more up to date than Facebook page. However, insufficient attention is dedicated to providing proper information, when posting a photo, which is the main role of the Twitter. Usually, there is a contact phone number for all information, above the picture where certain package tour is offered. They have around 1000 followers. **YouTube** channel is activated, but neglected. There are 6 videos only, and the last one was published 2 years ago. By analyzing social networks this agency uses, it can be concluded that there are many active accounts, rarely or never used. [13]

FILIP TRAVEL

Filip Travel is tourist agency with seat in Belgrade. They have in their portfolio various destinations for summer holidays, winter holidays, cruses and excursions. Clients can also book airplane fare, as well coach and minibus transport. Social network accounts they have are: Facebook, Twitter, Instagram, YouTube, Pinterest, Google+ and LinkedIn. **Facebook page** of this agency is very well designed. They are active on daily basis, publishing offers with detailed information. There are shortcuts for users’ support and fast contact. They have huge number of followers, around 71000. **Twitter account** is also up to date, but to the lesser extent than the Facebook page. The most important information are highlighted and a link to more detailed offer. They have around 1200 followers. **YouTube** of this agency is not much utilized. Occasionally, 3-4 times a year, they publish one of videos with description of the offer or destination. **Instagram** account is up to date; they publish offers 3-4 times a week, providing information about destination, package deals and prices. They respond to the comments of interested clients on time. They have 6600 followers. **Pinterest** account was active until the last year. They were posting pins regularly, but as of spring 2017, they weren't active. Google+ account is also inactive as of last year. It is noticed that this agency has many accounts on various social networks; however the accounts are rarely used. Most of the attention is focused on Facebook page and Instagram profile, but they do not provide sufficient information. [14]

CLOCK TRAVEL

Clock travel is tourist agency with seat in Niš. They organize summer holidays, winter holidays, graduate excursions and one day trips. They also have in the offer gift vouchers that client can send as a gift to someone. They use Facebook and Twitter. **Facebook** page is up to date. They publish current offers and their travel packages, but without any information on popular destinations and events. They have 20300 followers. **Twitter** account that is a follow up short cut on their web site, that hasn't been used since 2014. It could be concluded as far as Clock Travel is concerned that, although they list 2 social networks as active, they have one useful account and that is Facebook. [15]

BALKAN FUN

Balkan Fun is a travel agency that, in addition to organizing classical trips, it is popular for its travel packages for young people, where they organize parties. They also offer air tickets, and on their website they post a blog-magazine about every interesting trip and destination. Social networks they use: Facebook, Twitter, Instagram, and YouTube. **Facebook** page is used on daily basis. They publish package deals, information on destinations, as well as photos from past trips, which has a very good impact on potential clients. According to the number of followers, they have better popularity than previously analyzed agencies. It is followed by 132 400 persons. **Instagram** account gets equal attention. Everything they publish on Facebook page is also published on Instagram. They provide information on regular daily basis on offers and number of remaining deals. They have around 12000 followers. **Twitter** account is a bit less used than the previous two. Most important information is highlighted with link to more detailed information. Videos are rarely posted on **YouTube** channel**;** however, they are very useful as presentation of certain destinations which are provided to the clients. [16]

Comparing to the 4 previously analyzed agencies, Balkan Fun agency has the best approach in social networks promotion. Facebook and Instagram are very active, providing necessary information. Other two accounts are not regularly updated; however they could serve clients to choose destination and agency.

Table 3: Comparative presentation of tourist agencies in Serbia and social networks they use

Name of the tourist agency	Social network they use
Big Blue	Facebook, Twitter, Instagram
Glob Metropolitan Tours	Facebook, Twitter, Instagram, YouTube
Filip Travel	Facebook, Twitter, Instagram, YouTube, Pinterest, Google+, LinkedIn
Clock Travel	Facebook, Twitter,
Balkan Fun	Facebook, Twitter, Instagram, YouTube

CONCLUSION

Main topic of the paper is research on the use of social networks in order to promote tourism in Serbia. Modern marketing strategies are increasingly focused on improving the relationship of business organization with clients. As social networks play an increasingly important role in everyday lives of all of us, they are also positioned in playing an important role in business conduct. Social networks in tourism have changed the way people research and make decisions. By using them, tourists explore content, offers, accommodation, tips and useful experiences of other users. Therefore, good promotion on social networks is a very important reference in tourism. From results obtained from this research, it can be concluded that all agencies analyzed in the research have accounts on Facebook, Twitter and Instagram, which are used by 4 out of 5 analyzed agencies, following YouTube, which is used by 3 out of 5 analyzed travel agencies. Social networks that are also used, but rarely, are Google+, Pinterest, LinkedIn**.**

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METHODOLOGY OF INTERPRETATION OF EUROPEAN CULTURAL HERITAGE

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Abstract: *The authors examine the topic of current challenges in interpretation of European cultural heritage in the context of changing tourism market, in particular of the structure and needs of visitors of tourism attractions in Europe.*
The article presents the results of the first stage of an international project concerning this topic. It brings a brief overview and categorization of methods of European cultural heritage interpretation. The study examines twelve basic methods that can be used in the context of heritage interpretation in the framework of tourism (e.g. guiding service, printed materials, trails, expositions, visitors' centers, games, educational programmes, workshops, experience programmes, shows, events and audio-visual and digital media-based interpretation). The study evaluates advantages, disadvantages, suitability and sustainability of methods for three different segments of tangible cultural heritage: architecture, fine arts, religious monuments and three segments of intangible cultural heritage: music, traditions and customs and gastronomy.
The conclusion supports the needs of a variety of methods used for the European cultural heritage interpretation and the need to incorporate the issue of interpretation of European cultural heritage into visitor´s management and to prepare a set of different interpretation methods for individual cultural sites and attractions.

Keywords: *Tourism, Cultural Heritage, Interpretation, Methodology of Interpretation*

1. INTRODUCTION

The European Union declared the year 2018 as a year of European Cultural Heritage with the aim to promote access to cultural heritage and interpretative activities related to this common treasure of the continent. "Under the slogan 'Our heritage: where the past meets the future', the European Year of Cultural Heritage aims to contribute to a sustainable EU economy" [1]. Individual member countries organized a number of events to support awareness of European Cultural Heritage. These events addressed both professional and non-professional public. The authors of this paper study specific complementary issue – interpretation of European Cultural Heritage to tourism participants. Cultural attractions are very important and visiting them is a traditional part of itineraries of both organized and non-organized, group and individual tourism. [2] European tourism has recently been growing and its structure and consumer behavior of their visitors has been changing. These changes have resulted in the need to adapt interpretation of European Cultural Heritage to new trends in tourism.

Tourism subjects have been taught at the University of Economics in Prague already since 1959; currently the study programme is organized and guaranteed by the Department of Tourism at

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the Faculty of International Relations of the University of Economics in Prague. The aim of education in the field of tourism is preparation of top managers in all branches of the tourism industry, including interpretation of cultural heritage in tourism.

The topic Methodology of Interpretation of European Cultural Heritage through attractions in tourism is solved within an international project MIECAT. The Department of Tourism (Faculty of International Relations of the University of Economics in Prague) is a coordinator and researcher of this project. Other co-researchers are: University of Economics, Bratislava, Slovakia; Alexandru Ioan Cuza University, Iasi, Romania; University of Applied Sciences, Burgenland, Austria; Universidad Europea, Madrid, Spain; Fachhochschule des Mittelstands, Schwerin, Germany. The aim of the project is to create a course enabling students to acquire necessary competences in interpretation. Implementation of the project is planned for 2017 – 2020. The project is funded by EU Erasmus+ programme and will provide opportunity for exchange of scientific experience of all participating universities. With regard to diversity of historical development in individual countries and their approaches to interpretation, complexity of professional experience and findings is strengthened.

The aim of this paper is to present the outcomes of the first phase of the MIECAT project. This phase covered an overview of the research done up to now in the field of interpretation of cultural heritage, elaboration of this topic in professional literature, unification of terminology and creation of an overview of interpretation methodology used in the Czech Republic, Austria, Germany, Slovakia and Spain in three segments of tangible cultural heritage: architecture, fine arts, religious monuments and three segments of intangible heritage: music, traditions and customs and gastronomy. This paper brings an overview, analysis and evaluation of the methods applied for interpretation as well as identification of basic issues in the present interpretation of European Cultural Heritage.

2. BASIS

European tourism has been rapidly growing, its structure has been undergoing significant changes, and national scope of visitors has become more diversified. Europe welcomed 671 million tourist arrivals in 2017, which is by 8 % more than in 2016. [3] More and more visitors from very different cultures with a very small and often only vague awareness of European culture are coming to Europe now. The number of tourists coming to Europe especially from Asia (particularly from China, Japan and India) and from America (the USA and Canada) is expected to grow. [4] Consumer behavior of visitors, their preferences while acquiring information about places visited both from the view of content and the form of the information submitted (e.g. preferring visual perception to texts, expecting entertaining elements and emotional messages) have been changing too. [5] Other important changes in requirements on interpretation result from changing preferences of ways and means of communication. These changes lead to the necessity to review the current approach to interpretation and to adjust interpretation of European Cultural Heritage to the above-mentioned trend.

"European Heritage sites are milestones in the creation of today's Europe and symbolize European ideals, values, history and integration." [6] Europe has rich history and broad cultural diversity. The concept of European Cultural Heritage in this paper corresponds to that of the UNESCO, which defines categories of tangible cultural heritage (movable and immovable) and intangible cultural heritage. [7]

In Europe tradition of interpretation of European Cultural Heritage in tourism goes far into the history. Providing guiding services can be traced back to the 17th century; they are mentioned in the diaries written by noblemen on their chivalrous journeys. [8] Heritage interpretation was first defined by F. Tilden in 1957 as: “an educational activity which aims to reveal meanings and relationships through the use of original objects, by first-hand experience, and by illustrative media, rather than simply to communicate factual information”. [9] In professional literature the theory of interpretation has been developed especially in Scotland and Canada since the 1970s. Together with increasing emphasis on protection of nature heritage used in tourism, professional literature of the last decade paid more attention to interpretation of nature attractions (development of specific programmes for visitors to national parks, geoparks, and development of heritage trails through interesting nature localities). In 2014 the European Association for Heritage Interpretation - Interpret Europe was founded to support interpretation of European Cultural Heritage. Its aim is to create a platform for international cooperation and exchange of experience. This association understands heritage interpretation as “structured approach to non-formal learning specialized in communicating significant ideas about a place to people on leisure. It establishes a link between visitors and what they can discover at heritage sites such as a nature reserve, a historic site or a museum.” [9] Good interpretation is always based on first-hand experience and often on personal contact with staff on site. Good interpretation provokes visitors’ curiosity and interest in the topic, reveals the significance, background and values of the site and helps people to enjoy a satisfying experience. [10] Some selected interpretation methods are described in the available literature [11], [12], particularly including the content and technical issues of providing guiding services in relation to their practical implementation. [8]. However, an updated overall comprehensive review of potential methods of interpretation and their systematic description, detailed analysis of management of European Cultural Heritage interpretation including economic evaluation of efficiency of individual interpretation methods are missing.

3. METHODOLOGY

A survey of interpretation methods was prepared by research into publicly available information about the offered ways of interpretation at the most visited cultural attractions in Europe. Categorization and follow-up analysis were prepared according to the below mentioned criteria. Data compilation was undertaken in the tourist season of 2018, evaluation of the data with the help of multicriterial analysis was prepared during October 2018.

The following criteria were used for evaluation of appropriateness of the method used:

- Amount of information,
- Meeting the goals of interpretation,
- Creativity of the message,
- Possibility of flexible adjustment of content of interpretation to different segments of visitors,
- Personal approach,
- Appropriateness for different kinds of cultural heritage (for all – limited),
- Possibility of language versions,
- Technical requirements,
- Organizational requirements,
- Requirements on the personnel,
- Costs.

The evaluation was done by expert qualified evaluation with the help of a 1 – 4-point scale where a higher value of points represents a more appropriate level of evaluation characteristics of the interpretation method. Evaluation of currency of interpretation methods offered was assessed with monitored segments of European Cultural Heritage: architecture, religious monuments, fine arts, gastronomy, music, traditions and customs. A 5-point scale (0-4) (not at all, exceptionally, rarely, from time to time, very often) was used for the evaluation.

4. METHODS OF EUROPEAN CULTURAL HERITAGE INTERPRETATION

Approaches to defining the concept of interpretation differ in various sources. The authors of this paper incline to a broader definition of the concept of interpretation, i.e. they understand interpretation as communication with a visitor by various (even non-personal) ways, keeping in mind the principles of maintaining the content of interpretation, such as to communicate the information in context and reveal things and connections/relations not clear at first sight.

There are different aspects from which we can approach the evaluation of interpretation methods. Apart from evaluation how the goals of interpretation were met, it is possible to evaluate the benefits of interpretation for the visitor or to evaluate individual aspects of interpretation separately – content, aesthetic performance, emotional level, organizational and personnel provisions, technical solution, economic aspects (costs, revenues, and efficiency).

5. CATEGORIZATION OF INTERPRETATION METHODS

Methods of interpretation can be categorized from different points of view:

According to the place:
- methods used in authentic environment:
  - Inside the attraction (e.g. castle),
  - Outdoors/in the field (e.g. urban reserve).
- methods used out of the authentic environment (e.g. in virtual environment, at school, in specific environment – interpretation centre, etc.).

According to duration:
- short (up to 1 hour),
- intermediate (several hours long),
- long-term (more days).

According to the means of communication used:
- verbal methods:
  - based on a spoken word,
  - based on a printed text,
- visual methods (based on visual materials, exhibits),
- audio methods (based on audio materials),
- multimedia methods.

According to the interpreter:
- personal,
- non-personal, without presence of a live interpreter – mediated by technical aids (e.g. audio-guide, boards, information panels),

According to involvement of visitors:

- frontal methods (without involvement of visitors),
- interactive methods (with response of visitors),
- experience methods,
- emotional methods,
- dramatic methods,
- workshop methods (active participation of visitors),
- gamification methods.

According to the content of the message:

- professional message,
- edutainment,
- entertainment,
- experience,
- storytelling.

When planning interpretation of European Cultural Heritage for visitors in tourism the following aspects must be considered:

- Visitor’s market segment (nationality, age, motivation, interest, experience, expectation, volume of time, personal preferences),
- Objectives of interpretation,
- Feasibility (protection of heritage, predisposition of the site, respect of genius loci, new technologies),
- Efficiency, sources (funds, human resources).

6. EVALUATION OF ONTERPRETATION METHODS

Twelve basic methods of interpretation were identified during the research. These methods are used in numerous diverse variations to present almost all kinds of tangible and intangible cultural heritage. Most common are classical guiding service and printed materials, intangible heritage is mostly interpreted through various events. Effectiveness and efficiency of individual methods of interpretation is individual and relates to the particular situation and type of visitors.

Table 1: Evaluation of interpretation methods: benefits

	guiding service	printed materials	trails	expositions	visitors centres	games	educational programmes	workshops	experience programmes	shows	events	AVT
amount of information	4	2	2	4	4	1	4	4	4	3	2	4
goal of interpretation	4	2	2	4	4	2	4	4	4	4	3	3
creativity	4	1	2	4	3	3	4	4	4	4	4	3
flexibility	3	1	1	2	1	2	4	4	4	4	2	4
personal approach	4	2	1	2	1	2	4	4	4	4	3	1
type of European cultural heritage	4	4	2	3	3	2	4	3	3	3	3	3
language	1	4	2	2	2	3	1	1	2	1	3	4
	24	**16**	**12**	**21**	**18**	**15**	**25**	**24**	**25**	**23**	**20**	**22**
technical demands	3	4		1	1	2	2	2	1	1	1	1
organizational demands	1	4	3	1	2	2	1	1	1	1	1	3
personnel demands	1	4	4	2	2	2	1	1	1	1	1	3
costs	2	2	2	1	1	2	2	1	1	1	1	1
	7	**14**	**11**	**5**	**6**	**8**	**6**	**5**	**4**	**4**	**4**	**8**

Source: Authors´research

It is clear from the evaluation that the methods by which the goals of interpretation can be better achieved are technically, economically and organizationally more difficult. Less economically and organizationally demanding methods bring fewer possibilities in interpretation. Despite high costs according to the criteria given methods based on audio-visual technologies, guiding services and interpretation through exhibits and shows seem to be most appropriate regarding benefits/costs ratio.

Table 2: Currency of interpretation methods

	guiding service	printed materials	trails	expositions	visitors centres	games	educational programmes	workshops	experience programmes	shows	events	AVT
architecture	4	4	2	1	1	1	1	0	1	0	1	3
religious monuments	2	4	1	1	0	0	0	0	0	0	1	1
fine arts	3	2	1	4	0	2	4	4	2	1	2	3
gastronomy	1	1	2	1	1	0	2	3	2	3	4	1
music	2	2	1	2	1	0	2	1	1	2	3	2
tradition and customs	3	2	1	2	1	0	3	3	3	3	3	2
	15	**15**	**8**	**11**	**4**	**3**	**12**	**11**	**8**	**9**	**14**	**12**

Source: Author's research

Regarding the currency of the offer, methods most frequently offered in the interpretation of the above-mentioned six groups of European Cultural Heritage (see table 2) are explanation of a guide and texts, but interpretation based on the use of audio-visual technologies has been developing. Interactive methods, such as edutraining programmes, events, workshops and shows are more common for interpretation of intangible heritage. Disadvantage of this form of interpretation is limited capacity and other restrictions in the offer of these programmes to foreign participants in tourism.

7. PRELIMINARY FINDINGS

Compiled information on the offered ways of interpretation of cultural activities in Europe was used to analyze these interpretation methods and to categorize them. Twelve basic methods of interpretation applied in many variations were identified.

Positive finding is that the scale of methods used is diversified and in many cases it gives a visitor option to choose the way of interpretation according to their personal preferences.
The methods of interpretation and their innovations are chosen according to the tradition/customs of a given place. Only seldom is the solution based on the analysis of the needs, it rather results from possibilities (or limitations) of the provider. Possible innovations usually come from individual intuition of property managers. Management of interpretation planning does not exist and effectiveness and organizational and economic demands of interpretation methods are not taken into account.

8. DISCUSSION

Research aimed at identification of the needs of visitors in tourism is planned to be conducted in the upcoming phase of the project. Other tasks to be solved are elaboration of a theory of interpretation planning and creating of methodology for assessment of economic efficiency of interpretation methods.

9. CONCLUSION

The paper presents the results of the first phase of research within MIECAT project: analysis and brief evaluation of the used methods of interpretation and basic issues of current interpretation of European cultural heritage are identified.
The conclusion supports the need to incorporate the issue of interpretation of European cultural heritage into visitor´s management and to prepare a set of different interpretation methods for individual cultural sites and attractions. This requires educating experts for planning and assessment of effectiveness of European cultural heritage interpretation.

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PROTECTION OF CONSUMER RIGHTS IN PACKAGE TRAVEL, PACKAGE HOLIDAYS AND PACKAGE TOURS IN SLOVAKIA

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Abstract: *Tourism is one of the areas of the economy that is rapidly developing and there are significant changes in this sector as well. In addition to traditional distribution chains, Internet is becoming an increasingly important medium through which travel services are offered or sold. Travel services are combinations in the form of traditional predefined packages of services and the use of modern IT technologies (online retailer). The Slovak legislation is based on the provisions of Article 169. section 1 and Article 169 section 2a of the Treaty on the Functioning of the European Union (TFEU), which provides that the Union must contribute to the achievement of an elevated level of consumer protection through measures adopted pursuant to Article 114 TFE. To ensure legal certainty, the legislation stipulates the obligation on operators to carry out the activities of a travel agency solely based on a business license for travel. In addition, the law tightens the travel agency's information obligations to passengers. The aim of this scientific article is to point out and declare in detail the responsibility of entrepreneurs in selling their products. In the context of business relationship there are two subjects, on the one hand the individual traveler as a consumer, and on the other side the provider of services (a legal person), who must take full responsibility for the services provided.*

Keywords: *Protection of consumer rights, Tourism, Online tourism, Travel agency.*

INTRODUCTION

The aim of this scientific study is to clarify the issue of tourism, online tourism, consumer and consumer protection with the help of selected relevant sources and to approximate Act 170 of 15 May 2018 on Tours, Associated Tourism Services, Certain Business Conditions in Tourism and amendments of some laws. The National Council has passed the above-mentioned law and the law enters into force from 1.1.2019, in the following mentioned as Act 170/2018 Z.z. [1] Tourism is a major economic sector with a very favorable impact on economic growth and employment not only in individual countries, but also across Europe and the world. The importance of tourism for economy, society and individuals became known to the countries involved in the second half of the 20th century. States have created legal, economic and other prerequisites to promote tourism business. The development of tourism as result of technological development has its own specifics.

Online tourism, e-tourism, web tourism are all understood today in tourism science as having a web-based technology requested by a consumer or self-booked tourist primary services. In this context, touristic primary services are defined as all services provided by (tourist) service providers that are needed to generate and design a journey (e.g. transport and accommodation). As secondary tourist services above all are understood additional services (e.g. travel insurance, entrance tickets, etc.). Online tourism has become increasingly important in both the private and business sectors in recent years. The importance of online tourism is growing worldwide.

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For this purpose, we present the table Global Online Travel Market Overview 2016 and Digital Travel Sales Worldwide from 2014 to 2020. The Internet opens new distribution channels for service providers and tour operators. The offer for and in tourism on the Internet has been developing positively for 20 years. The special interest lies in the search for flights and train connections, information on international holiday regions and hotels or last minute offers. The number of on-line bookings is also increasing and above all the sale of airline and train tickets.

E-commerce brings benefits for many involved. For subjects involved in tourism it is no longer a question of joining the Internet, but the way in which to do so. There is a significant redistribution of tasks on the electronic tourism market. While there has been a clearly visible end-user orientation over the past years, in recent years there is a stronger concentration on travel agents using mainly Central Reservation Systems (CRS). The basis of the product of the central reservation system is booking and selling accommodation via the Internet continuously 24 hours a day 7 days a week. The centers of CRS operators are stepping up efforts to use the Internet as another and may be better distribution channel.

Central reservation systems undermine the by antitrust authorities forced neutrality and reduce market transparency if they, for example, offer airlines a customer one-to-one marketing. One-to-One-Marketing makes it possible to address the consumer individually in the form of business-to-consumer or business-to-business. Other interesting and forward-looking online e-commerce solutions include specialized Internet platforms/channels and virtual travel agencies, creating various communities of travelers. One of the most important features is to find the most suitable offers for a client. For the sake of clarity and transparency in the interpretation of the law, this study deals with the concepts of tourism, online tourism, consumer and consumer protection as well as with the Act 170 of 15 May 2018 on Tours, Associated Tourism Services, Certain Business Conditions in Tourism and amendments of some laws.

OBJECTIVE AND METHODOLOGY

The aim is to get closer to the Protection of consumer rights in package travel, package holidays and package tours in Slovakia. To reach the target, we worked with relevant information about tourism, consumer and consumer protection. We gained data from books or articles, as well as from electronic publications and Internet articles. In addition, we looked at the Consumer protection in Slovakia based on the European Directive and analyzed the new law 170 on tours and related tourism services and some conditions of making business in tourism. Consumer protection in the new conditions of online tourism requires this new legal framework. By analyzing and synthesizing, we examine the conditions for protecting consumers in tourism services.

Related to the issue are several terms. For the sake of clarifying the content and preventing mistakes in interpretation, the basic concepts how consumer rights must be protected are set out in the law. The creator of the law is the Ministry of Economy of the Slovak Republic. The National Authority urges everyone involved to use the unified terminology.

TOURISM AS AN ECONOMIC PHENOMENON

Tourism contributes significantly to the economic and social development of countries in Europe and the world in relation to cultural and natural heritage, the traditions and culture of Europe and individual countries. The development of tourism because of technological development has its own specifics. Tourism has been and is studied under macroeconomic and microeconomic aspects.

In the first half of the 20th century, tourism has been investigated as an economic activity by A. Mariotti, A.J. Norval and M. Trois. In this period, Swiss W. Hunziker and K. Krapf were the most successful in the study of economic aspects of tourism. These authors define "tourism as a set of relationships and phenomena arising from travel and residence of persons in a foreign place, unless the purpose of the stay is permanent or long-term or short-term gainful employment". [2]

The UNWTO Code defines "tourism as an activity which, most often, relates to rest and relaxation, sport and access to culture and nature, should be planned and implemented as a privileged means of individual and collective fulfillment; when exercised with a sufficiently open mind, is an irreplaceable factor in self-education, mutual tolerance and learning about the legitimate differences between people and cultures and their diversity." [3]

M. Gúčik, who defined tourism as an industry with a cross-sectional character, was also studying quantification of economic benefits in tourism. The lack of relevant tourism data in terms of traffic and its performance has led to the need to create a specific collection of this data. The assessment of economic and social benefits of tourism required the introduction of a tourism satellite account. This Satellite Tourism Account was developed by the World Tourism Organization (UNWTO) in collaboration with the UN Statistical Commission and the OECD.

Tourism also acts as a multiplier of economic activities. The question of the final effect and the destination function of tourism both from the point of view of the individual traveler and from the point of view of the organizers of tourism as producers of goods and services satisfying demand in tourism, is addressed by several authors, among others the above-mentioned M. Gúčik. [4]

The European Union has an important role to play in creating the same rules for the development of cooperation between Member States in different sectors, but in particular by emphasizing the good functioning of markets for the benefit of consumers and thus protecting them.

In the tourism industry, online tourism has become increasingly important in recent years, both in the private and business sectors. The terms online tourism, e-tourism, web tourism, platform tourism vary from text to text. In general, it nowadays refers to all primary tourist services requested or self-booked by an end user via a web-based technology. In this context, touristic primary services are defined as all services provided by (tourist) service providers that are needed to generate and design a journey (e.g. transport and accommodation).

As secondary tourist services, above all additional services (e.g. travel insurance, entrance tickets, etc.) are understood. The number of bookings, which are actually handled only by technical systems without the intervention of an editor, is unknown.

ONLINE TOURISM - E-TOURISM - WEBTOURISM - PLATFORM TOURISM

Gone are the days where reservations and booking of travel were only possible by visiting travel agencies or ordering by phone. Nowadays travel websites and mobile apps have been making digital travel arrangements increasingly easy. For current day travellers, it is almost unthinkable not to be able to independently plan and book travel arrangements beforehand. Many internet users appreciate the ability to create their own itineraries with the help of digital tools such as travel planning websites, price comparison websites or review portals, which frequently provide visitors with the option to directly book accommodation at listed locations.

"E-tourism is understood as all digitized and web-based transactions used by the tourism industry to optimize value-added processes, thereby increasing competitiveness." [5] The importance of online tourism is growing worldwide more and more. The following tables are featured on Global Online Travel Market Overview 2016.

Table 1: Global Online Travel Market Overview 2016[6]

Digital travel sales worldwide	564,87 bn USD
Growth of digital travel sales worldwide	15,4 %
Growth of hotel online sales values worldwide	10,3 %
Growth of air travel online sales values worldwide	6,8 %

Table 2: Digital Travel Sales Worldwide from 2014 to 2020 (in Billion U.S. Dollars) [7]

2014	470.97
2015	496.21
2016	564.87
2017	629.81
2018	693.91
2019	755.94
2020	817.54

This timeline shows the online travel sales worldwide from 2014 to 2020. In 2016, global online travel sales totaled 564.87 billion U.S. dollars. This figure is projected to grow to 755.94 billion U.S. dollars in 2019.

The Internet opens new distribution channels for tourism service providers and tour operators. The individual traveler, i.e. consumer, is very interested in searching for flights and train connections, information on international holiday regions and hotels or last-minute offers. The number of on-line reservations is also increasing, and most of the airline and train tickets are sold in this way.

The benefits of E-commerce are well known and evident. For subjects involved in tourism, it is no longer a question of joining the Internet, but the way in which to do so. There is an interesting redistribution of tasks in the electronic tourism market. While there has been a clearly visible end-user orientation over the past years, at present, it is mainly in the central reservation systems (CRS) that there is a stronger concentration on travel agents.

CONSUMER PROTECTION FOR TRAVEL AND RELATED TOURISM SERVICES

The concept of consumer has several definitions. We may not confuse the concept of consumer with the terms customer, payer or household. Even in European law, the definition of the concept of consumer is not uniform but this person is always adapted for the purpose of a specific adjustment. A costumer who purchases and uses services for his own needs is the ultimate consumer, the purpose of which is of a non-professional nature. Market expansion together with financial and technological innovation creates new challenges for consumer protection. The EU has responded to these challenges by strengthening the consumer policy and creating an independent consumer protection competence at EU level.EU legal acts provide protection to consumers before and during holidays in cases where a travel agency declares bankruptcy, if the holiday does not correspond to the offer in the catalog or, for example, at raising the price for the holiday or when changing the recreation center without the consent of the customer.

Legislative acts of the EU include European Parliament and Council Directive (EU) 2015/2302 on packages of travel and related travel services, Regulations of the European Parliament and of the Council No. 524/2013 on consumer dispute resolutions online, Directive 2011/83/EU of the European Parliament and of the Council on consumer rights Regulation (EU) No. 181/2011 on rights in bus and coach transport, Regulation (EU) No 1177/2010 of the European Parliament and of the Council on the rights of passengers in maritime and inland waterway transport.

In secondary law there are more regulations for the protection and obligations of passengers, such as Regulation (EC) No. 261/2004 of the European Parliament and of the Council establishing common rules on compensation and assistance to passengers in the event of denied boarding, in the event of cancellation or long delay of flights, (EC) No 1107/2006 on the rights of disabled persons and persons with reduced mobility in the air transport sector, Regulation (EC) 1371/2007 on the rights and obligations of rail passengers, Regulation (EC) No. 392/2009 on the liability of carriers of passengers by sea in the event of accidents.

The obligations of the Slovak Republic vis-à-vis the European Union relate to the transposition period of Directive (EU) 2015/2302, as of 1 January 2018. The degree of compatibility of the draft law with that of the European Union is complete. The Ministry of Economy and the Ministry of Transport and Construction of the Slovak Republic are the co-operating ministries. The basis of consumer rights protection in Slovakia was Act No. 634/1992 ZB. on consumer protection.

Consumer law is currently undergoing major changes due to the expansion of the market and technological innovations. In Slovakia, it is supposed to secure since 1.1. 2018 Act 170/2018 Z.z. about tours, related tourism services, some conditions of tourism business, and amendments to certain laws, a high level of passenger protection for the purchase of tours and combined travel services, to remove ambiguities and gaps in the current legislation. It takes over with the relevant European directive.

The above law in Slovakia provides the good functioning of the markets for the benefit of consumers and therefore their protection. The subject matter of this law is:

- rights and obligations relating to the provision of tourism services on basis of a travel contract or the provision of associated tourism services,
- the scope and power of public authorities in the field of tourism,
- certain conditions of business in tourism,
- liability and sanctions for breach of the obligations laid down by this Act.

This law does not apply to tours or related tourism services like the following:

- provided for less than 24 hours if there is no accommodation,
- provided on an occasional basis, to a limited group of travelers and without the aim of making a profit,
- purchased under a framework contract for the provision of traveler services in connection with business trips, - concluded between a trader and person, who at

the conclusion and the fulfillment of the contract acts in the context of his business or profession or a person acting on his or its behalf.

The Civil Code and a special regulation govern the areas to which this Act applies.

The most relevant definition is the definition of the consumer by the Slovak Act No. 250/2007 Z.z. The definition of the consumer is adapted according to §2 and of the Consumer Protection Act and says: "A consumer is a natural person who does not act in the course of his business, employment or occupation when he concludes and performs a consumer contract."Act 170/2018 Z.z. defines the following terms: tourism services, traveler, trader, bankruptcy protection, bankruptcy protection provider, sales place, durable carrier, unavoidable and extraordinary circumstances, commencement of the journey, repatriation return of the passenger to his place of departure, journey/tour, travel provider, travel agency. We will approach some of the terms of this law. It´s good to take a closer look at some of them.

Tourism services in law 170 § 2 include transportation and accommodation which is not a natural part of the transport and is not intended for the purpose of housing, rental of motor vehicles and other tourism services that are not a natural part of the tourism service. The law defines a traveler as a natural person who concludes a travel contract or a contract establishing a combined tourism service and a trader as a person who, when concluding and fulfilling a contract of travel or contracts constituting a related tourism service, is acting within the scope of his business, through another person acting on his or her behalf, which may be a travel provider agency, a travel selling agency or a tourism service provider.

The new law protects the consumer in the event of bankruptcy, hence guarantees the fulfillment to the extent of this law under an insurance contract or a bank guarantee agreement concluded between the travel agency and the provider of bankruptcy protection. A place of sale is an establishment or other place where a trader normally carries on his business, including a web site or other means of remote communication, which allow the conclusion of a contract without the simultaneous physical presence of the parties. A durable medium is a means of retaining the information addressed to the passenger or merchant, such as paper, e-mail, USB key, CD, DVD, memory card, or hard disk of the computer.

Travel is defined in law 170 §3 as a combination of at least two different types of tourism services purchased for the same purpose, regardless of whether separate contracts with individual tourism service providers are concluded in the case of tourism services. They may be purchased at a single point of sale, offered and sold for a total price, or purchased from different traders via interconnected online reservation systems, where a trader with whom a first travel service contract is concluded sends the name and surname, payment details and the electronic address of the traveler to another trader or other traders and with this trader or traders a tourism service contract shall be concluded not later than 24 hours after the reservation of the first tourist service has been confirmed.

Related Services in Tourism pursuant to Section 4 are a combination of at least two different types of tourism services purchased for the same purpose, which do not provide a tour, with separate tourism contracts being concluded with a number of tourism service providers.

TRAVEL PROVIDER AGENCIES, TRAVEL SELLING AGENCIES

A **travel provider agent** under Section 5 of the Law 170 is a trader combining tourism services for the purposes of touring, selling or offering for sale tours and concluding a travel contract or arranging related tourism services.

A **travel selling agent** is a trader who, in the scope of business, creates a combination of tourism services that are not a tour, offers and sells to another travel agent or travel agency for resale. The obligation of a travel provider agency and travel selling agency as defined in Sections 7 and 8 is to designate a point of sale and materials promoting tours or related tourism services and other materials relating to the sale of tours or associated travel services for the traveler, including their electronic features, including their electronic form by the words "travel agency", if this name does not contain a business name.

It is important to protect the consumer in the event of bankruptcy under § 9. The passenger who paid the travel agency for travel services that are part of the tour or associated tourism services has the right to immediate payment under the protection in case of bankruptcy if the travel agency due to its bankruptcy or if it fails to arrange for services to be repatriated, or it will not return to the passenger the prepayment or the cost of the tour if the tour has not been completed or has only partially taken place. The travel agency is required to agree with the contractor for the bankruptcy protection of at least 30% of the annual planned revenue from sales of tours and related tourism services when concluding a contract for insolvency protection. To protect against bankruptcy in the form of insurance, the Civil Code and the Special Insurance Act are covering adequately. The travel provider agency or travel selling agency that sells a tour is required to provide the passenger with the appropriate form before entering into a travel contract or before sending an offer whose admission may result in the conclusion of a travel contract.

Subject of the Act 170/2018 Z.z. is the travel contract itself, the assignment of a travel contract, the change of the price of the tour and other conditions of the tour, the cancellation of the tour contract before the start of the tour. A traveler is entitled to withdraw from the tour in unavoidable and extraordinary circumstances shortly before the tour. A standard information form prior to the conclusion of the tour contract is standard rights if the travel agency which arranges the online connected tourism service pursuant to § 4 of Act no. 170/2018 Z.z. is at the same time a carrier selling a return ticket.

If, after the booking of one tourist service and the payment for it, the traveler books through this travel agency additional travel services related to this trip or holiday, not the same rights are applied, which apply to tours under Act no. 170/2018 Z. z . The travel agency can withdraw from the tour contract without the obligation to compensate the passenger for the number of participants who are less than the minimum number of participants required under the tour contract.

The Ministry of Economy of the Slovak Republic (hereinafter "the Ministry of Economy") fulfills the tasks of a contact point of the Slovak Republic within the network of contact points of the Member States of the European Union. The supervisory authority - The Ministry of the Interior of the Slovak Republic maintains and publishes at its web site the current list of travel agencies.

CONCLUSION

The main objective of the contribution is to define and analyze the consumer, its protection, online tourism and legislation in this area within the EU and Slovakia. Research objects are the institutes, phenomena and processes related to online tourism, consumer protection and the relevant legislation. There are several concepts that we have approached in this article post. All entities operating in the tourism sector will use this terminology uniformly. The importance of tourism for the economy, society and the individual became known to most of the countries all over the world in the second half of the 20th century. States have created legislative, economic and other prerequisites to support tourism business in means to support the development of tourism supply and demand.

In recent decades, online tourism has grown. The Internet opens new distribution channels for service providers and tour operators. People are very interested in seeking flights and train connections, information on international holiday regions and hotels or last minute offers. The proportion of online reservations is also growing significantly, and above all the sale of flight and train tickets.

The issue is very current, so we have decided to explore the area of consumer protection and related concepts. The good functioning of the markets for the benefit of the consumer and therefore its protection are ensured in Slovakia by Law 170/2018 Z.z. on tours and related tourism services, some conditions of tourism business and will enter into force on 1.1.2019.This law is intended to ensure a high level of protection for travelers in the purchase of tours and related travel services, to remove ambiguities and gaps in the current legislation. The Ministry of Economics within the context of tourisms industry seeks to protect travelers and people who are interested in travelling.

The law has also introduced new basic concepts, apart from defining narrower the term" tour/trip/journey" it will positively and negatively define the new concept of "associated/related tourism services". At present, it is common for passengers to buy a ticket over the Internet and to order in addition an accommodation or car from a rental facility. According to the new law, every person or company providing multiple such services at the same time will be considered as a travel agency and will have to adapt the business accordingly.

The insurance of travel agencies for tours has been increased to 30%. By law, any entity interested in offering tourism services meeting the definitive criteria for tours or related travel services will be required to carry out these activities only as a travel agent and solely on the basis of a trade license. At the same time, every travel agent will have the obligation to have a secure protection in case of insolvency in the form of insurance or a bank guarantee in a sufficient amount.

The law also clearly defines the various options for changes to the travel contract before the start of the tour. At the same time, the travel agents' duty to provide information is strengthened. Law 170/2018 Z.Z responds to the challenges of tourism because of technological development. At the same time, it takes over the EU's legislative acts. EU law introduces a number of regulations in the field of consumer protection. These regulations aim to unify the rights of citizens towards traders throughout the European Union.

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THE RELATIONSHIP BETWEEN HOTELS' ENVIRONMENTAL PERFORMANCE AND SOCIAL RESPONSIBILITY: CASE STUDY ON ITALIAN HOTELS FROM VENETO REGION

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Abstract: *Hotels' environmental protection activities have impact on the sustainable development of tourism industry and support sustainable ecologic systems. The aim of this paper is to explain the relationship between hotels' environmental performance, achieved through the implementation of good managerial eco-practices, and the social responsibility. This study was conducted on a sample of 43 hotel establishments with three or more stars, located in the Veneto region of Italy. The managerial eco-practices have been assessed trough the following dimensions: eco-friendly purchases and suppliers, energetic efficiency monitoring, waste management, recycling, water management and staff ecological formation. For hypotheses testing the Partial Least Squares analysis was performed using the Smart PLS version 3.0 software. Research results confirm that good eco-practices of hotel managers lead to environmental performance. Moreover, the results also suggest that hotel managers from Veneto region are involved in programs and projects with a role in enhancing environmental issues, thus demonstrating social responsibility. The paper highlights the importance of hotels' ecological behavior, emphasizing its role in achieving environmental performance. The results have managerial implications that should encourage hotel managers to adopt eco-practices in order to achieve environmental performance and increase social responsibility.*

Keywords: *good managerial eco-practices, recycling, waste and water management, eco-friendly purchases, PLS-SEM*

1. INTRODUCTION

The environmental performance, the measures implemented to achieve it, the environmental strategies adopted in the tourism industry, and the factors and tools underpinning have been important issues in tourism research [1]- [4].

Theoretical and practical approaches in the field of tourism have placed great emphasis on economic and social performance and have been less concerned about the environment. Recent studies have shown that economic performance was monitored, for example, by 66% of the respondents, while the environmental and social performance were monitored by only 42% and 28% of the respondents, respectively [5].

The concept of environmental performance refers to measurable results of the environmental management system, linked to organizational monitoring of the environmental issues, based on

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its policy, general objectives and specific environmental objectives [6]. In tourism, the achievement of environmental performance does not only comply with minimum environmental standards but also refers to the adoption of best practices, accreditation schemes, codes of ethics, and environmental certification [7], [8]. Moreover, every manager is concerned with maximizing the positive impact and minimizing the negative impact of the organization on society, and consequently with increasing the organization's social responsibility [9]. It can be noticed an evolutionary process at firms' level with regard to the integration of environmental issues into complex strategic plans. It has been highlighted that the inclusion of environmental issues among the main concerns of large-scale general planning also entails increased social responsibility [10].

Therefore, our study aims to assess the implementation of good managerial practices in hotels and consequently to study the relationship between achieving environmental performance and social responsibility. Our goal is to highlight that hotel managers interested in reaching environmental performance are more involved in programs and projects with a role in improving environmental issues and they are more socially responsible.

2. LITERATURE REVIEW

Many studies have emphasized the fact that hotel industry is a high-energy intensive and polluting sector [11]-[13]. It has been observed that a hotel produces between 160 and 200 kg of carbon dioxide (CO_2) per square meter in order to generate electricity, heating or cooling, in dependence to the type of fuel used. In the case of European hotels, yearly energy consumption is of 39 twh (terawatts per hour) and the emissions are responsible for approximately 13.6 megatons of CO_2. Additionally, tourists consume between 170 and 440 liters of water per day and each tourist produces about one kg of daily waste, of which no more than 60% is recyclable [11].

It has been argued that many hotel operators have little interest in undertaking actions such as reducing waste, implementing an efficient waste management or recycling, considering that such activities are highly costly and time-consuming [4]. More recently, based on a cost-benefit analysis of the impact of the hotel industry on waste management, it has been underlined that providing a solid waste management in hotels and implementing specific practices for waste prevention / minimization at source are highly important [13]. Considering that solid waste generation and disposal is one of the most negative effects on the environment, some studies have developed good practice models that policymakers should be encouraged to implement in their hotels [3], [4].

A study on recycling gray water and reducing water consumption in hotels suggests implementing a water management system through 4Rs approach: Innovative Reducing, Innovative Reusing, Innovative Reaching and Innovative Recycling [14]. By implementing water management system, hotels have obtained commercial benefit irrespective to hotels' size or different managerial capacities. Other authors have found that implementing environmental measures leads to customer benefits, energy efficiency, efficient water use, thus influencing recycling policy and green living characteristics of hotels [15].

Recent studies have identified six key factors in achieving environmental performance, namely: environmental education and staff training support for the host community, support for preservation projects, compliance with environmental regulations, waste management and volunteer programs [1]. It has been noticed that higher rated or larger hotels have improved their environmental performance, while affiliation to hotel chains has not led to higher performance. The effective use of lighting and the elimination of diesel use are the most common strategies in Mexican hotels in order to improve environmental performance. Nevertheless, hotels have begun to become involved in preserving and recycling programs as a means of reducing energy costs and solid waste [16].

The analysis of voluntary environmental instruments used to achieve environmental performance (codes of conduct, environmental best practices, eco-labels, EMS – environmental management systems and environmental performance indicators) has allowed identifying formal certification systems, such as eco-labels and EMS as the most effective tools in achieving environmental performance [2].

Recent studies on the relationship between hotels' environment initiatives and financial performance have highlighted that companies' financial performance can have influence on environmental performance, as firms with good financial performance are better able to allocate more resources to support environment initiatives [17]. However, other studies have come to the conclusion that environmental practices have a direct and significant impact on the competitiveness of hotels and their financial results [18], [19]. Thus, the use of environmental management systems is associated with cost-saving innovations, while innovations in water and energy saving, wastewater treatment, noise reduction, sound insulation have contributed to increasing hotel's quality and competitiveness [20].

It is worth noting that obtaining environmental performance means savings, competitive advantage, employees' loyalty, customers' fidelity, compliance with regulations, risk management and social responsibility [21]. A recent study highlighted that hotels communicate fewer pro-environment practices than they actually achieve, and there has been shown that only 30% of these practices are made public [22]. Nevertheless, there is still a great gap between attitude and action in the tourism industry.

3. RESEARCH HYPOTHESES. CONCEPTUAL MODEL

The aim of this study is to analyze the relationship that exists between good eco-managerial practices, environmental performance and social responsibility. Consequently, we have developed the following conceptual model presented in Figure 1.

Figure 1: Conceptual model

Eco-managerial practices relate to efficient waste management, energy consumption reduction, recycling, eco-friendly purchasing, staff training – all of which play an important role in achieving environmental performance that can influence increase of social responsibility.
We have advanced two hypotheses:
H1: *There is a direct and positive relationship between good managerial eco-practices and the hotel's environmental performance*

***H2**: There is a direct and positive relationship between the environmental performance and the ecological social responsibility of the hotel*

4. RESEARCH METHODOLOGY

For this study, data have been collected through a survey. The benefit of this approach is that it provides more flexibility and data gathering is faster than other methods.

The questionnaire was designed to assess the eco-managerial practices and the social ecological responsibility behavior of hotels' managers. All survey questions utilized a five-point Likert scale that offered a range of answer options from 1 – "strongly disagree" to 5 – "strongly agree". The questionnaire has been pre-tested within a pilot survey on a small convenience sample in order to verify the appropriateness of questions. After the errors have been solved the actual survey was executed.

The sample comprised 43 hotels from the Veneto Region of Italy. The Veneto Region is located in north-eastern Italy and comprises seven provinces, namely: Belluno, Padova, Rovigo, Treviso, Venice, Verona, and Vicenza. The hotels were selected based on accessibility.

The sample structure according to a set of characteristics such as property type, hotel classification and hotel size (upon the number of employees) is presented in Table1.

Table 1: Sample structure

Hotel's characteristics		***N (%)***
Type of property		
	Independent hotel	31 (72.1%)
	Chain hotel	12 (27.9%)
Classification		
	3 stars	14 (32.6%)
	4 and 5 stars	29 (67.4%)
Size		
	Small and Medium	29 (67.4%)
	Large	14 (32.6%)

For testing the relationship between the constructs, structural equation modeling based on partial least squares method was used. We have applied partial least square analysis (PLS) using SmartPLS (v. 3.2.7) software [23]. The PLS handles two models: the outer model (the measurement model) relating the manifest (observable) variables to their own latent variables; and the inner model (the structural model) relating some latent variables to other latent variables. The measurement model is tested by the reliability and validity analyses while the structural model is tested by path coefficients between constructs and the model.

4. RESEARCH RESULTS

Convergent reliability and validity indicators (Cronbach's alpha, AVE – average variance extracted, CR – composite reliability) measure the degree to which the items quantifying the same concept are in consistency [24]. We can conclude that the measurement model is valid and reliable when the alpha values are above 0.6; the AVE values are greater than 0.5; the CR values for all constructs are above 0.7.

The results presented in Table 2 on the measurement model indicate an adequate level of convergent reliability and validity. The list of constructs and measuring items is presented in the Appendix.

Table 2: Convergent reliability and validity

Construct	***Cronbach's Alpha***	***rho_A***	***Composite Reliability (CR)***	***Average Variance Extracted (AVE)***
Staff ecological training	0.839	0.860	0.905	0.763
Energy efficiency monitoring	0.841	0.862	0.883	0.563
Waste management	0.761	0.774	0.862	0.676
Water management	0.517	0.549	0.749	0.502
Recycling	0.832	0.180	0.764	0.549
Environment performance	0.858	0.892	0.875	0.256
Ecological products	0.817	0.818	0.879	0.646
Eco purchases and suppliers	0.730	0.775	0.829	0.554
Eco friendly	0.880	0.897	0.905	0.521
Social ecological responsibility	0.661	0.816	0.774	0.385

Furthermore, the hypothesized relationships in the structural model were tested. Bootstrapping procedure was used to verify the significance levels of path coefficients.
Table 3 shows that path coefficients are significant between constructs in the model. These results show a strong support for the two hypotheses of this study. The path coefficient "Energy efficiency monitoring –> Environment performance" with 0.556 followed by the path coefficient "Eco friendly –> Environment performance" with 0.470 show that eco managerial practices (except for recycling) have a positive effect on environment performance. Thus, the first hypothesis (H_1) is supported by the data. Similarly, the results show a strong support for the second hypothesis (H_2). There is a positive and significant effect of environment performance on social ecological responsibility.

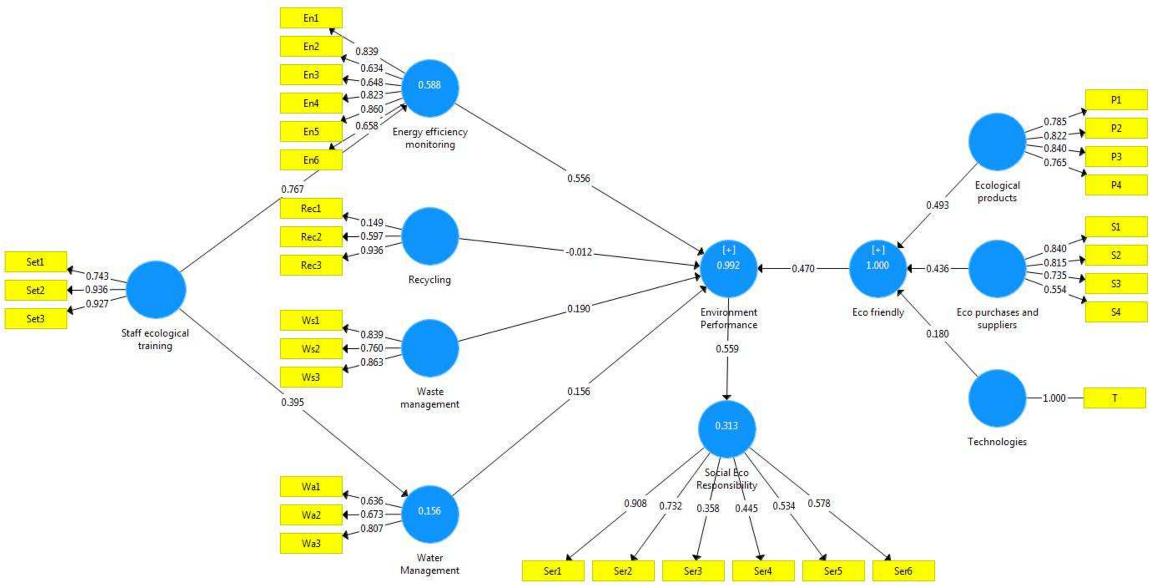
Table 3: Testing of significance of path coefficients

Relationships	***Path coefficient***	***T Statistics***
Staff ecological training –> Energy efficiency monitoring	0.767^{***}	25.845
Staff ecological training –> Water Management	0.395^{***}	4.939
Ecological products –> Eco friendly	0.493^{***}	18.011
Eco purchases and suppliers –> Eco friendly	0.436^{***}	17.033
Technologies –> Eco friendly	0.180^{***}	10.707
Energetic efficiency monitoring –> Environment performance	0.556^{***}	4.371
Waste management –> Environment performance	0.190^{**}	3.160
Water management –> Environment performance	0.156^{***}	4.573
Recycling –> Environment performance	-0.012	0.838
Eco friendly –> Environment performance	0.470^{***}	3.788
Environment performance –> Social ecological responsibility	0.559^{***}	7.114

Note: *** p value < 0.001, ** p value < 0.01, * p value < 0.05

The results in Table 3 and Figure 2 reveal that the path coefficients are above the recommended value of 0.1 [25]. Moreover, the combination of ecological managerial practices has the predictive ability for 99.2% of the Environmental performance. At the same time, Environmental performance has the ability to explain 31.3% of the Social eco responsibility.

Figure 2: Structural model



5. CONCLUSIONS

The result of the structural model showed that eco managerial practices of hotels' managers have a positive and significant impact on environment performance. Moreover, it was also observed that environment performance has effects on ecological social responsibility. Hence, the two hypotheses were accepted.

The limitations of this study refer to the specific region of Italy where the survey was conducted. A similar study may be conducted in other regions of Italy or in other countries.

We can conclude that hotel managers from Veneto region have an ecological behavior with impact on environmental performance. Furthermore, they are involved in programs and projects thus proving their role in a society.

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Appendix

Construct	***Measurement items***
Energy efficiency monitoring	
En1	Regular (monthly) monitoring of energy consumption
En2	Constant maintenance of the equipment
En3	High thermal insulation
En4	Employees' instruction to disable power-consuming sources (electrical and home appliances, lights) when not in use
En5	Installation of an energy-efficient heating and AC system
En6	Heating control by a thermostat
Waste management	
Ws1	Types and quantities of waste are monitored
Ws2	There are identified ways to reduce waste and actions are taken accordingly
Ws3	There are systems to minimize waste and to reuse and recycle whenever possible
Recycling	
Rec1	Recycling paper and cardboard
Rec2	Plastic recycling
Rec3	Recycling glass
Water management	
Wa1	Use of devices to reduce water flow in places of consumption (e.g. shower trays)
Wa2	Use of ventilating devices for the aeration of water to the sink batteries
Wa3	Use of wastewater recycling systems (gray water)
Staff ecological training	
Set1	The staff is regularly trained on environmental issues
Set2	Environmental policy or environmental policy statement is known by all employees
Set3	Environmental Policy or Environmental Policy Statement holds a commitment to continually improve environmental performance
Ecological products	
P1	Use of biodegradable cleaning agents (detergents)
P2	Use of hygienic paper with eco-labeled or chemically untreated
P3	Use of biodegradable, recyclable or returnable packaging
P4	Use of natural shampoos and soaps
Eco purchases and suppliers	
S1	Acquisition of organic products is a current policy of the hotel
S2	Ecological issues are taken into consideration when deciding to call upon a supplier
S3	In the contract with suppliers there are clauses requiring the use of as few packaging as possible
S4	In the contract with suppliers there are clauses requiring the transportation of goods in a non-polluting way
Social ecological responsibility	
Ser1	Supports reforestation projects
Ser2	Sponsors events to increase awareness and understanding of

	environmental issues
Ser3	He is a member of an environmental protection association
Ser4	Supports and sponsors environmental organizations
Ser5	Makes donations to natural reserves
Ser6	Participates in garbage collection programs

Table 4: Constructs and measuring items

SYSTEM OF EVALUATION OF EFFECTIVENESS OF COMMUNICATION TOOLS IN SLOVAK HOTELS WITH THE POSSIBILITY OF OPTIMIZATION OF MARKETING COMMUNICATION STRATEGY

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Abstract: *The purpose of the contribution is to measure and evaluate the efficiency of communication tools on the principle of data envelopment analysis (DEA) in Slovak hotels. The first part of this contribution describes the importance of tourism in the conditions of the Slovak Republic and the theoretical and conceptual definition of the data envelopment analysis method, whose main objective is the evaluation of the effectiveness of decision-making units. The communication tools used in the communication between the Slovak hotels and their guests are used for the needs of the decision making units. Data on input and output variables were obtained from the Ministry of Transport and Construction of the Slovak Republic, the Union of Hotels and Restaurants of the Slovak Republic, and a marketing survey of the completed questionnaire forms. The second part of the contribution evaluates the effectiveness of the communication forms in question on the principle of the DEA method of input-oriented models in order to minimize expenses related to the realization of marketing communication in the hotel industry. Appropriate efficiency calculations for the communication tools in question were performed using the DEA Excel Solver, a simple application that uses the internal excellence solver to solve optimization tasks. Depending on the application of the DEA methods, effective and inefficient communication tools were identified, followed by a process leading to the optimization of the communication portfolio in the hotel industry.*

Keywords: *Marketing communication, data envelopment analysis, efficiency, tourism sector in Slovakia*

1. INTRODUCTION

The pressure on the company's competitive ability and the additional problems caused by the slow pace of economic growth insist on greater efficiency and better business efficiency. This is particularly important in the hotel industry, which is characterized by a high degree of seasonality. Efficiency therefore belongs to the key factors of management control and the necessary prerequisites for improvement. This fact acts not only on consumer

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preferences but is often associated with the psychological effect in interaction with communication tools, individual interpretation, brand perception and product values, respectively services. Therefore, the company has to answer the question: "Do we use communication tools efficiently or just effect?"As a result of telecommunication and growing competition rivalry, it is necessary to consider not only the correct communication medium but also the time of its application to reach the target audience.

2. LITERATURE REVIEW

With the emphasis on the importance and growth of tourism in the Slovak Republic, in the domestic and foreign literature, the interest in research has increased over the past two decades with the emphasis on quantitative analyzes of risk management, capital structure, financing methods and bankruptcy. In examining more than 152 contributions from scientific and professional literature dealing with the performance of hotel business and its indicators, [1] identified four primary operational areas, including strategy, production, marketing and organization. Measuring and evaluating the effectiveness of hotels and their activities under the DEA principles represents a certain line of research as its principles can be applied in assessing economic and environmental behavior in the tourism sector [2], [3]. This fact can be useful for the Slovak Republic as tourism in this country gains economic importance.

Parkan, in 1996, first applied the DEA technique to the performance of hotel companies. Based on [4], they focused their research on sample efficiency development on 45 hotels that operated either on their own or were part of international hotel chains. Based on the analysis, the authors state that franchising hotels, as well as those run by international presenters, work better and more efficiently than independent non-international hotels. Authors [5] and [6] use the non-radial DEA model in their works to assess the performance of hotel facilities in Taipei. The result of their study was the fact that 8 out of 23 hotel facilities were inefficient, suggesting a strategic direction for hotel management to increase performance at steady inputs. The authors [7] analyzed the effectiveness of international hotels in Taiwan in 2005-2009 on the principles of the DEA and Malmquist index methodology, on the basis of which they proposed corrections of inputs and outputs leading to efficiency gains. Using the data envelopment analysis method as a tool for strategic analysis of hotel management, managers should focus on improving productivity through changes in entry and exit configuration and hotel size reduction [8].

In contrast to the literature, this contribution deviates from the following facts, i.e. one contributes to the relevant literature, since it is a contribution aimed at evaluating the effectiveness of marketing communication in hotel facilities in Slovakia and also contributes to the discussion of proposals for increasing the efficiency of hotels and their marketing activities in destinations similar to the Slovak Republic.

Podľa [9] je analýza obalových dát (DEA – Data Envelopment Analysis) disciplínou, ktorá sa zaoberá porovnávaním efektívnosti tzv. rozhodujúcich jednotiek pri použití väčšieho počtu vstupov a väčšieho počtu výstupov. Pre lepšie pochopenie je vhodné si podrobnejšie osvojiť pojem produkčná (rozhodovacia) jednotka, ktorá produkuje nejaké efekty (výstupy) a pre ich produkciu spotrebováva nejaké zdroje (vstupy) [10]. V kontexte predmetného príspevku je danou DMU komunikačný nástroj, ktorý na dosiahnutie svojich výstupov (napr. celkové príjmy, obsadenosť, počet hostí) transformuje viaceré zdroje (napr. marketingové náklady, počet zamestnancov). DMU je hodnotená ako efektívna v prípade, že miera jej efektívnosti je rovná 1 alebo 100 % [11].

The early DEA models can be found in Debreu and Koopmans works of 1951, later followed by Farel (author of the 1957 Model of Efficiency Rating). Farel's findings were subsequently reworded by Charnes, Cooper, Rhodes (DEA CCR), respectively. Also, Banker, Charnes and Cooper (DEA BCC) [12]. The aim of both models is to divide the objects under investigation into efficient and inefficient in terms of consumed resources, produced production or other types of outputs [13]. This asserts the advantage of determining the source of inefficiency and determining how the production unit can become effective by reducing / increasing inputs, respectively outputs.

Minimize
$$e\,(DMU_j) = \frac{\sum_{k=1}^{r} u_k y_{kq}}{\sum_{i=1}^{m} v_i x_{IQ}} \rightarrow \max, \tag{1}$$
$$\frac{\sum_{k=1}^{r} u_k y_{kj}}{\sum_{i=1}^{m} v_i x_{ij}} \leq 1,\ j = 1, 2, \ldots, n, \tag{2}$$
$$u_k \geq \varepsilon\ ,\ k = 1, 2, \ldots, r, \tag{3}$$
$$v_i \geq \varepsilon,\ i = 1, 2, \ldots, m. \tag{4}$$

For the purposes of this submission, we will maximize the objective function reader that is equal to 1 for the denominator. It is the CCR DEA entry model.

Maximize
$$e\,(DMU_j) = \sum_{k=1}^{r} u_k\, y_{kq} \rightarrow \max, \tag{5}$$
$$\sum_{i=1}^{m} v_i\, x_{iq} = 1, \tag{6}$$
$$-\sum_{i=1}^{m} v_i\, x_{ij} + \sum_{k=1}^{r} u_k\, y_{kj} \leq 0,\ j = 1, 2, \ldots, n, \tag{7}$$
$$u_k \geq \varepsilon,\ i = 1, 2, \ldots, r, \tag{8}$$
$$v_i \geq \varepsilon,\ j = 1, 2, \ldots, m, \tag{9}$$

For an input-oriented CCR DEA model, the rating is equal to 1. This means that the DMU is at an effective boundary. Once the efficiency rating is not equal to 1, the DMU works ineffective [14]. Entry-oriented models of CCR DEA are listed as multiplier models. To solve these models for each DMU unit, we need to evaluate the efficiency level [15]. In the case of multiple sets, a double model for previous models is available. These models are listed as an envelope model [9]. The CCR DEA Dual CC model has the following form:

Minimize
$$\theta_q - \varepsilon\left(\sum_{i=1}^{m} s_i^- + \sum_{k=1}^{r} s_k^+\right), \tag{10}$$
$$\sum_{j=1}^{n} \lambda_j x_{ij} + s_i^- = \theta_q x_{iq},\ i = 1, 2, \ldots, m, \tag{11}$$
$$\sum_{j=1}^{n} \lambda_j y_{kj} - s_k^+ = y_{kq},\ k = 1, 2, \ldots, r, \tag{12}$$
$$\lambda_j \geq 0,\ s_i^- \geq 0,\ s_k^+ \geq 0. \tag{13}$$

Each "λ" represents the weight of the input and output variables. The purpose of the model is to find a linear input / output combination of all analyzed samples. Therefore, for the effective DMU, the optimal value θq = 1, the optimum value of all other variables sk +, k = 1, 2, ..., r, and si-, i = 1, 2, ..., m equals 0 .

Then Banker, Charnes, and Cooper formed the BCC DEA model base for variable yields (VRS). In this case, the tapered shape of the effective border changes to a convex shape. This shows that the number of effective units is higher compared to the CCR DEA model [14]. When analyzing VRS-based efficiency, it is necessary to add a double model of the state of convexity:

$$\sum_{j=1}^{n} \lambda_j = 1 \tag{14}$$

3. METHODOLOGY

The aim of the contribution is to quantify the degree of efficiency of the most used communication tools in the hotel equipment sector in the Slovak Republic, based on the data analysis of packaging data based on collected data from the Ministry of Transport and Construction of the Slovene Republic, the Hotel and Restaurant Association of the Slovak Republic and a marketing survey form of a questionnaire.

The data on the use of communication tools in hotels in the conditions of Slovakia, we found on the basis of a marketing survey conducted through a questionnaire. These data served to find out what are the most used forms of communication between hotels and their customers. The questionnaire was distributed by e-mail form in the period August - September 2018. In the survey conducted, the respondent was designated as hotel manager, manager, marketing department employee or PR department employee. The size of the base file was determined (806) on the basis of the organizational statistics of the Statistical Office of the Slovak Republic on the number of economic subjects as of 31.12.2017. The materiality level was determined in this case at 0.046, which corresponds to 95.4% of the confidence interval and the permissible error of estimate was determined to be 5.1%. As 334 respondents participated in the survey, the condition of the minimum sample value was met and the respondents' answers to the questions asked during the survey can be considered relevant and qualified based on the established reliability and maximum perceived error rates.

Since the DEA models require input and output variables, we have used information for input variables - marketing costs in the field of communication policy, the frequency of use of individual communication forms in the reference period and the number of staff responsible for the implementation of communication activity over the reference period. Output variable was revenue from a specific marketing communication tool [16]. Subsequently, we have put the required data (inputs and outputs) into land-based DEA models (our goal is to minimize input variables) based on consistent and variable range yields to classify the communication tools in question effectively and inefficiently in a particular hotel operating in the district of Zilina. Finally, we propose measures, respectively. A possible procedure for evaluating the effectiveness of communication forms by which hotels operating in the Slovak Republic can increase the effectiveness of these tools.

4. RESULTS

From the results of the questionnaire survey, which focused on the use of communication tools in hotel facilities in Slovakia, we found on the basis of a marketing survey that the use of communication tools with input and output data (Table 1).

Table 1: Input and output values for CCR and BCC DEA models

DMU	***Marketing costs v € in the monitored period***	***Frequency of use of individual communication forms in the monitored period***	***The number of employees responsible for implementing the communication activity over the monitored period***	***Revenue from a specific marketing communication tool***
advertising	22 850	7 568	4	437 800
personal sale	23 080	13 940	12	389 630
website	14 900	6 537	6	986 500
banner and text ads	2 400	5 731	10	412 800
electronic mail	6 500	5 200	12	896 352
sending newsletters	15 300	5 200	12	765 342
social networks	7 900	4 870	48	968 521
affiliate marketing	10 200	12 567	24	389 652
forums and blogs	7 600	9 734	12	458 963
mobile apps	21 300	18 980	6	396 825
product placement	18 600	16 370	4	437 800
viral marketing	6 500	11 654	8	389 630
guerilla marketing	5 960	6 523	1	398 420

Technical efficiency, clean technical efficiency, and efficiency score scores for each communication tool in the sample are shown in Tables 2.

Table 2: Efficiency evaluation results for input CCR and BCC DEA model

DMU	***Index CCR***	***Index BCC***	***Efficiency score***
advertising	0,2971	0,6435	0,4617
personal sale	0,1524	0,3508	0,4344
website	0,7596	**1,0000**	0,7596
banner and text ads	**1,0000**	**1,0000**	**1,0000**
electronic mail	**1,0000**	**1,0000**	**1,0000**
sending newsletters	0,7401	0,9365	0,7903
social networks	**1,0000**	**1,0000**	**1,0000**
affiliate marketing	0,2596	0,4319	0,6011
forums and blogs	0,4074	0,5611	0,7261
mobile apps	0,1332	0,2737	0,4867
product placement	0,1686	0,3167	0,5324
viral marketing	0,3765	0,4819	0,7813
guerilla marketing	0,4635	0,8190	0,5659

The main finding of an analysis of the effectiveness assessment carried out on the DEA principle has led us to conclude that the main source of inefficiency of the communication tools is their respective input and output configuration, hotel size. This finding is confirmed by the Union of Hotels and Restaurants of the Slovak Republic, according to which there is an excessive supply of tourist accommodation facilities in Slovakia [17]. Based on this, hotel management should review the accommodation capacity and use the marketing communication to make more efficient use of room transformations in entertainment, leisure and other services. Furthermore, our findings point to the seasonality problems of hotel facilities, which could be removed by increasing revenue by extending the arrival of tourists beyond the current. This could be effective through pricing strategies.

Based on the use of the CCR DEA models, we have come to the conclusion that effective communication tools in Slovak hotels include banner and text advertising, electronic mail and social networks, j. their effectiveness is 1. Other marketing communication tools that are used inefficiently, respectively by hotel facilities, do not achieve I / O efficiency of 1 or 100%.

Depending on the VRS model based on the BCC DEA, communication tools are more effective as these models assume variable yields on a scale. Effective communication tools include: websites, banner and text advertising, e-mail and social networks. The least effective marketing communication tools include personal sales, affiliate marketing, mobile apps, product placement, and viral marketing, as they achieve an efficiency score of less than 50%. These ineffective communication tools should take appropriate action on the input and output side, which serve to increase their efficiency, i.e. optimize communication portfolio by using online marketing communications platforms.

When looking at the results of the DEA method in terms of marketing communication, inefficient production units in the form of communication tools need to reassess their activities as they have insufficient input rates, outputs. Unfeasible marketing communications practices have an impact on the inefficiency of accommodation services. This inefficiency can cause a decrease in total income and inadequate occupancy of hotel facilities. This is a problem that requires the optimization of the marketing communication strategy.

5. DISCUSSION

On the basis of the information provided, we believe that most of the communication tools in question should focus on optimizing its communication portfolio resulting from advances in telecommunications and information technology. Changing the communication portfolio due to the use of new communication tools can thus have a positive impact on the profitability ratio, respectively the level of effectiveness, and the goal of which is to create a community of customers or social network users participating in brand value, is to pull the product, service from tramlines and introduce it in a new light.

As each hotel has a unique communication portfolio, there is no universal formula to increase its effectiveness. For this reason, we have focused on the area of hotel management in this paper. Based on the above, we propose to optimize the communication portfolio through the following steps, with each hotel taking into account the identification of the key success factors that lead to an improvement in the overall profitability and competitiveness of the hotel (Figure 1).

Figure 1: Optimization of the communication portfolio

IDENTIFICATION OF COMMUNICATION PROBLEM
- identifying a set of factors
- selection of external and internal factors
- analysis of factors from the aspect of their strengths and weaknesses

DETERMINING THE OBJECTIVES OF THE EFFECTIVENESS ASSESSMENT
- determination of preferred marketing communication tools from the aspect of the hotel and its customers

RESPONDING TO THE BASIS ISSUES OF EFFICIENCY OF HOTEL-BASED COMMUNICATION FORMS
- how often the analyzed marketing communication tool is used in the reference period
- what amount of funds was spent on the analyzed communication tool for the monitored period
- how many employees in the reference period were needed to implement the marketing communication tool in question
- what are the revenues from the realization of the analyzed marketing communication tool during the monitored period

EMBEDDING INPUT AND OUTPUT DATA AND DEA ANALYSIS APPLICATION TO EVALUATE THE EFFECTIVENESS OF MARKETING COMMUNICATIONS TOOLS
- possibility to use DEA Excel Solver

OPTIMIZATION / ENRICHMENT OF THE COMMUNICATION PORTFOLIO
- **status test -** currently, the consumer chooses products or services to complete his / her social status
- **continuous support for social networks -** Instagram, which is the ideal solution for your experience. In addition, it is possible to live with family or friends or under various hastags you will find many tips for interesting excursions around the destination
- **promoting business websites -** TripAdvisor is currently the world's largest travel destination. Provides links to help you find, for example, the best hotel rates. Visitor visits of approximately 350 million people per month, with 385 million reviews and options on their site. The site currently works with around 48 dealers worldwide. For Slovak hotels it is a great opportunity to make communication more efficient
- **the use of mobile applications of adequate tourism sector -** Google Maps is one of the best navigations to help you easily and reliably reach your destination by car, public transport or p. In addition, you can choose whether you want to avoid highways, interim payments, to get the exact travel plan, the expected time of preparation, and current traffic information

The DEA methodology we have used in this paper is essential as it is the first study on the effectiveness of communication tools used by hotel facilities in Slovakia. As tourism and hotel industry are dynamic, future Malmquist index could be the subject of future research. It is a quantitative tool that accepts a time factor. The index evaluates multiple inputs and outputs without pricing data. When evaluating effective changes over time, the index generates decomposition on two components - a relative change in the efficiency of the unit being analyzed in the sector, and the change in boundaries of production options due to technology. The basic DEA models can be considered static i.e. they do not take into account the development or change in the efficiency of business activities over time. We will remove this deficiency by using the Malmquist index.

6. CONCLUSION

Hotel facilities are constantly trying to maximize their potential and find ways to achieve it. Therefore, information about efficiency measurements has a high value for them. The effectiveness of DEA's effectiveness is to identify sources of inefficiency of production units. This paper proposes a potential framework for evaluating the effectiveness of a sample of communication tools in hotel facilities in Slovakia, which can be applied in other countries similar to Slovakia.

Finding an optimal solution to increase efficiency is a demanding issue that must be addressed by the hotel management together with the accounting, sales and marketing departments. We believe that only with a reasonable and balanced relationship between income and cost management Slovak hotels can achieve an optimal strategy to increase efficiency.

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ONE TECHNICAL SOLUTION OF THE UNIFIED COMMUNICATIONS SYSTEM IN THE HOTEL ENVIRONMENT

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Abstract: *Modern hotel organizations invest significant funds to increase quality of service. It is necessary to provide as much comfort as possible to both hotel guests and employees, which includes access to various multimedia services (Internet, VoD, IPTV service, etc.). Unified communications in hotel environment offer a quality solution to the problem of communication across hotel and contribute to the improvement of hotel services, as well as creating a good image. Unified Communications is a collection of applications and devices of the latest generation that allow users to dimension, control and manage calls, messages, data, and software tools from any location, using any device or software interface. Thanks to the diversity in the domain of information exchange, Unified Communications are applicable in almost all types of business environments.*

The realized technical solution contains the Unify system of the OpenScape Business series as one of the most modern forms of TDM/IP hybrid solutions. The system offers a simple installation, maintenance and upgrade with minimal energy consumption compared to other systems. The problem of transferring multimedia real time signals through the IP network is solved by QoS mechanisms. The project envisages Firewall protection of the internal network on the Juniper Router page, which has all the necessary facilities to connect the hotel to the Internet. The technical solution also envisages the installation of SIP GSM gateway type 2N at a central location, with the possibility of up to 4 SIM cards, for calls to employees on mobile networks, which is considered an optimal solution for the needs of hotels with up to 50 employees.

Hotel environment is specific for several reasons. The network structure is, in most cases, subdivided into sub-networks for guests and employees. The functionality of the devices differs, and in each service it is enough to provide only a certain set of functions in order to provide guests with a fast and efficient service. The subnet for the guests is made up of the terminal devices brought by the guests and the terminal equipment owned by hotel. The terminal devices communicate over the Wi-Fi access point in the 2.4 or 5GHz band according to the IEEE 802.11b/g/n and 802.11ac standard with a dual-mode operation. IPTV platform provides high-quality IPTV service, but also delivers various additional information that the hotel wants to offer to its guests. The displays enable integration with smartphones and with the rest of the Hotel Systems. The technical solution also includes the installation of Headend having required capacity for receiving a television signal, as well as the installation of wireless telephony servers via DECT technology.

Unified communications system in hotel environment has a low maintenance cost, and provides customization to individual customer needs, portable services on every device, and the inclusion of new services that generates additional revenue. The implemented Unified Communications

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System optimizes and accelerates the process of information exchange within the hotel organization.

Keywords: *Unified Communications, Hotel Systems, multimedia services, network solution*

1. INTRODUCTION

Business process optimization and quality enhancement are among the most important tasks of an enterprise and are correlated with maximizing profits [1]. In the service sector, the communication of employees with the service users, as well as communication between employees themselves, has a significant impact on business optimization [2]. Unified Communications Systems offer different technological solutions that together contribute significantly to the quality of service [3]. Implementation of solutions that enable business process optimization depends on user requirements, specific goals that a user wants to achieve by implementing the solution and on the budget the hotel has [4]. The hotel environment, in addition to the attractive hotel location, kindness and quick response of staff, should also provide maximum comfort for service users who are increasingly expecting easy and reliable access to high-speed Internet, as well as to other modern services. Hotel organizations are making great efforts to meet the customer's wishes and keep or create a good image. Continuous work on image enhancement is the mission of any hotel organization, as it is one of the key factors in deciding where to stay and whether to return. A good image is very difficult to obtain and is easily lost, so hotel managers often insist on monitoring and increasing the quality of services [5]. Unified communications in the hotel environment provide modern ways of exchanging information and incorporating new services into the existing offer. High-quality communication and automation of processes carried out within the hotel enable more efficient operation and thus lead to optimization [6].

This paper presents a technical solution for improving the hotel environment, increasing the quality and optimizing the business process. The functional advantages and technological advances that the unified communications system brings to the hotel environment after practical implementation are described.

2. SIGNIFICANCE OF UNIFIED COMMUNICATION

Unified communications combine the latest generation of applications and devices that enable mobility, adaptability to different user devices or software interfaces, as well as control and management capabilities [7]. Unified communication provides synchronous work of applications and software tools and optimizes business communication and positively affects the productivity. Successful realization of the Unified Communications system in the hotel environment requires, above all, precise planning, dimensioning and preparation. In addition to the standard set of functions that the solution needs to provide, the successful implementation of the solution implies the readiness to upgrade, expand and adapt to the new tendencies in the hotel market in the future.

Communication platforms increasingly resemble one another, so e-mail platforms often include the ability to establish voice communication (e.g. Microsoft Outlook - Lync), chat is available on Public VoIP services (Skype), and social networks have integrated capabilities of chat and/or voice communication (Facebook) [8]. The main idea behind the Unified Communications is that users are accessing a number of advanced communications technologies from one place or one device - connecting people with information and with other people, which is of increasing importance in the hotel environment. Optimum and efficient communication helps timely decision-making, allowing hotels to accelerate business [9]. The user has the ability to establish communication with one medium and to continue using the other one, if they choose so [10]. The user of Unified Communications Service can respond to an incoming phone call, for example, via an application installed on Android/iOS device or by redirecting the caller automatically from the application to voicemail or fixed phone, etc.

The flexible licensing structure of modern Unified Communications systems enables easy upgrading and adaptation to user needs. Hardware or software solutions are designed to easily connect to related systems over standard networking interfaces. The license structure is often subdivided into licenses that relate to the general functioning of the Unified Communications System - that type of licenses are either primary or system licenses on the one hand, and on the other hand, licenses concerning the individual requirements of the users of the telephone devices and these licenses are optional. Thanks to the versatility of the solution, the user can choose to use applications on a computer, Android / iOS mobile device, on a TV or on a fixed telephone device. The client can make a decision about extending the functionality immediately or when the need arises or when the funds are provided. The technical solution should enable a simple upgrade of existing services such as extending the functions of the communication solution by adding licenses from the software side and additional modules from the hardware side.

3. HOTEL REQUIREMENTS

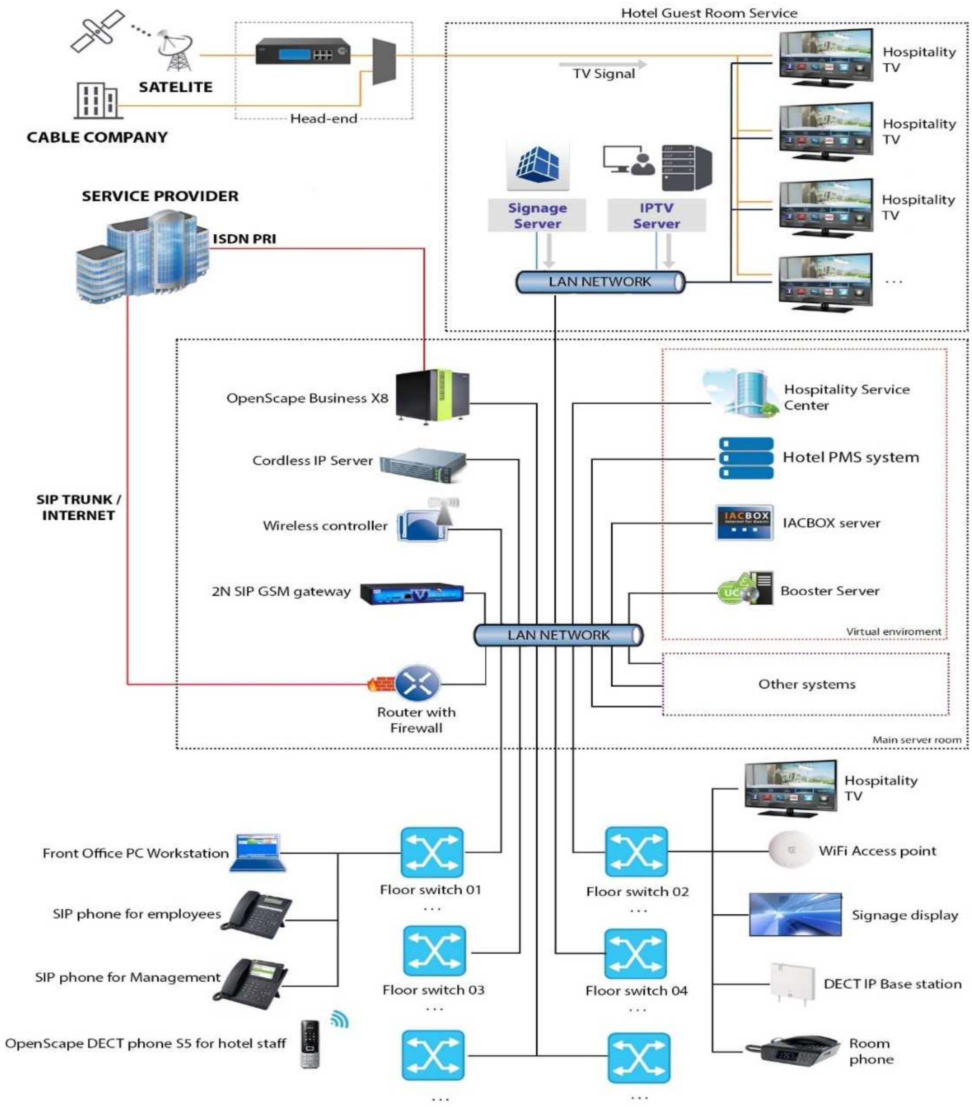
When determining which technical solution is most appropriate for a hotel organization, the organizational structure of the hotel can be a significant element, and that structure can be very diverse. Dimensioning of the technical solution will depend primarily on the size of the hotel organization, but also on the number of restaurants, bars, conference room size, specificity of additional space such as fair halls, casinos, congress halls, etc. Hotels are typically ranked in size as small, medium and large, according to the number of available rooms. In Serbia, hotels / motels that have between ten and fifty rooms are usually referred to as small hotels, between 50 and 200 as middle ones, and with more than 200 rooms as large hotels. There are also universal organizational segments in each hotel. These are departments like Room Division, Administration, and Repair & Maintenance. These departments can be seen in a hotel of any size, and a technological solution that enhances their functioning and interaction is needed.

As stated, the number of hotel rooms is one of the most important items when dimensioning the solution. The rooms are the basic hotel service, and accordingly, the units that are mounted in the rooms are chosen with utmost care and precision to fully fit into the room and make the guest feel comfortable as in their own home. One of the most important needs of hotel organizations when it comes to rooms is the need for a quick and accurate exchange of information between employees for the efficient maintenance of these rooms. Information such as: which room is neat and ready to receive the guest and which is not; in which room the mini bar should be filled up; in which room is missing a towel; in which room a shelf is broken and so on are vital information for efficient operation and maintenance. The technical solution is designed so that it speeds up and simplifies the exchange of information [11].

4. TEHNICAL SOLUTION

The technical solution of the Unified Communications System (Figure 1) has been implemented by the Unified OpenScape Business system, which has sufficient capacity to cover the needs of small and medium-sized hotels of 500 users per node and up to 2,000 users in the network if additional remote locations are used [12].

Figure 1: Block scheme of technical solution



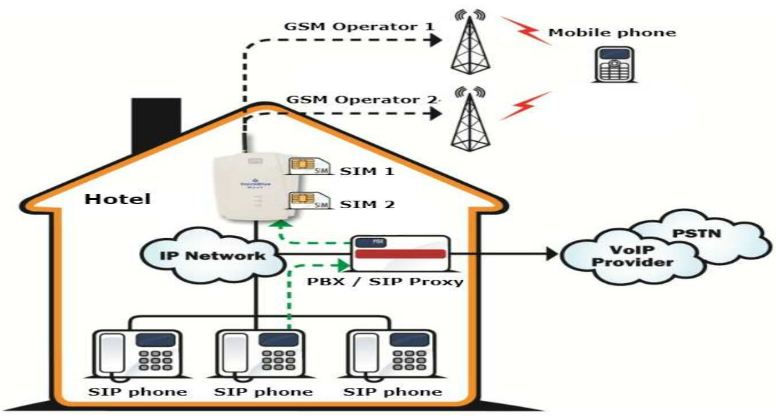
ISDN PRI and SIP trunk lines are delivered to the site to provide the required capacity of outgoing / incoming phone traffic for serving employees and hotel guests. Providing both types of technology enables practical survivability at the level of the transmission line. Users at their request can communicate internally with all the required functions, regardless of whether some of the trunk services are available. The hotel is connected to the Public Network via Telecom ISDN PRI of 30 channels and additionally via a 15-channel SIP trunk backup. The Internet connection provides 100/100 Mbps download / upload capacity, which guarantees the realization of the necessary traffic generated from and to the Internet.

The technical solution includes the installation of Headend that has the required capacity for receiving a television signal, as well as installing a wireless telephony server via DECT technology. The number of simultaneous outgoing and incoming calls is adjusted to the real needs of the hotel, and in practice it is estimated at 10% on the total number of rooms / telephones. Thanks to an additional SIP trunk that also provides redundancy at the link level, additional channels / simultaneous calls are also provided through this type of trunk. The SIP trunking service provider is selected on the basis of the information on the lists provided by the equipment manufacturers [13]. The installation is set up from the server room, through the concentrator on the floors to the hotel rooms, and to the location of the devices. Category 5 cables are used, with category 6 recommendation, given the need for IP technology transfer.

Firewall also provides internal network protection over a device that has the ability to work in the High Availability mode. Juniper Firewall provides secure internet access, as well as secure and reliable remote network access through IPsec encryption and tunnel. It can support up to 2000 IPsec VPN tunnels. It supports OSPF and BGP dynamic routing.

SIP GSM Gateway enables the connection of employees to mobile networks (figure 2.). Since there are various types of devices that access the network (analog / digital / SIP phones, FAX devices, etc.), there is adequate translation of the format in accordance with the end-user access technology. QoS mechanisms solve the problem of sending voice signals and other types of traffic over IP networks.

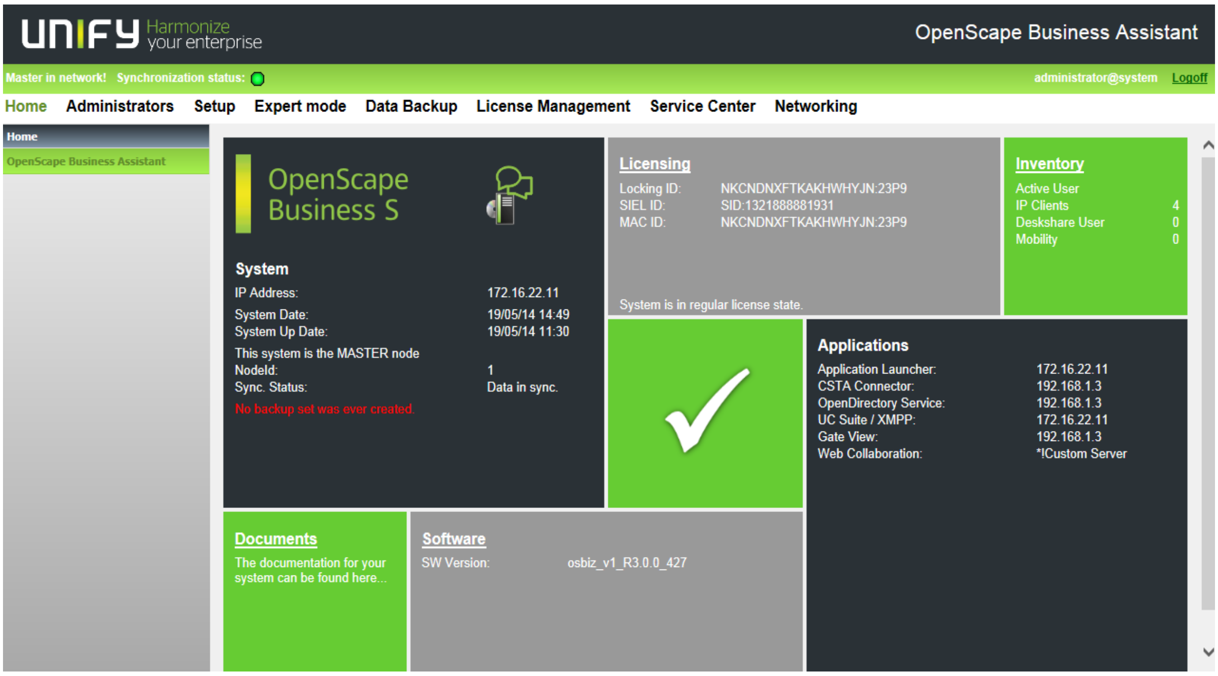
Figure 2: SIP GSM gateway role



Front office functionality is implemented through the selected PMS system. Given that the PMS system is the central point for reception staff, the proper integration of other systems on the PMS is mandatory since the systems must be automatically adjusted to the check in / checkout of the hotel staff. Proper integration enables timely updating of room status information. For example, whether a certain room is clean and ready for the guest, i.e. what needs to be remedied in the room so that it becomes available again for the guest to enter.

The system can be configured with up to 16 different administrator orders via WBM - web-based management (figure 3.). Each administrator is assigned a profile that specifies the scope of authority. The system administrators access the system via the https connection using the standard Browser that is located in the integrated or later installed version of the application on Windows or Linux operating systems.

Figure 3: Management OpenScape Business X8



5. CONCLUSION

Described System of Unified Communications provides a highly scalable and flexible technical solution that enables a wide range of applications. The OpenScape Business solution architecture can be completely independent of existing telephony infrastructure - traditional telephony, IP or DECT voice technology. Wi-Fi and DECT phones still have the advantage over Android/iOS applications that work on the Best effort principle without quality assurance. The IPTV solution enables the realization of smart rooms and the connection of other fixed and mobile devices. The described technical solution provides a more quality automation of business processes, simplifies the communication of employees with each other and with guests, offers new revenues-generated services and represents the all-in-one solution of a modern hotel communications network. The next step in applying contemporary Unified Communications in hotel rooms will be the implementation of smart rooms, where the systems will be completely integrated into one.

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ANALYSIS OF THE INFORMATION TECHNOLOGY USE IN SMALL ENTREPRENEURSHIP IN THE HOSPITALITY INDUSTRY

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Abstract: *Technology and information systems themselves have no value without their application in business and the creation of tangible benefits and returns on entrepreneurial investment. The introduction of information technology enables faster action and observation of market demands, i.e. guests, and reduction of administrative work and filtering of high quality information that contribute to effective and efficient business. The strategic significance of information technology stems from the ability of information technology to better process and sort data into those essential and less important, leading to up-to-date information that results in fulfillment of the desire of guests. Using modern information technology, entrepreneurs in the hospitality industry can gain competitive advantage.*
We introduced the results of the empirical research on target population of corporations and physical persons involved in the hospitality industry in the Republic of Croatia. A multi-stage stratified proportional sample at the 5% statistical mass level was used only from those entrepreneurs who had less than a hundred employees. 311 respondents were covered, 100 of which are hotel and other type of accommodation owners together with 211 restaurant owners and owners of other type of food catering facilities. The results of our empirical research have undoubtedly demonstrated that small business owners in the hospitality industry are well aware of the advantages of using modern information technology and are supplying adequate IT equipment but are not using the advanced internet business opportunities.

Keywords: *Information technology, small entrepreneurship in hospitality industry, competitiveness*

1. INTRODUCTION

1.1. Subject and methodology of research

The special empirical research was carried out on the target population (statistical mass) of all legal and natural persons in the hospitality business in the Republic of Croatia, according to the National Classification of Activities, i.e. entrepreneurs-owners of these facilities who, at the same time as managers (or elsewhere), are constantly working in their businesses. It was decided that, for research purposes, a more multiphase, stratified and proportional sample at the level of 5% of the statistical mass, i.e. the population of all hospitality entrepreneurs in the Republic of Croatia, is used only for those with fewer than 100 employees in their permanent employment. There were 311 respondents in the sample, of which 100

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owners of hotels and other accommodation facilities, and 211 owners of restaurants and other food preparation and service facilities.

The survey was conducted by e-mail, mail and personal interview with a planned number of 311 respondents, although there were 456 abstinents, i.e. those who refused the survey or did not return the submitted questionnaires. Data for the sample were collected from the primary sources (several reports and press releases of the Central Bureau of Statistics) and from different secondary sources, on the basis of data from the Internet and records in the databases of the following chambers and associations: Croatian Chamber of Trades and Crafts Zagreb and its 20 county subsidiaries, Croatian Hotel Association and Caterers Association, Association of Croatian Campers, Association of Caterers of the City of Zagreb, Croatian Association of Hotels and Restaurants, Association of Caterers and Croatian Barmen.[1]

1.2. The starting hypothesis

At the beginning of this empirical research, a starting hypothesis was introduced, which says: Small business owners in the hospitality industry recognize the benefits of using modern information technology and acquire a good piece of IT equipment but are using the advanced internet business opportunities in the hospitality industry insufficiently. [2]

2. THE IMPORTANCE OF THE INFORMATION TECHNOLOGY IN TOURISM AND HOSPITALITY INDUSTRY

Nearly half of the reservations in Croatia are made virtually, and the internet and the social network have repressed the traditional sources of tourist destinations. Variable economic conditions, changes in consumer behavior and the development of new technologies will cause new markets to emerge. Due to the increasing amount of investment in information technology, the ways in which companies are investing and using this technology are becoming increasingly important. The ability to successfully manage information technology is slowly becoming one of the major strategic benefits of many companies. Information technology for tourism is a tool that connects all parts of the tourism industry. They allow adding value to a product or service with the connectivity of the tourist subject and its surroundings. These technologies in the tourism industry are developing due to globalization, rapid development of technology, and especially the Internet. [3]

In the segment of e-business in tourism and hospitality, there are user-created content, online communities, destination management systems, mobile ICT technology implementation, hotel electronic distribution, and tourism websites. Each of these parts, apart from each other, can function in symbiosis with other parts because they are technologically dependent on each other. In accordance with the constant development of the Internet, along with its growing role in the world, tourism is also using WEB 2.0 and its services such as user-created content. As the name itself says, user created content has been created by the users, i.e. tourists for other tourists in the form of written texts, shared images, or video works. Important links can be made to TripAdvisor.com and Booking.com's guest ratings. In addition to that, hotels have recently allowed on their own websites users to provide feedback about hotel services they have used. This way, hoteliers can influence improvement of their services even though they control the information that will be displayed on their web pages. Information and communication technologies enable tourists to travel easily and choose a suitable hotel or accommodation based on user-created content. [4]

Garbin Praničević, Pivčević and Garača explored the development of information systems in large hotel companies in the Republic of Croatia. The results of the research have shown that the development of information systems can be observed according to the development of their components. It is shown that the observed hotels are best suited to group into two clusters according to the corresponding levels of development. These clusters correspond to the highest and middle levels of development. The conclusion is that large hotel companies in Croatia have recognized the importance of information systems and the need to invest in them, but investment in information systems has not been followed by adequate investment in human resources, especially in hotels that have developed information systems.[5] According to M. Porter, information technology is a prerequisite for the company's advancement and competitiveness, represented by brands and innovations, which focus on the needs and desires of consumers and the implementation of technological solutions to meet these needs.[6]

3. RESULTS OF EMPIRICAL RESEARCH

As a part of empirical research, the reasons, why respondents, small entrepreneurs in the hospitality industry and their employees use the Internet, have been explored. The results are presented in Table 1. from which it is apparent that the arithmetic mean (in a scale of 7 degrees of importance for each of the 10 offered reasons) ranges from a maximum of 5,38 (send and receive emails to customers, suppliers, owners and similar) to at least 3,65 (communication using chat, forums, etc.).

Table 1: The reason for using the internet in the business of the respondent

OFFERED REASONS (alphabetically)	ARITHMETIC MEAN	STANDARD DEVIATION	ASYMMETRY COEFFICIENT
Reading of information (news) from daily and weekly newspapers	4,56	2,16	-0,43
Communication using chats, forums and the like	3,65	2,17	0,16
Searching databases in search of new knowledge	4,64	1,97	-0,43
Search knowledge in order to make good decisions	4,70	1,96	-0,49
Collecting information for our commercial data bank	4,20	2,08	-0,16
Collection of information to solve business problems	4,81	1,95	-0,65
Collecting market information from our industry	5,10	1,93	-0,85
Sending and receiving e-mail (customers, suppliers, owners, etc.)	5,38	2,03	-1,07
Searching for information related to private life	3,95	2,17	0,00
Finding interesting information from everyday life	4,38	1,97	-0,22
VARIANCE ANALYSIS: p = 0,0000			

Based on the data presented, it can be concluded that respondents and their employees mostly use the internet in accordance with the needs of their everyday business. These findings fully confirmed the initial hypothesis.

As part of the empirical research, an attempt was made to find out the criteria under which the respondents purchase computer equipment. Results are presented in Table 2, from which it is apparent that the arithmetical mean (on a scale of 7 degrees of importance for each of the 9 criteria offered) is in the range of at most 5,22 (efficiency and effectiveness of the information system) to at least 3,54 (most companies have the equipment, so we purchased it as well).

Table 2: Set of criteria of the IT equipment procurement among the respondents

OFFERED CRITERIA (alphabetically):	ARITHMETIC MEAN	STANDARD DEVIATION	ASYMMETRY COEFFICIENT
The effectiveness and efficiency of the information system	5,22	1,88	-0,88
Cost-effective investment in the information system	4,96	1,82	-0,73
Compatibility with existing IT equipment	4,89	1,87	-0,73
Complementarity with existing IT equipment	4,72	1,91	-0,64
Quality of information services systems or parts	5,13	1,72	-0,83
The risk of key automated business processes	4,46	1,77	-0,47
Security, reliability and protection of information system	5,20	1,77	-0,89
Compatibility of business with IT plans	4,68	1,84	-0,62
Most companies have the equipment, so we purchased it, too	3,54	2,05	0,13
VARIANCE ANALYSIS: p = 0,0000			

Based on the data presented, it can be concluded that respondents, small business owners, use a relatively good set of criteria based on which they purchase IT equipment with little underestimation of some criteria, such as cost-effectiveness of information system investment, compatibility and complementarity with existing IT equipment. These findings were partially confirmed by the initial hypothesis.

As part of the empirical research, an attempt was made to find out the opinion of our respondents about all the benefits of their business to modern information technology. Results are presented in Table 3, from which it is evident that the arithmetic mean (on a scale of 7 degrees of importance for each of the 10 advantages offered) is in the range of not more than 5,76 (more opportunities to communicate with suppliers and customers) to at least 4,91 (greater visualization capabilities and permanent education).

Table 3: Advantages for respondents through modern information technology

OFFERED ADVANTAGES (alphabetically)	ARITHMETIC MEAN	STANDARD DEVIATION	ASYMMETRY COEFFICIENT
Quick time and space (place) bridging	5,32	1,63	-1,02
Options for effective presentation of new products and services	5,21	1,74	-0,84
The development of new forms of business information literacy	5,00	1,75	-0,68
Greater promptness of business activities and the performance of tasks	5,46	1,56	-1,05
Greater autonomy in business decision making	5,14	1,77	-0,90

Greater opportunities to communicate with target markets	5,46	1,64	-1,13
Greater opportunities to communicate with suppliers and customers	5,76	1,46	-1,37
Greater opportunities to adapt to consumers' needs	5,50	1,58	-1,06
Greater capabilities of visualization and permanent education	4,91	1,76	-0,69
Larger and faster flow and exchange of business information and documentation	5,68	1,53	-1,23
VARIANCE ANALYSIS: p = 0,0000			

Based on the data presented, it can be concluded that respondents, small business owners in the hospitality industry, have well recognized and ranked the advantages that modern information technology provides for their business, with little underestimation of some advantages, such as increased business activity and performance, greater communication possibilities with target markets and fast bridging of time and space. These findings confirmed the initial hypothesis.

As part of empirical research, the quality of application of information technology in the business of respondents, small entrepreneurs in hospitality was examined. The results are presented in Table 4. In a separate column in the table, the respondents' replies were ranked to provide a better insight into the results. The variance analysis (p = 0.0000) shows that there is a statistically significant variability among 10 offered aspects of IT application in business.

Table 4: Some aspects of IT equipment application in business

OFFERED QUESTIONS:	YES	RANK	NO
1. Does the existing IT infrastructure satisfy all the needs of your company?	67,65%	2	32,35%
2. Does your company have a connection to the internet and an e-mail address?	77,21%	1	22,79%
3. Does your company have a website?	32,91%	5	67,09%
4. Does your company have a Facebook profile?	28,25%	6	71,75%
5. Does your company have Intranet?	15,40%	7	84,60%
6. Do you exchange data with suppliers and distributors electronically?	48,45%	3	51,55%
7. Do you do transactions with suppliers and customers electronically?	43,32%	4	56,68%
8. Does your company offer the possibility of booking via e-commerce (internet shops)?	14,13%	9	85,87%
9. Can employees do business from home by telecommuting (teleworking)?	10,09%	10	89,91%
10. Does your company invest in special IT training for employees?	14,34%	8	85,66%
VARIANCE ANALYSIS: p = 0,0000			

Based on the data presented, it can be concluded that the basic IT infrastructure and operations, such as the internet, e-mail and electronic communication with suppliers and distributors, prevail in the business of respondents, but unfortunately they miss a more advanced and in modern business activities necessary means of using IT equipment, such as e-commerce booking (internet commerce) and home-based business (teleworking), which can somewhat be justified by the fact that the survey was conducted among small business owners. These findings fully confirm the initial hypothesis, which states: Small business owners in the hospitality industry are well aware of the advantages of using modern information technology and acquire adequate IT equipment but are insufficiently using the advanced internet business opportunities in the hospitality industry. [7]

This empirical research has limitations since it was implemented before the introduction of fiscalization in the Republic of Croatia. Fiscalization is an obligation to issue invoices through electronic payment systems directly related to the Tax Administration. The Law on Fiscalization introduced a more complete control of the Tax Administration on the turnover of entrepreneurs who supply goods and services in cash, with the aim of better tax collection, the suppression of gray economy and reduction of tax evasion. Institutions, associations and other legal entities that are not taxable income taxpayers do not have a fiscal obligation even though some deliveries are billed in cash. [8] Since now all small business owners in the hospitality industry have to be connected to the Internet to issue fiscalized accounts, the results of this empirical research today would certainly be different. This opens up the possibility to authors for future research.

CONCLUSION

From all presented results of empirical research, it can be concluded that the small business owners in the hospitality industry have well recognized and ranked the advantages that contemporary information technology provides for their business, with a little underestimation of some benefits, such as greater promptness of business activities and performance, greater communication possibilities with target markets and rapid bridging of time and space (places). They have identified and ranked the offered sources of competitive advantage based on the use of information technology, with the neglect of knowledge transfer using the intranet and the internet, the inadequate level of continuous professional training of employees, and the organization of training and other forms of employee learning that are very important for creating competitive advantages of hospitality companies.

Competitive advantages indicate a set of determinants of hospitality of company's offer that enables it to compete more effectively, i.e. better market position than other competitors in the target market, and greater opportunities for conquering new markets. Competitive advantages are most often achieved by innovating, modifying and differentiating products or services by adjusting their features, assortments and (after) sales services, by adjusting and differentiating prices through market segmentation, distribution, promotion and the like. Significant role in achieving the competitive advantage of small business owners in the hospitality industry in Croatia must have the use of advanced information technology in their day-to-day business. Entrepreneurs who have recognized the benefits of electronic business will surely gain a better competitive position on the market and greater recognition among their customers.

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A SOCIOLINGUISTIC APPROACH TO PROFESSIONAL IDENTITY CONSTRUCTION IN TOURISM

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Abstract: *Identity is an issue that affects all society and all professions, including tourism professions. The process of professional identity construction and/or reconstruction is not reserved only to the academia and to the specialized training institutions, but has become a complex process laid bare for public debate by the media and engaging Web 2.0 and many other societal institutions and processes. If the process has been widely discussed from the point of view of the professionals' training for different careers (management, communication, marketing, hospitality) or from that of tourist identities (Harrison, 2003; Thurlow & Jaworsky, 2010) and tourism relationships (Thurlow & Jaworsky, 2010), professional group identity in tourism has received less research attention from sociolinguists. Thus, it is the purpose of the present study to address some sociolinguistic considerations that have acquired relevance in the identity formation of groups of employees in tourism based on discourse and interactional sociolinguistic aspects. While surveying the early contributions of Goffman (1950s), Sacks (1960s), Schegloff (1987) and the further advancements in the field (Van Dijk, 1993, 1997; Drew and Heritage, 1993, Miller, 1994; Stubbe, 1998; Cicourel, 2003; 2003; Koester, 2004; Richards, 2006), the study is focused on the case of group identity formation in travel agencies. Finally, it seeks to reveal the temporary nature of identities, the lack of concern of travel agencies for the constriction, reconstruction, survival of group identity.*

Keywords: *professional identity, sociolinguistic, tourism*

Introduction

Identity is an issue that concerns all members of society. They display both their personal identities and the identities or roles assumed by them or assigned to them by the professional group they belong to. Identity has become the object of public analysis whereby the media, PR specialists and politicians lay bare identities for public consumption. They construct political identities to win popular support and promote corporate identities to impose control on employees and customers.

The process of identity construction itself has entered a new, more complex level as many factors, one of which is the Web, contribute to its making. Nowadays, the Web offers multiple representations and the possibility of creating many parallel, or coexisting identities, each valid for a specific domain or setting. The issue of identity construction has a rather short tradition, which acquired prominence and consistency in the 1990s, although the 1950s works of Goffman and Harold Garfinkel in ethnomethodology, those of Harvey Sacks (1960s) in conversation analysis, and Schegloff's (1987) contributions influenced to a great extent the push towards studies in identity creation. Thus, the contributions to the issue of identity construction have come from several traditions, such as interactional sociolinguistics, conversational analysis,

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ethnographic studies, institutional discourse studies, workplace interactional analyses, and many other disciplines.

Even the process of collecting data on these processes was challenged by the questions that surround the representation of self (Atkinson and Silverman, 1997; MacLure, 1993) and all the known and unknown aspects that lie behind it. In 1998 Craib asserted that ‘The central feature of the self in modern society is its reflexibility, a constant questioning and reconstruction in a lifetime project’ and that ‘We are constantly constructing and revising our personal stories and so reconstructing ourselves’ (pp 2).

Identity (re)creation like other research areas has acquired a sociolinguistic turn becoming the object of dissection for sociolinguists. Many linguists have attended to discourse structure, interactional discourse, looking for patterns that could be related to ‘structures’ or ‘orders’ of society and ideology. According to conversation analysts, the sort of structuring that interactants submit to in a conversation and reproduce in their talk already represents a core dimension of *social* structure (Jaworski and Coupland, 2014). Conversational production is linked to the production of social order (idem) and can thus through micro-level (linguistic, textual, intertextual) insights explain macro-level (societal, ideological, cultural, etc.) processes, all of which are reflections of identities or group identities.

The concept of *identity* in relation to discourse can be variously defined. It can represent a variable accounting for the use of particular linguistic or discourse devices, or a means of referring to and making reference to and inferencing about self and others (Zimmerman, 1998). Identity has been studied within the field of workplace interaction (Stubbe, 1998; Cicourel, 2003; Koester, 2004), by institutional discourse analysts (Drew and Heritage, 1993; Miller, 1994) and interactional sociolinguists.

In tourism, the issue has been approached by sociologists like Thurlow and Jaworsky (2010) who discuss both *tourist identities* as reshaped by the global *community of practice* and the prevalent role of language in creating host-tourist identities and interactions. Following Van Dijk’s lead (1993, 1997), Hannam and Knox (2015) speak about the construction and display of identities, of social relations and knowledge, and the construction of social and cultural means in the achievement of tourism-specific actions. The association of everyday social and cultural means with the category of ‘context’ in which actions occur create the premise for an interdisciplinary and transdisciplinary study between tourism, interactional sociolinguistics, and other disciplines. These assertions coupled with the lack of determinacy create the premises for vast and entangled processes that cannot be solved by one research tradition, but call for an interdisciplinary, integrative perspective that could embrace several investigation methods and insights.

Amid these developments and challenges, the present study seeks to tackle such issues as the construction, the reconstruction and the display of identities in professional contexts. The study is focused on a particular, but less investigated environment, that of tourism agencies. At the same time, the study is intended to reveal the advancements made in the field and the interdisciplinary nature of the processes involved in identity construction. The study points to the difficulty of drawing up generalizations regarding the features and conditions of group identity (re)creation, in the absence of consistent empirical and corpus studies.

Group identity

The impenetrability of the processes by which the self is constructed or reconstructed has attracted the interest of many researchers. The investigation of the self and group identity has called Bolinger's attention, who observed that 'there is no limit to the ways in which human beings league themselves together for self-identification, security, gain, amusement, worship, or any other purposes that are held in common'(1975:333). Thus, groups have been formed for some particular reasons, mutually recognized by its members. Groups have acquired a distinctive identity based on the reasons that brought them together and were further on nurtured by the established group relationships. However, little is known about these processes and one way to get to them is to study the human interactions that emerge within those groups. (Richards, 2006). Group identity and relationships have become more important for researchers, in particular as such groups have come together for the purpose of achieving common goals, such as professional, societal, etc., thus establishing professional communities with identifiable, common goals and identities.

Gradually, following the progress of society and economy, researchers turned their investigations to the world of business groups and interactions in an attempt to understand the multiple processes and ties that keep individuals together and loyal to their community. Interest has, thus, moved towards the collaborative professional group, towards the importance of mutually supportive teams and the ways in which the cultures that help them flourish and survive could be developed.

To this end, investigations followed the interactional bases that generated the groups and kept them flourishing. Other research threads examined the psychological aspects that kept groups together, for example, 'group psychology', and focused on aspects which could shed light on how groups acted and achieved their common goals, on how they turned successful or how they failed. It has been assumed that such groups have created their own processes based on interactional patterns (including the decision making ones), some of which have accounted for their success. These decisions, which do not emerge overnight, are the result of talks and interactional practices fostered within the group, which emerge as a part of the group's interactional identity, and which should be different from those of other groups. The interactional group identity is developed through many meetings, formal or informal encounters, and spontaneous talks or planned ones (Richards, 2006). Some researchers wandered whether these interactional patterns are traceable in the everyday talk of the group, whether they represent a feature of the evolution of all collaborative enterprises, or whether they can be detrimental to the groups isolating them and making them more vulnerable.

(Collaborative) professional group identity

Identity is formed through action and refers to the construction, the reaffirmation or reconstruction of identities. The processes that are involved are partially reflected in the formal and informal, individual and group talks, in the way members of a group position themselves vis-à-vis one another and the outside world. Some of the traces or reflections of these processes are identifiable and revealed both deliberately or accidentally. However, since the semiotic resources that professionals use to state or restate their status are so immensely varied, rich and subtle that our conscious control over them is limited, and so is our capacity to understand them. It is this diversity of forms of expressions and the limitless forms of individual linguistic behavior that make sociolinguistic generalizations less valid and sustainable. In addition, the variety and breadth of professional environments, each with its specific features, to which other sociological factors such as education, and human traits such as trust, confidence, loyalty, etc. may influence to a great extent the sociolinguistic behavior of a member of a specific professional community, increasing or limiting his individual contribution to group identity.

Group identity cannot be static, as it is subject to permanent changes and influences that result from the intercourses that the group has with the outside world as it redefines itself vis-à-vis all the outside influences. Even labels attributed to groups of professionals, such as 'Our ITs' may change over time, as they reflect a particular perspective on the group which captures a major feature or some representative features of that group at a certain moment. The perspective itself may change or may be revised as a consequence of the changes that occur in the 'standard description' or perception, as the dynamic processes of identity construction and as the group redefines itself through its interaction with the outside world.

Thus, the process of identity (re)construction is an ongoing process, but, once a group identity is created, it does not necessarily last. Richards (2006) speaks of successful groups and of groups, which, in spite of their temporary success, eventually, failed. His research was intended to highlight the nature of three successful professional groups and the interactional foundations on which they were built, but which eventually broke up. The research took Richards (idem) well beyond the borders of linguistic study, into group psychology and the reasons that might have called for the inappropriate decisions that contributed to the dissolution of group. Richards asks himself whether the traces of the patterns that may lead to breakups can be detected in the everyday talks of such groups as well as a feature inherent to the evolution of the groups that might eventually undermine its own existence or constitution.

The *Membership Categorization Analysis* once launched by Sacks (1992a and b) and other followers (Hester and Heglin, 1997; Psathas, 1999; Lepper, 2000) has mapped out a research tradition that shows how the membership of a given category (e.g. 'doctor', 'mother', etc.) is made relevant through the use of Membership Categorization Devices and related rules. MCA has developed in parallel with other traditions from common ethnomethodological roots. In turn, ethnomethodology established itself as a tradition characterized by a diversity of forms and directions with overlapping strands of inquiry, with resemblances and differences. Two such traditions are 'conversation analysis' and MCA, both with their origins in the work of Sacks (1992a and b), but which have developed independently of each other. While conversation analysis has focused on the sequence of features in interactions, MCA was aimed at the categorisation aspects of social interactions. However, Hester and Heglin suggest that 'both the sequential and the categorization aspects inform each other' (1997:2). They further assume that the particular sequence of items used in an interaction depends on the membership categories of the speakers and conclude that 'social identity provides a sense of the (sequentially organized) talk, just as the talk provides for a sense of social identity' (idem). They also admit that 'in practice these aspects (the sequential and categorisational) are so closely intertwined as to be separable only for the purposes of analysis' (1997:3). In this respect, they say that teachers, for example, are recognized as teachers by virtue of the production of particular sorts of sequentially positioned utterances. Membership categories (as described by Sacks) are classifications or social types that may be used to describe persons (idem). The assumption that 'collectivities' can be regarded in the same way as personal membership categories originated in Sacks' work, who also anticipated the development of the concept of 'classes'. Collectivities or 'collectivity (membership) categorizations' range from named institutions to general designations, such as 'systems' (e.g. 'the legal system', 'state bureaucracy', etc.). Hester and Heglin point out that the way in which the use of such categories displays organizational features similar to those in relation to personal membership categories are not to be presumed a priori' and say that they 'are a matter for empirical investigation'(1997:3).

According to Sacks, 'Membership categorization devices' are 'any collection of membership categories, containing at least a category, which may be applied to some population containing at least one member, so as to provide, by the use of some rules of application, for the pairing of at least a population member and a categorization device member'. In other words, a MCD is both a collection and rules of application.

Sacks provide two rules for applying membership categories. The first of these two rules is the *economy rule*, which speaks for the adequacy of using a single membership category to describe a member of a population. His does not mean that one member or person cannot be described in terms of several categories, but that in order for a person to be recognized a single category would be sufficient. Thus, for the introduction of a person it would be fair and enough to use one membership category instead of providing more categories. For example, a description like 'he's my university colleague' would supply all the necessary information. The second rule of application is the *consistency rule* and holds that 'if some population of persons is being categorized […], than that category or other categories of the same collection may be used to categorize further members of the population' (Sacks, 1974a:219).

Sacks also speaks about the concept of 'boundedness', which is another hallmark of his conceptual framework, by which he means activities that are carried out by members of particular categories. The attention given to the interaction of professional groups has stimulated further research and developments in the field. Drew and Heritage (1993) explored the relationship between ordinary conversations and institutional interaction and pointed out the ways in which institutional realities are made relevant and are traceable in interactions. In their 1993 work Drew and Heritage highlight the goal orientations, the specific and particular constraints on allowable inferential frameworks, while, in a later book, Drew and Sorjonen (1997) focus on orientation to institutional identities through person reference, lexical choice, grammar forms, turn-taking and institutionally specific inferences. Drew (2003) notes that in spite of the fact that each speaker, whether client or institutional representative, designs his /her own language in order to achieve particular institutional or professional goals, much of the institutional reality is made evident in the talk. The particularities of talk design vary from institution to institution and from encounter to encounter 'but there is clear evidence that particular linguistic phenomena can be traced through their use in a range of different institutional settings' (Richards, 2006:8).

Beyond the ways in which institutional speaking is made relevant through talk, Arminen (2002) draws attention to the fact that institutional realities are made relevant 'in the way in which the constitution of the talk reveals the institutional resources that are used to perform relevant tasks' (Richards, 2006:8). This leads to the assumption that institutional interaction does not reveal only the peculiarities of some given situations, but that it also captures the wider context of institutional norms and practices. Miller renders this broader significance of institutional discourse and its features. First, he notes that 'institutional discourses consist of the fundamental assumptions, concerns, and vocabularies of members of settings and their usual ways of interacting with one another', then he argues that institutional discourses are 'standardized frameworks for anticipating, acting in, and reflecting on social settings and interactions' and, finally, he admits that 'They allow and constrain setting members to organize their interactions as instances of standardized types of social relationships and produce conditions for responding to issues in predictable ways'(1994:282-3).

A greater emphasis was placed on the reflexive relationship between local activities and workplace discourses (Cicourel, 2003) where the subtleties of the interplay between social and institutional activity were captured. Similarly, Koester's (2004) investigations into the relationship between relational and transactional exchanges provide insights into the use of relational sequences. Further studies shed light on everyday workplace interactions (Stubbe, 1998) insisting on exchanges that are part of institutional life but do not stand for formal business encounters.

Gradually, these studies have shown that participants in interactions draw on a wide range of interactional resources and, in spite of the fact that the interactional resources are rather familiar and common, the ways in which they are used are personal and surprising (Richards, 2006).

An interesting approach that is helpful in the analysis of group interaction is Goffman's distinction between front and back stage activities. Goffman proposes the concept of a *region*, which is 'any place that is bounded to some degree by barriers of perception' and makes a clear distinction between a *front region* (where the professional performance takes place) and a *back region* (where all considerations applying in the front are suspended). Goffman goes further suggesting that in western society there are two corresponding behavioral languages associated with the two settings and describes them in the following words: 'The backstage language consists of reciprocal first-naming, cooperative decision-making, profanity, open sexual remarks, elaborate gripping, smoking, informal dress, "sloppy" sitting and standing posture, use of dialect or sub-standard speech, etc.'(1959/1971:129). In regard to front stage behavior language, he takes it to be 'the absence' or the 'opposite' of all the mentioned features. Richards (2006) suggests that in large organizations the front office is a locus for the interaction between clients and employees, while the back regions stand for the separation of insiders from outsiders (clients). This is also the place where complex interactional behaviors come into play. Critics of the approach recognize that such a characterization is needed but suggest that the complexities of reality call for a characterization that could respond to them. A new characterization should differentiate between front and back stage and front and back region, where the former should stand for physical settings and the latter for specific behavioral constructions within these settings (Richards, 2006). Sarangi and Roberts (1999) use Goffman's distinction between front and back region activities, but develop their own approach in terms of front and back stage. They distinguish *frontstage* studies, focused on insider/outsider encounters, from *backstage* studies where the emphasis is laid on how the institutional world and professional knowledge are constructed. They also suggest that these differences may account for the ways in which the professional world is created backstage and represented frontstage (Richards, 2006). In his 2006 book, Richards draws on these assumptions and demonstrates how participants use 'representations of frontstage realities as a resource in their construction of collaborative identity' (pp 11).

One further remark regarding the construction of identities is that the process depends on a variety of local practices and on the history behind it (Richards, 2006). In this respect, Richards (2006:12) admits that 'Nothing happens of itself; somewhere there is a history, somehow there are consequences'. This leads to another remark, that the analysis of identity construction does not lend itself to generalizations of any kind but may capture the *uniqueness* of the particular (idem).

Group identity in travel agencies

Sociolinguistic investigations into tourism and its language were undertaken by many researchers. One of the notable and pioneering books in the sociology of tourism was Graham Dann's seminal book 'The Language of Tourism: A Sociolinguistic Perspective' (Irimiea, 2018). Dann looks at how tourism uses language as means of social control in hotels and resorts (idem). According to Dann, a hotel, for example, can be considered 'as an establishment which encapsulates tourists protecting them from outside dangers' and affirms that 'Through its total institution-like qualities, the hotel above all manages its protégés' (1996:88). Dann quotes Wood's assumption that hotels 'are in essence agents of social control' (Wood, 1994 quoted in Dann, 1996:88), and that 'the larger the hotel the greater the social control exercised by the management' (Wood, 1994 cited in Dann, 1996:88). We can thus assume that in a most general sense, social control is a regulation of human behavior and tourists, recognize that there are both implicit obligations to use the services provided by a hotel as well as constraints upon their enjoyment (Irimiea, 2018). Dann's book stimulated and influenced other sociolinguistic investigations into the language of tourism (Thurlow and Jaworsky, 2003; Jaworsky and Pritchard (eds) 2005; Cappelli, 2006; Fox 2006b; Phipps, 2006; Brice, 2007; Jaworsky, Thurlow, Ylanne-McEwen and Lawson, 2007), which insisted rather on language as 'a creator of identities, power and social differences in the context of tourism' (Fox, 2008: 20).

The language of tourism as the language of social control and its role in the textualization and (re)contextualization of identity and relationship in tourism discourse was discussed by Thurlow and Jaworsky (2003), but the issue of travel agencies as containers of customs, beliefs and values that shape their identity and that must be further on transmitted to the public, has not been tackled. Nor have the methods that managers, leaders or simply employees employ to reach this end been discussed from the sociological and linguistic point of view.

In tourism the employees' move from one job to another, or from one group to another is more dynamic for the mere reason that many jobs are seasonal. Many jobs in the industry, such as those of travel agent, travel guide, resort manager, etc. depend on seasonal occupational policies and the employees' own preference given to one company or another. In such profession-specific conditions, group identity can hardly flourish in spite of the efforts of managers or loyal employees to keep to a group identity or culture.

More stable groups and group identities can be built in the hotel sector, where groups are carefully built on the basis of well-established recruitment requirements and policies. These groups are thereafter monitored and consolidated by skillful managers or leaders. Such groups, mainly identifiable by the departments they work in, are based on common, understood and accepted goals, on shared practices, values, on mutual trust, confidence and reciprocal satisfaction. Group identity is carefully built around these principles and affordances, most of which make up the 'culture' of the group or company. Strong groups hold to their shared values and practices and make the members proud of their belonging to such groups. This is also something that managers or leaders appreciate most and seek to enhance.

On the other hand, the identities created through a guide-tourist encounter are based on a relationship that lasts for a few hours, days, months or more. They are temporary identities established on the ground of their common, shared settings, topics and the participants' willed adherence to the group as well as their desire to stay as a member of that temporary group. The new group identity is an agreed one established for the period of time of the common experience, where the participants partly give in their own identities to become visitors/tourists animated by the desire to visit places, to enjoy their unique experience and, finally, have fun. This new, shared or collective identity is reflected in the frequent use of pronouns like 'we' (as in 'We shall visit.., We shall see…,) 'our' (as in 'our trip', 'our programme', etc.). The new, collective identity is dropped as soon as the tourists return to their homes, but crops up in their interactions whenever they are reminiscing episodes of their experience, when they refer to the shared tourist identity with words like 'we visited', 'we all enjoyed..', etc.

This example contrasts with the strong, individual and professional identities revealed by the travel agent- tourist (sales) encounters or interactions. In this particular situation, neither participant declines his/her own personal and professional identity for any moment during the conversation. This keeping to one's own personal, professional or social affiliation is manifest in the utterances made in which the travel agent adopts his/her professional role/identity and consequently behaves and speaks like one. The social and professional distance created by the two roles does not enhance a shared perspective and the adoption of a temporarily agreed on, common, group identity and relationships.

As a result of the investigation of the views some travel agency workers (from several agencies) have on group identity, many agreed that the professional group identity is reflected within the group through their common goal, common interest which rests on the fulfillment of job responsibilities. Since travel agencies are small firms, their managers do not seek to transmit too much of what might be termed 'group identity' nor nurture the awareness of a common culture. Agents or workers are required to achieve high level communication and sales targets, they are made aware of the common goals, but are less instructed on the mechanics of how group identity is fostered in the firm/agency. Reversibly, raising awareness of group identity is a constant concern for larger, international and consolidated travel agencies which are aware of the role played by representing a trustworthy company and of cultivating its identity both within and outside the company.

If asked what methods do companies or agencies use to form, maintain and consolidate group identity, travel agents agreed that each agency would design or use its own methods. However, they mentioned the following characteristics: enhancing mutual respect, reciprocal assistance and willingness to help colleagues achieve the common goals and the concern to create a pleasant atmosphere. A company strategy that necessarily fosters group identity and company loyalty is ensuring satisfactory salaries, bonuses, and gratifications where and whenever this is possible. Attending to the welfare of the employees and showing concern for their wellbeing is also part of the aspects that enhance group boundedness and loyalty. In addition, the medium-term prospects of promotion and other benefits, even the acquisition of a broader experience would make employees keep to a company and adhere to its culture and value its identity.

Larger and well-established companies offer in-house training to their employees and a significant subject taught is company identity and how it is expressed in everyday encounters and activities both with the staff and the clients (outsiders).

Do companies or smaller agencies use sanctions or punishments for the inadequate conduct or misconduct of their employees who flout the obligation to promote company or group identity? The measures taken by managers for cases of misconduct range from verbal notifications to financial or salary cut. In more serious cases, when the employees fail to attend to their responsibilities and purposefully ignore the characteristics that stand for their group identity, the managers may resort to the dismissal of the guilty employees.

Very often, especially younger employees are more inclined to leave the company or the agency when they are dissatisfied on the following grounds: their incapacity to cope with company work and workload, incapacity to adapt to the group and its characteristics or rules, mistrust and lack of confidence in the management and their decisions, lack of adequate or friendly working conditions and environment, an unfriendly group identity to which the employees cannot adhere, lack of incentives and many other. However, from the perspective of employees, the main characteristics that travel company employees can transmit to the clients in respect of group identity are: professionalism, involvement, honesty, confidence, friendliness and common sense. The degree to which professionals working in a travel agency are aware or are made aware of these characteristics and the necessity to convey the right message to the public in their professional encounters depends on the management and their capacity to enhance both the required skills and the appropriate competences. It is the management members or experts who must duly inform the employees of their group responsibilities and develop the employees' skills to work with both backstage and frontstage characteristics.

In order to ensure a smooth, efficient and reliable group identity construction local practices and the history of the company must be taken into account. Perhaps Richards' remarks that 'Nothing happens of itself; somewhere there is a history, somehow there are consequences' (2006:12) should be remembered and followed. Yet, no analysis of identity construction lends itself to generalizations, so more and more insightful investigations should be carried out in order to find commonalities and differences regarding the way in which company or group identity is formed and fostered.

Conclusions

The construction of identity has been approached by many sociologists and linguists for almost three decades. The present study sought to add an empirical perspective to the research heritage. Its focus is, however, limited to the discussion of the identity construction of tourism agency employees. The background for the study was provided by a brief survey of the major contributions to the definition and development of identity studies. While surveying the advancements made in the field (Goffman, 1950; Sacks, 1960; Schegloff, 1987) and emphasizing the interdisciplinary nature of the processes involved in the identity construction of groups, the study highlights the interdisciplinary nature of the processes and of the perspectives involved in the identity construction of groups.

In tourism the research on identity construction or reconstruction was mainly focused on tourist identities (Harrison, 2003; Thurlow & Jaworsky, 2010) and relationships in tourism (Thurlow & Jaworsky, 2010) and showed little interest in professional group identity. In a period in which sociological perspectives permeated practically all research areas, the present study looks at some sociolinguistic considerations that have acquired relevance in the identity formation of groups of employees in tourism. The perspective is informed by discourse and interactional sociolinguistic concepts and views.

In line with the assumption that institutional interaction reveals both the peculiarities of some given situations and the wider underlying context of norms and practices (Richards, 2006), the study pointed out the insubstantial and unsuccessful practices of managers of tourism agencies. The findings resulting from the discussions carried out with employees of some tourism agencies based in the Romanian city of Cluj revealed that the agents were little aware of what group identity, in this particular case, agency identity really meant. Their representation of group identity was the result of their own opinions, as no one attended to their purposeful instruction in matters of agency identity, nor did anyone raise their awareness of the relevance of what group identity means and what significance or impact it may have on the agency's interaction with its customers (or outside world). There is lack of involvement of those in charge (managers, group heads and employees themselves) in the process of group identity construction, reconstruction or identity survival and its control result, and in most cases, in group disintegration. The study did not examine the linguistic aspects involved in the process of identity construction through social and professional interaction, instead its purpose was to lay bare some aspects that account for the misrepresentation and failure of group identity representation.

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DESIGN AND TEST OF A TILTING SEAT FOR IMPROVING CHILDREN'S COMFORT DURING TRAVELING

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Abstract: *Tourism is directly related to passenger transport. For the improvement of quality of transport, thus – tourist services and quality of human life, the road vehicles are constantly developing. The moving speeds are rising and therefore – the accelerations acting on the passengers rise too. As a result - the comfort level drops. During cornering with high speeds lateral accelerations, which are a powerful irritant, causing discomfort, nausea and motion sickness called kinetosis, are generated. Systems for passenger cars tilting, which reduce lateral acceleration, are being used for a long time in railway transport. In automobiles such systems are harder to engineer and that is why they are still in experimental phase. A cheaper option is just tilting the seats in the automobiles. As children are the most vulnerable group of such kind of interference, the authors propose a special construction of a tilting child seat. The seat is designed, built and tested in real road conditions. Results from road and proving ground tests, showing a significant reduction of the lateral acceleration when using a tilting child seat, are shown in the paper.*

Keywords: *Tilting seat, ride comfort, lateral acceleration, travelling*

1. INTRODUCTION

To improve the quality of travelling, vehicles are constantly developing. Vehicles from road, railway, water and air transport are built to be faster and faster. The increase of moving speed is directly related to the consumed energy and thus to harmful emission, emitted during the extraction of energy, necessary to move vehicles and transport people and freights. Therefore a lot of efforts are made to reduce the fuel consumption and the emitted harmful components from vehicles, using a proper set of routes [1], [2], [3], [4], optimal combination of engine and transmission characteristics [5], [6] use of new alternative fuels such as biofuels, hydrogen, oxyhydrogen etc. [7], [8], extraction of energy from renewable energy sources like sun, water, wind etc., which is then transformed into electric energy. Electric vehicle, which are able to easily use it, are evolving. Big attention is paid to the effective and economical use of energy by electric vehicles – for their propulsion [9] and for additional needs [10], [11] such as air conditioning, lights, wipers etc. The energy saving is related to both – pollution reduction and single charge range extension of electric vehicles, which is not only an important indicator but the only obstacle in front of their wide spread, and the shift of the conventional vehicles with internal combustion engines. Rising motion speed is connected not

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only to the increased energy consumption but also to increased accelerations, acting on passengers. Lateral accelerations, generated during cornering, have especially negative influence and cause unpleasant sensations and symptoms of motion sickness in adults with lower threshold of sensitivity and children. The most common and most apparent symptoms are: nausea, vomiting, pallor, cold sweating, headache, general weakness etc. [12].

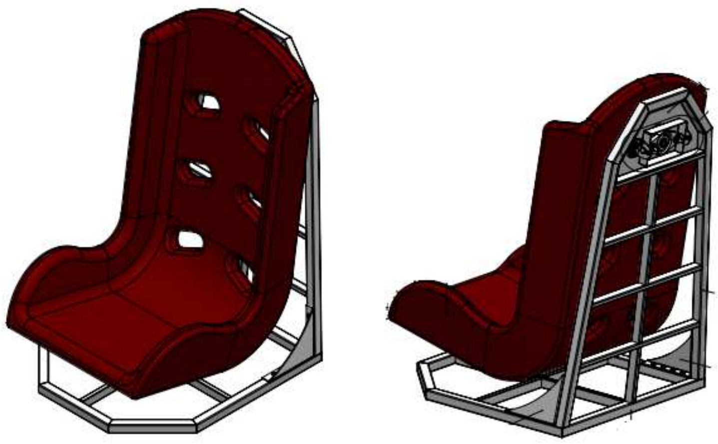
The term: “motion sickness” (or “travel sickness”) was introduced for the first time by J. A. Irwin (1881) [13]. The symptoms are mostly expressed during low frequency motion (under 1Hz) [14] and are most frequently observed in children at the age between 3 and 12 years. Motion sickness or kinetosis is due to conflicting signals from the eyes and the receptors of motion, which enter the brain. Child seats are mounted on the rear seat or on the front seat, facing the motion direction. Thereby the vestibular system gives signals for alteration of the body position but the motion sensors indicate that the body rests – this leads to confusion of the brain, which has to perceive and process the contradictory information. Several methods to decrease the accelerations, acting on passengers, can be used in order to reduce the inconsistencies from the different perceptions. The motion speed of vehicles varies a little during long journeys if we exclude the departure (begin to move) and the stop at the end points. Therefore no large and frequently changing accelerations are present. As roads, depending on their type, have more or less corners, the more frequent accelerations, acting on passengers, are the lateral ones, which, except for changing in magnitude, also change in direction – depending on the corners - left or right. Furthermore, the human body is less adapted to large lateral accelerations, because of its environmental specifics and the everyday activities it performs.

Systems for tilting passenger cars towards the center of rotation are used for a long time in high speed railway vehicles, in order to reduce the centrifugal force influence and to increase the passenger comfort. In automobiles, despite the constructor’s efforts, systems for lateral tilt of the vehicle body are not being used yet – only systems which lessen the tilt in direction, opposite to the center of rotation are present. In order to reduce these impacts and to enhance passenger comfort with children travelling, which are the most vulnerable group, the authors design a special construction of a child seat, which tilts in during cornering.

2. DESIGN OF THE TILTING CHILD SEAT

The idea about the tilting child seat was presented of the authors for the first time in work [15]. It represents child seat, which is mounted to a frame via a hinge joint in its upper end (Fig.1).

Figure 1: Tilting child seat design.

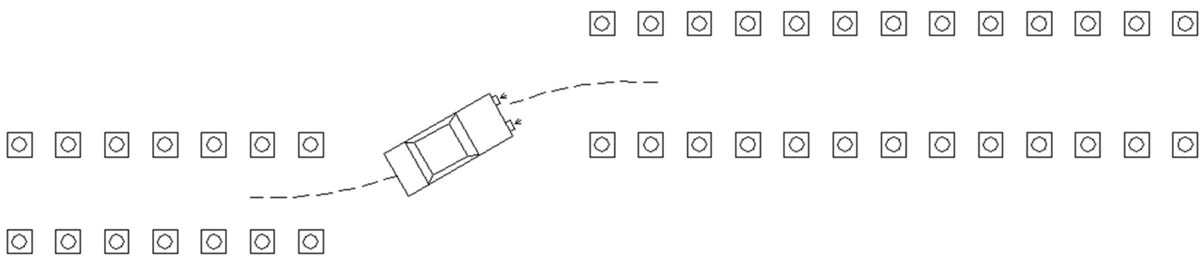


The so mounted child seat is installed on the rear seat of the automobile. The hinge joint is located over the mass center of the child, sitting in the seat. This way, while the automobile is cornering, the centrifugal force acts in the child's mass center and makes the seat with the sitting child tilt around the joint and towards the center of the corner. The lateral accelerations magnitude drops but the accelerations, normal (perpendicular) to the seating plane and to which the human body has lower sensitivity (higher threshold of sensitivity), rise.

3. METHODOLOGY

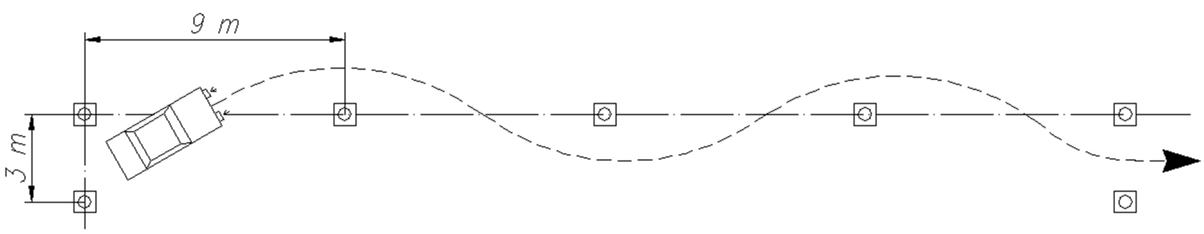
Proving ground and road tests are used in order to analyze the efficiency of the seat proposed over the reduction of the lateral accelerations. The road tests include "Line changing" test with the scheme of the track shown on Fig.2.

Figure 2: "Line changing" test.



The next track for proving ground tests is slalom with cones, placed over 9 meters. The scheme is shown on Fig. 3.

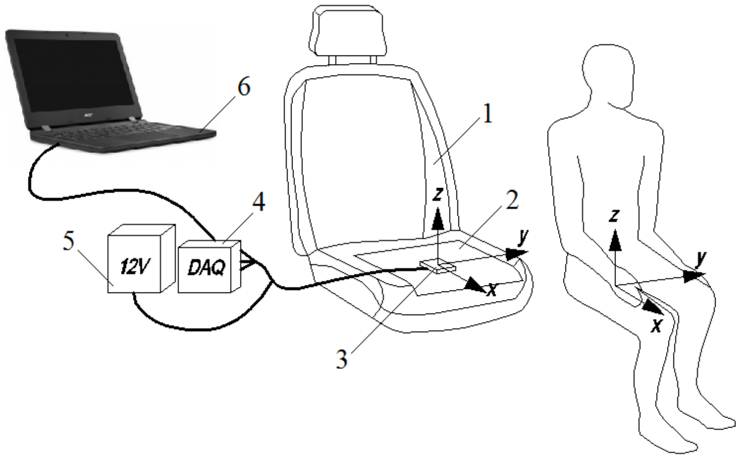
Figure 3: Slalom test.



The third way of testing is movement in a circle with a 5,5m radius.

The road tests are conducted on a mountain road, which has a lot of corners.

Figure 4: Equipment, used to measure the accelerations: 1 – seat, 2 – rigid frame, 3 – three axial accelerometers, 4 – Data acquisition device, 5 – Power supply, 6 – Mobile computer [19].



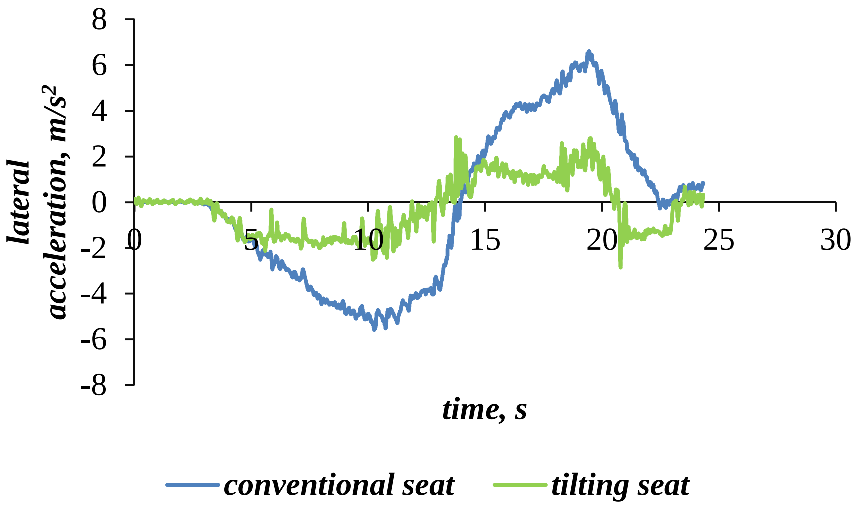
Micro-electromechanical sensors (MEMS) [16], [17], [18] are used in order to define the accelerations. Data Acquisition Device (DAQ) which transforms the MEMS signals for accelerations and sends them to a mobile computer where they are visualized and recorded is used to store the data (Fig.4).

The experiments are not conducted with real children, but with mannequins, especially designed with the proper mass and geometric parameters.

4. RESULTS

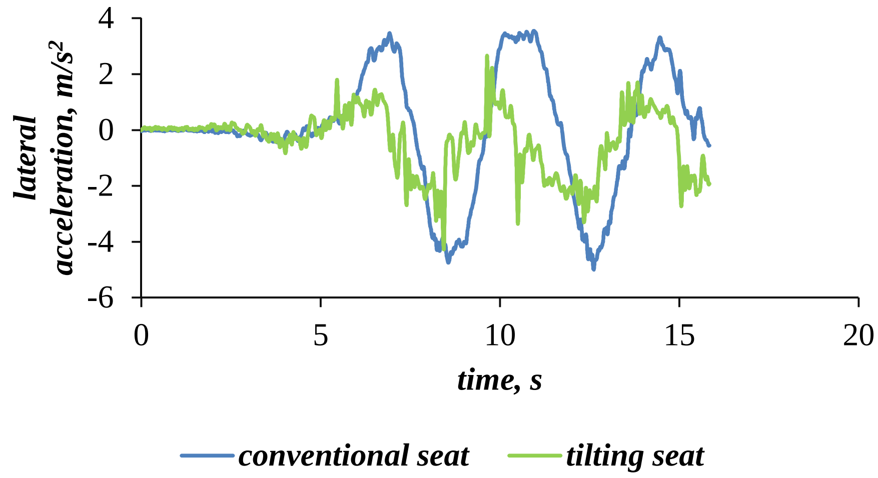
Results from the conducted lane change test are shown on Fig.5.

Figure 5: Lateral acceleration at elk test.



Results from the conducted slalom test with vehicle speed of 20 km/h are shown on Fig.6.

Figure 6: Lateral acceleration at slalom test.



Results from the test with movement in a circle and with vehicle speed of 20 km/h and 30 km/h are shown on Fig. 7 and Fig. 8 respectively.

Figure 7: Movement with 20 km/h in a circle with a radius of 5,5m.

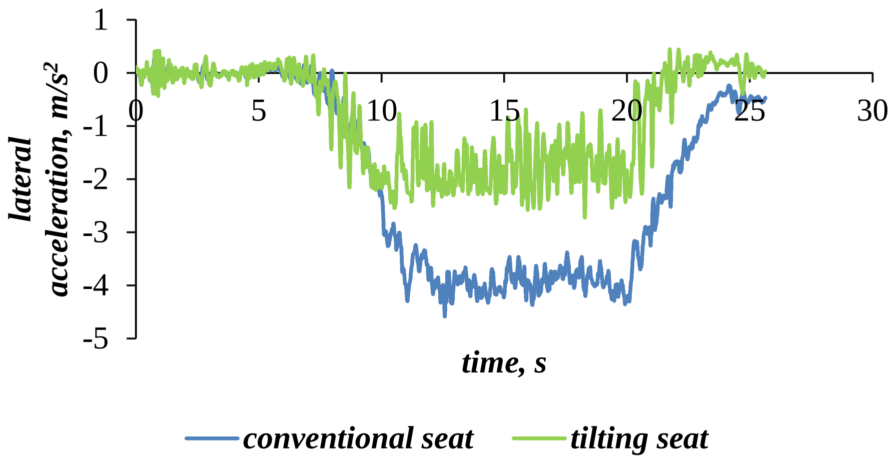


Figure 8: Movement with 30 km/h in a circle with a radius of 5,5m.

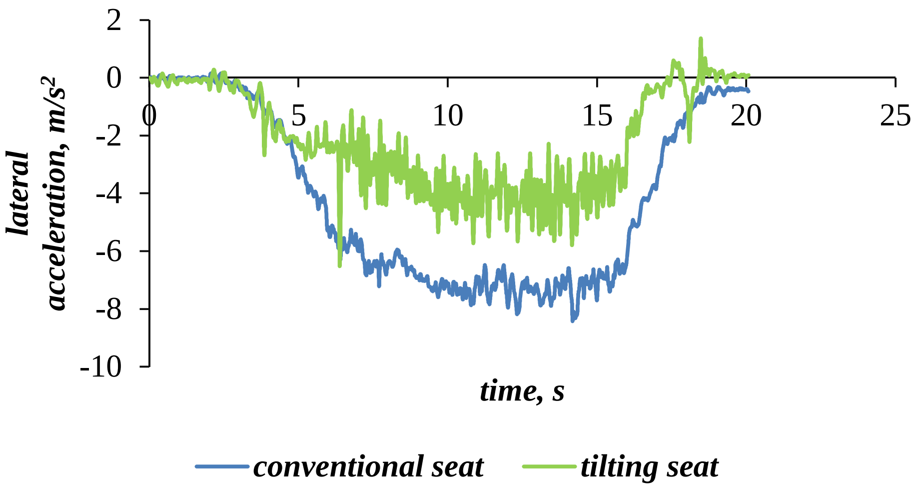
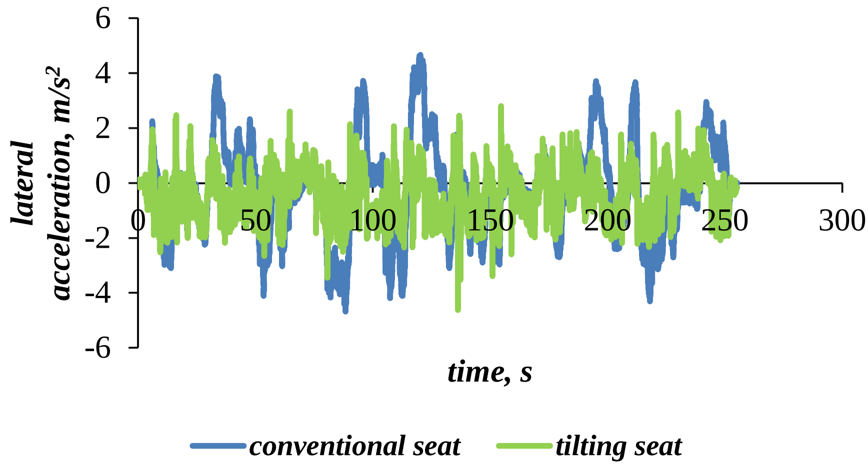
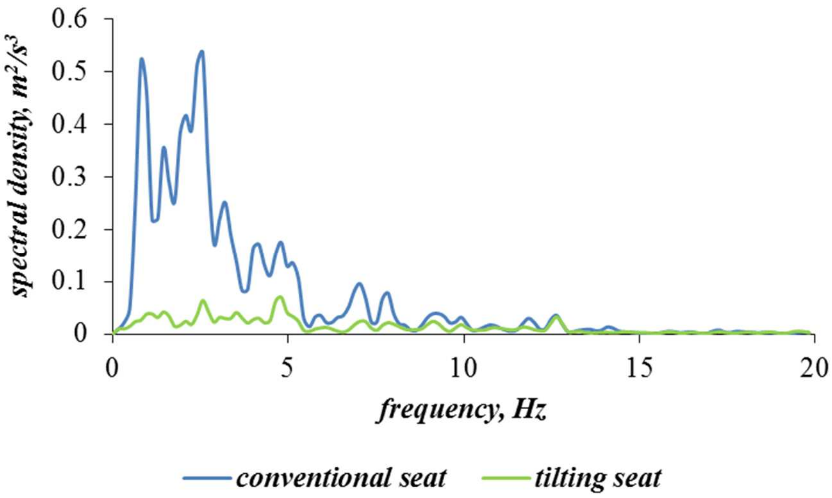


Figure 9: Lateral accelerations of road experiments.



The results for lateral accelerations on a mountain road with a lot of corners are shown on Fig. 9. The spectral densities of the accelerations, which give us information about its energy and intensity with different frequency, are shown on Fig.10.

Figure 10: Spectral density of accelerations in road experiments.



It can be seen on figures 5 to 9, that the lateral accelerations, acting on the child, travelling on a tilting seat, are much lower than the ones, acting on a child, travelling on a conventional seat. Fig. 10 also shows a significant reduction of the intensity of the lateral accelerations in the lower frequencies – the ones from 0 to 1 Hz, which are the ones, causing the unpleasant symptoms of the motion sickness.

5. CONCLUSION

It can be seen from the represented results that the proposed tilting child seat contributes to the reduction of the lateral acceleration, acting on children, during traveling. The reduction is significant – almost two times, compared to the accelerations, generated with conventional child seat. The spectral density of accelerations shows that the low frequency accelerations, which are the main reason (irritant) causing motion sickness symptoms, are the ones reduced most efficiently. These results show that the use of the tilting principle could be successfully used for the comfort improvement in automobile transport. After additional researches and development, the principle could be applied over passive or active seat tilting – separately or for the whole row of seats for buses, transporting children – school buses, tourist buses etc. Thus reduction of cases of nausea and vomiting for travelling children and an increase in the comfort could be achieved. In this way cases of vehicle stop because of nausea of children will be limited. The time for travelling will be reduced because the tilting seats will permit higher speeds in corners without the discomfort for the passengers. This will lead to the improvement of transport and tourist services.

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TRADE LIBERALIZATION AND TECHNOLOGICAL PROGRESS OF THE EU ECONOMY[96]

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Abstract: *Liberalization of the world economy is a powerful and dynamic process characterized by the abolition and/or reduction of customs restrictions, which results in static and dynamic impacts that largely determine a country's position in global trade relations. The process of liberalization also enables technology transfer and the exchange of other forms of investments in research and development 'outcomes', which represent the foundations of achieving a long-term economic growth and competitiveness in the modern business environment. However, the success of countries or integrations in such conditions is largely determined by the ability to adapt and to absorb positive effects of the liberalization process.*
The research problem in this paper arises from the potentially negative effects of trade liberalization, especially on the loss of competitiveness of the European economy, which was mainly established through technological progress in the previous decades. The conducted research is based on the scientific hypothesis: it is possible to determine the effects of liberalization of international trade, as well as the trade agreements that the EU concludes with third countries, on the technological progress of the European economy.
With the profound 'insight' into the relevant literature, the authors of this paper found that most of economic theorists have so far dealt with the effects of globalization and related processes of increased levels of technological readiness on trade liberalization. In this paper an inverse approach was used in order to investigate the effects of the removal of trade barriers on achieving the technological progress of the European economy. This approach represents the fundamental scientific contribution of the conducted research. The results showed that the EU has, in the past sixteen years, along with a few rounds of enlargements, basically doubled its international trade, achieving almost constant surplus of the foreign trade balance.
Also, together with the growth of international trade, an orientation of the European economy toward modern 'engines of growth', particularly based on investments in research and development and their outcomes is noticeable. In the observed period, the EU achieved increased levels of: 1) investments in R&D, 2) sales of high technology products, 3) international trade of high technology products, and 4) employment in high technology sectors. The pressure of global competition and demographic changes, which can greatly slow down economic growth and innovation activities of the European economy because of their adverse effects, are recognized as the most important challenges for the EU in the future process of trade liberalization (or de-liberalization) and the achievement of technological progress.

Keywords: *EU, liberalization, progress, technology, trade*

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1. INTRODUCTION

The liberalization of world trade implies systematic removal of customs and non-tariff barriers to international trade [25]; resulting in static and dynamic impacts and effects on production and consumption [18]. Static effects relate to resource provision changes, while dynamical ones imply the increase of production productivity, the strengthening of competition, the absorption of new knowledge and technologies, and the increasing inflows of foreign direct investments. Furthermore, the effect on consumption is manifested through the reduction of domestic market prices, impacts of incomes and the improvement of welfare of the population, while the effect on production has the most significant impact on inefficient domestic producers, which were protected by customs and non-tariff barriers. On the other hand, domestic producers who exported before liberalization, increase their competitiveness, as they have been given free access to new markets [18].

Creating international economic and trade integrations results in positive and negative effects for the countries involved, but also for those who "stay out" of them. It is important to point out to the liberalists, who advocate that through the actions of the market mechanisms customs and non-customs obstacles to free international trade are removed, establishing unique conditions for economic growth and the creation of favorable conditions for the establishment of economic integrations as well as the integration of markets and market prices ([40], [28], [11], [3]. On the other hand, institutionalists believe that markets cannot be expanded solely by liberalization, but by planning and programming, i.e. by creating a general economic development policy. They represent a relatively heterogeneous group, including protectionists, who emphasize the importance of regional protection of national economies [2], and dirigists, who see integrations as a regional expansion of the role of the state in international economic relations [38]. However, liberalists are increasingly re-orientating their attitudes toward institutionalized solutions to free market competition, mainly through harmonized national policies, while institutionalists rely on more liberal attitudes regarding the need to respect market legitimacy and to look at integrations as complex systems with many elements that can be the subject of interactions between states.

In the context of globalization, particular emphasis should be placed on the effects of liberalization on the achievement of technological progress, which is a key starting point for the conducted research. The research problem stems from the possibility of losing competitiveness on the EU level, primarily in the technological sense, given the effects of globalization and the liberalization of international trade. The purpose of the research is to determine to what extent trade liberalization affects technological progress, i.e. to determine the level of technological progress of the European economy achieved through effects of trade liberalization.

The paper is structured into five mutually related parts. After the introductory considerations defining the key elements of the research, an overview of the current research follows indicating the effects of trade liberalization on the achievement of technological progress. Furthermore, secondary data from relevant international databases was used for descriptive analysis of trade liberalization and technological progress of the European economy. Based on the results of the analysis, key challenges and perspectives of liberalization and technological progress have been identified for Europe. The paper rounds up with the synthesis of the key conclusions that have arisen during the research.

2. LITERATURE REVIEW

The liberalization of world trade places increasing pressure on the continuous development of economies and enterprises based solely on research and development (R&D) investments and their outputs, which are the foundation of economic growth and competitiveness. Namely, [26] points out that liberalization processes, through increased competition, create strong pressure on "domestic" companies, which under these conditions must create favorable conditions for achieving technological progress. According to [20] technological advances can be broadly aligned with the development of innovations, resulting from the conscious investments in research and development enterprise-wide, but also the whole economy. Such growth requires a continuous accumulation of knowledge emerging as a result of the liberalization and spread of knowledge between countries and regions [34], which affirms the need to improve education systems. The importance of education in the process of achieving economic progress has been considered in [30], [10], [36], [31] and [35]. Furthermore, [22], [8] and [7] point out that countries have to "open" borders to achieve global competitiveness and allow free access to foreign technologies. [1] point out that R&D has become the key driver of socio-economic changes, with the most developed countries responding to economic globalization and liberalization as an active creator in strengthening the global economy by promoting scientific and technological policies with the aim of ensuring competitive advantages and employment, and also finding solutions to global problems. In the process of achieving technological progress in the context of liberalization, special attention should be paid to the scientific and research activities of the business sector, which is the bearer of economic activity in the European economy [5], [34], [27], [37]. Also, [7] recognizes the lack of business sector investments in R&D activities and their market implementation as one of the main reasons for EU's lagging behind the major competitors (USA, China, South Korea, etc.). Namely, investments from the business sector are the basis for further employment and increased production, especially in the high technology sector, which ultimately contributes to improving economic performances with particular emphasis on increasing the share of high-tech exports in total exports. This orientation of the economy results in positive effects in terms of achieving economic growth and productivity growth, as recognized in works of [9] and [4].

Productivity growth has been identified as the most significant effect of liberalization, due to the increase in technological progress. This is highlighted in works of [9], [33], [23], and [12]. On the other hand, "skeptics" like [24] and [40], argue that the liberalization and international competition negatively affect domestic companies, primarily by reducing their sales. However, later research largely disputes their findings and points to a strong link between liberalization and productivity growth through the promotion of technological progress. Besides productivity, [21] point out that trade liberalization results in multiple effects on national economies, especially when taking into account the impacts of foreign technology inflows.

Recent research into the effects of liberalization on the achievement of technological progress and productivity growth has been largely focused on "dynamically" developing countries, e.g. Australia [28], Turkey and Azerbaijan [21], and India [6], while the research of European countries was basically "neglected".

All above mentioned contributes to the theoretical and practical justification of the conducted research.

3. ANALYSIS OF LIBERALIZATION AND TECHNOLOGICAL PROGRESS OF THE EUROPEAN ECONOMY

In this section a descriptive analysis of trade liberalization and technological progress of the European economy has been carried out. Liberalization, thus, has been characterized by variables “trade” (% of GDP), “exports and imports of goods and services” (% of GDP), “trade balance of goods and services” (% of GDP) and “foreign direct investments” (% GDP) in the period 1960 to 2017. Technological progress has been analyzed using the indicators such as “expenditure on research and development” (% of GDP), “expenditure on research and development funded by the business sector” (% of total R&D), “employment in high tech sectors” (% of total employment) and high tech exports (% of manufacture exports) for the period 2007-2017. The data were collected from the World Bank and Eurostat databases.

The European continent's trade orientation has been steadily increasing since 1963. The first initiatives about the introduction of the common market, the customs union, the implementation of the single market and the efforts made in the realization of a genuine internal market, together with the development of international trade relations with third countries, triggered the liberalization processes and paced trade as the key factor for achieving European economic growth. In the observed period, total value of trade increased from the initial 38.8% of GDP up to 85.83% of GDP in 2017. Total growth of trade was accompanied by the increase of exports and imports, whose values have almost tripled (Appendix 1). The growth trend is also present in foreign direct investments. Until 1993, Europe was highly import-oriented and achieved continuous trade deficits. However, after 1993, due to accelerated integration trends, there is an increase in export activities and the achievement of trade surpluses.

Considering trade partners, exports are mainly oriented to the United States, China and Switzerland, accounting for 32.9% of EU’s total exports. Similar situation exists for imports, where 41.8% of the total value refers to China, the United States and Russia [13]. This indicates a very high level of connections but also the EU's dependence on trade with major global partners. In such circumstances, the European economy needs to turn to new technological solutions and intensify their implementation in manufacturing processes, thereby strengthening the position on the global market. Thus, it is necessary to take advantage of the opportunities that, in the context of technological progress, enable the process of global trade liberalization.

With certain exceptions, during the period from 1996 to 2016, the EU has steadily increased the level of investments in R&D, reaching a level of 2.04% of GDP. According to recent economists, the business sector's scientific research activity increased, with investment up from 1.15% to 1.32% of GDP in 2017. Also, total business sector investments amounted to 55.2% of total R&D investments (Table 1).

Table 1: Key indicators of technological progress in the EU in the period 2007-2017

Year	R&D (% of GDP)	Business sector R&D (% of total investments)	Employment in high tech sectors (% of total employment)	High tech export (% of manufactured export)
2007	1.77	54.9	n.a.	16.1
2008	1.84	54.8	3.80	15.4
2009	1.93	54.1	3.70	17.1
2010	1.93	53.8	3.80	16.1
2011	1.97	55	3.90	15.4
2012	2.01	55.1	3.90	15.7

2013	2.02	55.2	3.90	15.3
2014	2.04	55.3	3.90	15.6
2015	2.05	55.2	4.00	17.0
2016	2.04	n.a.	4.00	17.9
2017	n.a.	n.a.	4.00	17.8

Source: developed by authors based on [14], [15], [42], [47], 2018.

Positive trends in the field of business sector R&D activities are also reflected on employment in high tech sectors, which recorded steady growth in the period from 2009 onwards. The latest available data suggest that 4% of EU-wide employment refers to employment in *high technology* sectors.

The EU's orientation towards achieving technological progress, economic growth and international competitiveness has been strongly expressed in 2010 with the adoption of the EUROPA 2020 strategy, whose basic goal was to *"create the most competitive and fastest-growing economy of the world by 2020, based on knowledge and its outputs"*. It is also visible in the trend of high technology production. The data from Table 2 indicate that most of the member states in the post-recession ("crises") period increased the levels of high-tech production. France, Germany, the United Kingdom and the Netherlands achieved the highest values.

Table 2: Production value of high technology[100] manufacturing in the EU in the period 2008-2016[101]

Year Country	2008	2009	2010	2011	2012	2013	2014	2015	2016
Austria	8,514.5	7,332.5	7,538.0	8,146.9	7,993.9	8,628.9	9,029.6	9,638.1	10,257.8
Belgium	n.a.	14,440.5	19,629.0	15,548.9	16,193.6	19,840.5	20,129.0	22,966.2	27,013.4
Bulgaria	624.3	515.3	628.2	700.5	756.9	778.3	850.1	947.5	996.3
Czech Rep.	n.a.	10,389.7	12,131.3	11,780.1	13,098.3	11,932.1	12,414.6	13,884.8	13,547.7
Germany	149,173.0	107,940.2	118,034.7	125,985.3	126,355.7	132,536.6	135,925.6	148,261.2	156,940.0
Denmark	11,162.3	10,121.8	11,365.5	12,432.7	13,758.8	13,849.4	15,825.8	17,529.1	18,219.3
Estonia	n.a.	407.8	934.6	1,682.3	1,769.7	1,793.5	1,835.9	1,669.5	n.a.
Greece	1,964.2	n.a.	1,795.9	1,464.7	n.a.	n.a.	1,523.2	1,963.0	1,897.8
Spain	27,156.4	22,637.7	23,063.6	21,967.6	21,926.7	22,948.6	23,803.0	26,442.4	26,800.5
Finland	24,366.9	17,071.3	16,812.9	15,951.7	n.a.	12,237.9	11,176.9	n.a.	10,770.8
France	97,591.7	85,012.2	85,600.4	85,800.2	91,216.5	96,891.6	101,976.1	n.a.	167,787.6
Croatia	1,314.6	890.2	889.6	810.2	n.a.	1,052.5	1,088.4	1,203.8	1,325.1
Hungary	18,806.5	14,973.2	18,033.2	17,784.5	n.a.	n.a.	n.a.	12,885.2	13,269.2
Italy	64,248.9	51,339.2	56,304.1	55,310.7	54,640.2	53,88.4	53,167.4	54,443.4	53,236.4
Lithuania	n.a.	n.a.	325.9	299.2	287.0	310.9	360.2	484.1	502.1
Latvia	229.0	198.5	237.0	285.2	316.3	358.2	361.0	468.2	482.8
Netherlands	n.a.	13,540.0	15,653.3	15,651.3	n.a.	14,389.8	34,670.2	42,949.2	42,717.6
Poland	12,107.4	9,988.5	13,865.5	12,353.4	12,299.7	12,320.2	13,233.9	14,021.3	13,997.9
Portugal	3,349.1	n.a.	n.a.	2,736.6	2,520.3	2,396.0	2,401.3	2,630.4	3,101.8
Romania	2,204.1	2,566.3	3,520.7	3,292.3	2,424.2	2,352.7	2,592.6	2,912.8	2,921.9
Sweden	28,099.4	25,481.8	29,360.6	30,363.5	n.a.	n.a	24,260.9	n.a.	n.a.
Slovenia	2,118.4	1,768.6	1,920.2	2,075.1	2,182.7	2,285.4	2,347.9	n.a.	n.a.
Slovakia	6,184.7	6,326.2	6,953.8	6,155.3	n.a.	5,746.5	n.a.	n.a.	5,823.6

[100] Included: pharmaceuticals, computers, electronic and optical products and air spacecraft.
[101] Not included: Luxembourg, Cyprus, Malta and Ireland (no relevant time series available).

United Kingdom	71,741.2	57,967.8	66,591.1	64,066.5	66,550.0	66,082.0	67,667.8	76,934.6	74,863.8

Source: developed by authors based on [16], 2018

This orientation of production has also contributed to increased exports of high technology products (Table 1). In the observed period it increased from 16.1% to 17.8% of total exports. The export of high technology products is largely directed to the United States, China and Switzerland. On the other hand, the EU is still import-oriented in this segment, where 79% of total imports of high-tech products come from China, the USA, Switzerland, Vietnam, Malaysia and Japan. It is clear that the EU has a deficit in the trade of high technology products. Looking at the leading trade partners, the EU has a deficit in the trade in high technology products with China, Vietnam, the USA, Malaysia, Thailand, South Korea, Switzerland and Japan. As opposed to that, countries where the EU has materialized a surplus in the trade of high tech products are Mexico, Israel, Canada, Singapore, Norway, Brazil, Hong Kong, India, Saudi Arabia, Turkey, Russia and United Arab Emirates.

Summing up; it is clear that trade liberalization has a positive impact on the technological progress of the European economy, particularly in terms of increased overall investments in R&D, stimulation of business sector activities, encouraged employment in high technology sectors and a more favorable trade balance, especially through increased exports of high-tech products. In such circumstances, the European economy creates conditions for economic growth and productivity growth.

4. CHALLENGES AND PERSPECTIVES OF LIBERALIZATION AND TECHNOLOGICAL PROGRESS OF THE EUROPEAN ECONOMY

As the most important challenges of the liberalization process with regards to technological progress, it is possible to point out on issues such as dumping and the use of state subsidies in particular countries. Repercussions of such trade practices indicate negative impacts on industrial production, employment, market shares, sales or profit. Subsidizing certain companies through tax reliefs, preferential interest rates or direct payments to companies reduces the price of subsidized products, making these products more attractive to domestic and foreign markets. Dumping and unfair state subsidies are considered to be detrimental to the global trading system, mainly because they interfere with the normal pricing mechanisms, fuel manufacturing inefficiencies, endanger domestic producers, and call on for the retaliation from the government.

Also, the future dynamics of liberalization can be observed through the context of structural unemployment, environmental protection costs and through the infant industry argument. Structural unemployment refers to the fact that trade liberalization often leads to changes in the equilibrium of the economy. In this context, industries are developing with different dynamics and often can result in the structural unemployment of certain industries. When it comes to environmental protection, trade liberalization could lead to greater exploitation of the environment; for example, with higher levels of raw material production or *toxic waste trade* with countries with weaker ecological legislation. In the case of infant industries, liberalization can cause damage for developing economies, which are unable to compete in conditions of free trade. Therefore, the infant industry argument advocates trade protection as justified when it comes to helping developing economies with progress and development of new industries. Given the fact that most economies had periods of trade protectionism, it is argued that it might not be fair to insist that developing economies cannot use some forms of protectionism.

Protectionism has recently been identified as one of the main factors behind the slowdown of globalization. The World Economic Forum cites evidence of "decline in the openness of the economies" in the form of non-tariff barriers, rules of FDI and the prevalence of foreign ownership [38].

Despite the perceived progress, the EU is still lagging behind its global competitors in key areas of technological progress (Table 3). In the area of R&D investments the EU currently achieves higher levels than Russia but more modest levels than other competitors. A noticeable gap is evident with comparison to South Korea, whose investments are almost twice as high as the EU average.

Table 3: Comparison of key technological progress indicators of EU and main global partners in 2017

Country	**Research and development (% of GDP)**	**Business sector research and development (% of total investments)**	**High tech exports (% of total manufactured export)**
EU	2.03	55.3	17.8
Russia	1.1	26.5	10.71
United States	2.79	64.2	19.95
China	2.07	74.7	25.23
Japan	3.29	78	16.22
South Korea	4.23	74.5	26.58

Source: developed by authors based on [14], [42], [44], 2018

Still insufficient, the encouragements of business sector investments in R&D activities has led to a lag behind its main competitors in the production and exports of high technology products, which represent the most important way of achieving global benefits. Taking into account the growing trade conflicts at the global level, the EU has to take a firm stance and improve its position at the international level. In this context, it is necessary to establish a sustainable risk management system and to define trade parameters to enable innovation, which in turn promotes trade and ensures progress. This includes the strengthening and modernization of the World Trade Organization with the technology-related negotiating programme, along with a more effective system of monitoring and reforming the dispute resolution system.

In the context of liberalization, [38] marks technologies that could have a significant impact on global trade: Blockchain, artificial intelligence and smart machines, trade services via digital platforms, three-dimensional printers, and mobile payments. The World Economic Forum study suggests that the introduction and widespread use of new forms of technology should have a significant impact on future international trade; for instance, after the three-dimensional printing gets more available, widely accepted and cheap enough, the global trade could be reduced by 25%, given that such technologies require less labour and reduces the need for imports.

5. CONCLUSION

The paper analyzes the effects of liberalization on the technological progress of the European economy. The results suggest that the European economy, due to liberalization and growing market integration, has continually increased the value of all segments and thus improved its own global position. Increased trade orientation, opening up borders and strengthening international cooperation all contributed to technological progress, particularly in terms of investments in research and development and the engagement of the business sector. The research found that improving performance of these segments has also had an impact on increasing employment in high technology sectors and increasing production of high technology products. With its orientation to modern requirements of economic growth, the European economy maintains positive trends in the trade balance, resulting in economic growth and productivity gains. All of this points to the fundamental scientific contribution of this paper. Future research should focus on quantifying the effects of liberalization on technological progress, with particular emphasis on individual members of the EU.

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APPENDICES

Appendix 1: Key trade indicators of the European economy in the period 1963-2017

Year	Trade (% of GDP)	Export (% of GDP)	Import (% of GDP)	Trade balance (% of GDP)	FDI (% of GDP)
1960	38.88	19.41	19.47	-0.06	-
1961	38.35	19.05	19.30	-0.24	-
1962	37.96	18.70	19.26	-0.56	-
1963	38.39	18.59	19.81	-1.22	-
1964	38.84	18.73	20.11	-1.37	-
1965	38.62	18.88	19.74	-0.85	-
1966	39.08	19.12	19.96	-0.84	-
1967	38.34	18.79	19.56	-0.77	-
1968	40.03	19.79	20.24	-0.45	-
1969	41.87	20.73	21.14	-0.41	0.70
1970	39.91	19.70	20.21	-0.51	0.60
1971	39.59	19.76	19.84	-0.08	0.56
1972	39.55	19.74	19.81	-0.06	0.65
1973	42.35	20.78	21.57	-0.79	0.73
1974	49.87	23.77	26.10	-2.33	0.50
1975	45.61	22.27	23.33	-1.06	0.38
1976	48.40	23.32	25.08	-1.76	0.51
1977	48.69	23.84	24.86	-1.02	0.47
1978	47.07	23.50	23.58	-0.08	0.51
1979	49.55	24.25	25.30	-1.05	0.56
1980	51.11	24.46	26.65	-2.19	0.47
1981	53.00	25.75	27.24	-1.49	0.42
1982	52.93	25.80	27.13	-1.33	0.48
1983	52.99	26.17	26.83	-0.66	0.31
1984	56.09	27.90	28.18	-0.28	0.52
1985	56.40	28.15	28.25	-0.10	0.57
1986	50.08	25.22	24.86	0.36	0.75
1987	49.50	24.65	24.85	-0.20	1.00
1988	50.11	24.73	25.38	-0.64	1.31
1989	52.61	25.80	26.81	-1.01	1.24
1990	51.62	25.55	26.07	-0.51	0.95
1991	51.32	25.51	25.82	-0.31	0.84
1992	51.11	25.49	25.62	-0.14	0.98
1993	50.34	25.67	24.67	1.00	0.94
1994	52.79	27.03	25.76	1.26	1.30
1995	55.80	28.61	27.19	1.42	1.20
1996	56.50	28.97	27.53	1.44	1.51
1997	59.80	30.75	29.05	1.70	2.83
1998	60.67	30.95	29.72	1.23	4.16
1999	61.52	31.13	30.39	0.75	8.20
2000	68.62	34.44	34.19	0.25	3.82

2001	67.99	34.38	33.61	0.77	3.92
2002	65.81	33.62	32.19	1.44	2.76
2003	64.74	32.93	31.81	1.12	2.90
2004	67.40	34.33	33.08	1.25	6.69
2005	70.44	35.67	34.77	0.90	7.24
2006	74.91	37.78	37.13	0.65	9.51
2007	75.96	38.39	37.57	0.82	5.63
2008	77.57	38.97	38.60	0.36	2.60
2009	68.41	34.75	33.66	1.09	3.40
2010	75.96	38.45	37.51	0.94	4.64
2011	81.14	41.11	40.03	1.08	4.13
2012	82.58	42.31	40.27	2.04	3.42
2013	82.21	42.43	39.78	2.65	2.29
2014	82.74	42.79	39.95	2.84	3.93
2015	83.21	43.36	39.85	3.50	5.26
2016	82.87	43.16	39.71	3.45	3.53
2017	85.83	44.64	41.19	3.45	n.a.

Source: developed by authors based on [45], [46], [47], [48], [49], [50], 2018

Appendix 2: Productivity and real GDP growth rate in the period 1995-2017

Year	Productivity per person employed (2010=100)	Real GDP growth rate (%)
1995	83.3	1.98
1996	84.50	2.89
1997	86.10	2.97
1998	87.60	3.02
1999	89.30	3.87
2000	91.40	2.20
2001	92.70	1.35
2002	94.10	1.31
2003	95.00	2.57
2004	96.70	2.11
2005	97.70	3.35
2006	99.30	3.08
2007	100.50	0.48
2008	99.90	-4.35
2009	97.30	2.10
2010	100.00	1.71
2011	101.60	-0.42
2012	101.60	0.26
2013	102.20	1.74
2014	102.90	2.32
2015	104.10	1.96
2016	104.90	2.44
2017	105.80	n.a.

Source: developed by authors based on [9], [51]

SPATIAL ACCESSIBILITY AND REGIONAL ECONOMIC DEVELOPMENT WITHIN THE EUROPEAN UNION

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Abstract: *In this paper we propose to evaluate the role of spatial accessibility on the regional economic development in the European Union. The evaluation criterion of spatial accessibility is represented by interregional territorial connectivity given by the highways and high-speed railways infrastructures. In order to measure the territorial interconnectivity, we used the number of border territorial connections of each NUTS 2 region for highways and high-speed railways. In order to evaluate the regional economic development, we used the value of the regional GDP (gross domestic product). The space modeling of territorial accessibility, obtained by quantitative mapping of trans-regional interconnection, allowed the identification of areas with different levels of infrastructural equipment. The interpolation of the interregional connection with the regional GDP distribution allowed quantifying the impact of spatial accessibility on the regional economic development. The relevance of this approach is that, according to this model prepared, we will be able to identify the spaces what they need improving their interregional contacts, as a prerequisites for economic growth. In fact, the results of our research highlight the proposal of a space ranking of the infrastructural priorities, in order to homogenize the regional economic development, as a condition for increasing the economic and territorial connection on main land.*

Keywords: *spatial accessibility, highway infrastructure, high-speed railways infrastructure, regional economic development, European Union*

1. INTRODUCTION

The economic and territorial cohesion represents a major scope of the durable development strategies of the European Union and regional economic development constitutes an essential condition for achieving this cohesion [1][2]. In this context, we will evaluate the contribution of space / territorial accessibility given by the highways and high-speed railways networks, as major impact factor for regional development. Our analysis highlights the determinant relationship between the interregional connection provided by the mentioned transport infrastructures and the level of regional economic development. The purpose of this paper is to issue a space model that would allow the identification of regions with infrastructural equipment deficit, for which improving the territorial interconnection superior level highways and high-speed railways would trigger regional economic development with effects in increasing economic and territorial conversion and cohesion.

2. PROBLEM STATEMENT

Space accessibility began to be perceived in the ’80s as an important factor which favors regional development within space economy research regarding gravitational development

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models [3]. Later, territorial accessibility became an indispensable term pending studies of localization theories promoted in the new economic geography of the year's '90s-'2000 [4][5].

Together with the deepening of the integration process in the Single European Market, the space accessibility offered by transport networks has become a more and more connected concept to the sustainable development paradigm [6]. In this context, the promotion of the concept of sustainable accessibility circumscribes several epistemic dimensions: the integration of transport networks into territorial planning projects [7][8][9], sustainability of transport infrastructure projects [10][1], the investments contribution for expanding the transport networks [11][12]. Hensher *et al.* [13] and Condeço-Melhorado *et al.* [14] consider that territorial accessibility is a result of the interaction between transport networks and the space systems that serve it. Interregional connectivity given by the highways and high-speed railways networks is considered by Calatayud *et al.* [15] as the main vector of territorial cooperation that assures the regional integration dimension of the Union's internal market.

The accessibility assured by the transport infrastructures supports economic growth through a regional spill-over effect [16][17], but, at the same time, puts the European Community on the global orbit [18][19]. According to Hae [20] and Howel [21], the geography of transport networks is a landmark for regional economic reproduction and for community and global integration. The multiple effects generated by infrastructure distribution at the regional level are essential for increasing economic and territorial convergence and cohesion in the EU. [22][23]. In this respect, López *et al.* [24] has shown that the space accessibility impact over the economic and territorial cohesion increase is directly proportional with the volume of infrastructural interregional connection investments. Puga [25] and Scholz [26] underline the divergent effects of the infrastructure deficit in territorial cohesion: inter-regional development differences between accessible central areas and suburbs with accessibility deficiencies.

The rehabilitation of development gaps is the subject of European and national niche policies aimed at increasing territorial interconnectivity. The sufficiency or shortage of transport networks leads to segregated economic behaviors by both potential investors [24][16] and by decision-makers through the adoption of differentiated investment policies [27][28].

3. RESEARCH METHODS

The objective of the study is to identify regions with a lack of space accessibility, for which multiplication of interregional interconnection by highways and high-speed railways would contribute to regional GDP growth and economic and territorial cohesion. *The research hypothesis* claims that differentiated spatial accessibility due to inter-regional connectivity disconnections is one of the main factors responsible for the divergences of economic development within the European Union.

The investigation of the proposed theme implies the following steps:

- establishing indicators for assessing spatial accessibility and regional economic potential;
- drawing up regional accessibility and distribution maps of regional GDP using NUTS 2 regions in the U.E.;
- interpolation of spatial accessibility and regional GDP distribution & interpreting the results;
- formulating proposals for extending trans-regional connections as a prerequisite for increasing economic and territorial cohesion in the EU.

Indicators for assessing territorial accessibility and economic potential and their associated values are outlined in Table 1.

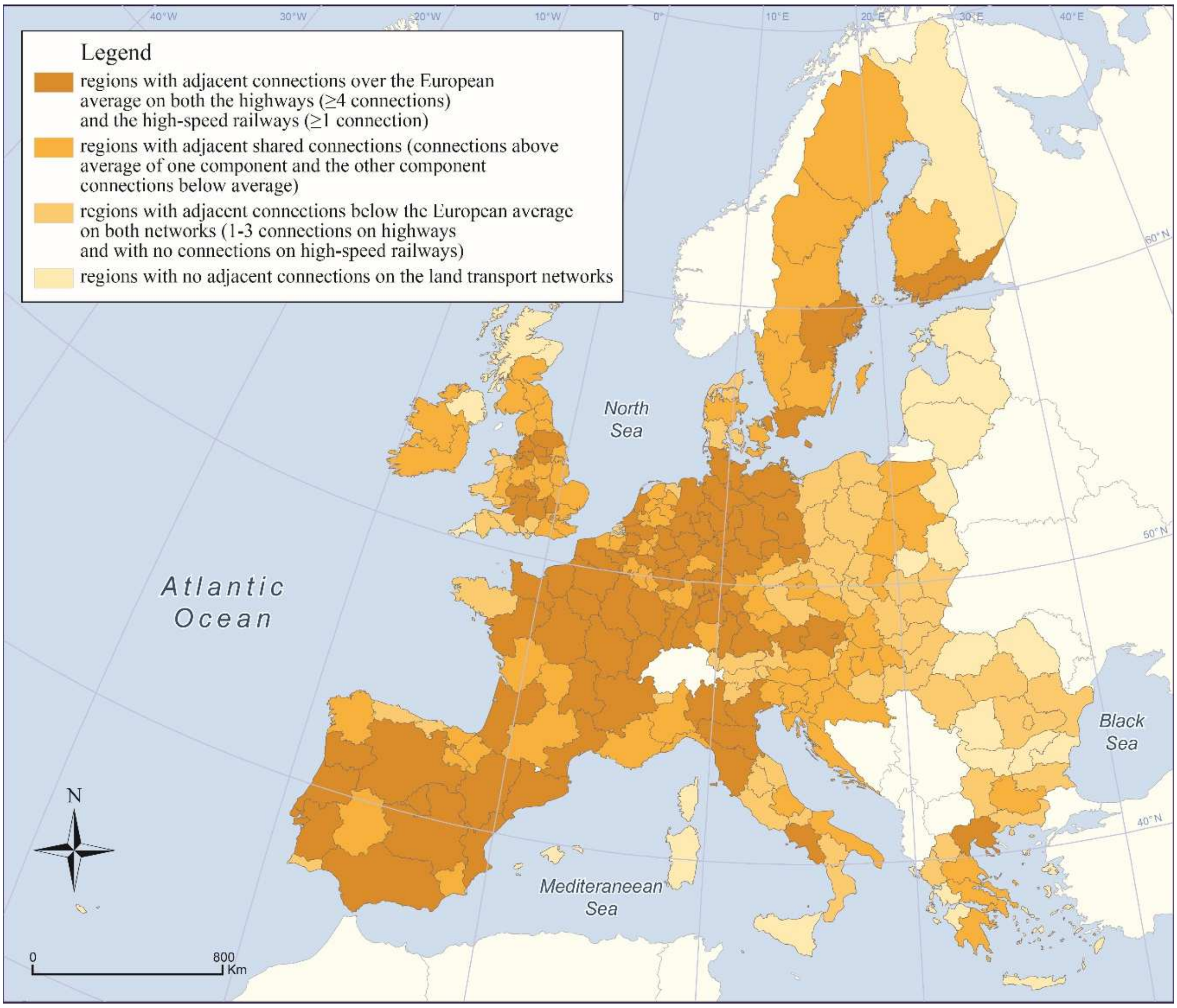
Table 1: Assessing criteria and measuring variables of spatial accessibility and economic potential

Evaluation indicators	***Proxy variables***
Contiguous territorial connection	Number of neighboring territorial connections on highways
	Number of neighboring territorial connections on high-speed railways
Economic potential	GDP by NUTS 2 regions

Source: Author's own representation and Eurostat (2016)

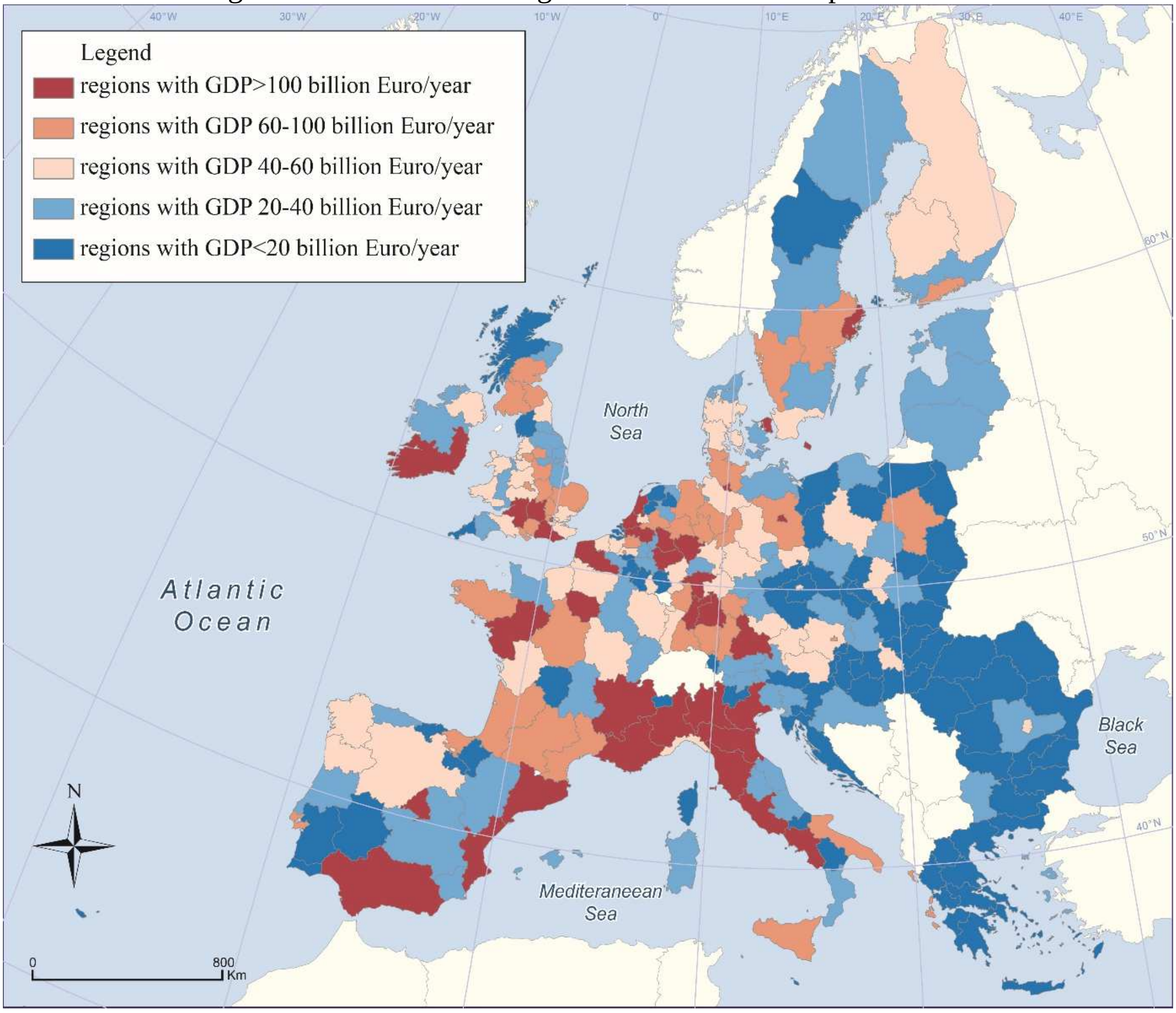
The neighboring connections of the NUTS 2 regions (i.e. the number of crossing points of the administrative boundaries of each region on highways and high-speed railways) were identified by observations on thematic profile maps and the regional GDP data were accessed from the Eurostat data base. The use of the mapping method allowed representation of the interconnected accessibility of the analyzed transport networks (Figure 1) and the regional GDP distribution (Figure 2).

Figure 1: Territorial connectivity given by the land transport networks



Source: Author's own representation

Figure 2: Distribution of regional GDP in the European Union



Source: Author's own representation using data from Eurostat (2016)

The interregional connectivity provided by terrestrial transport infrastructures (highways and high-speed railways networks) emphasizes, on the one hand, inter-regional differences in equipment with contact infrastructures and, on the other hand, points out compensatory effects between the two categories of terrestrial infrastructure. The spatial overlap of the interconnection facilities of the two networks homogenizes the European "photo" of space accessibility; interconnection alternatives are attenuated and facilitating regional economic growth in the EU.

Thus, compared to the 130 regions (38.3% of the EU area) with a border connection level by highways below the European average (under 4 outer connections/ region) and 172 regions (62.2% of the EU area) above-average high-speed railways connections (under 1 connection/ region), we have only 88 regions (34.4% of the EU) with a territorial connection deficit on both infrastructure components. Per state, only 4 member states are composed only of territorially weakly connected territories (the Baltic republics and Romania, excluding Cyprus and Malta islands), compared to 6 states weakly connected by highways and 10 states with poor high-speed railways connection. These smaller discrepancies reveal a much weaker territorial connection divergence when cumulating the interconnection-territorial effects of the two terrestrial networks than in each of them separately.

Therefore, their combined connectivity provides a more homogeneous spatial radiogram and implicitly a higher territorial cohesion over larger spaces. Well connected and serviced regions are more and more extensive in space and are found outside the nine trans-European routes. But at the same time, the isolation and exposure to territorial exclusion of the 88 regions and 4 states with dual infrastructure interconnection deficiency is more defined.

4. FINDINGS

On the scale of accessibility of both infrastructures, however, the old Europe, which is more endowed than the new Europe, is more clearly distinguished. On this evaluation background, the connectivity cleavage in the Central-Eastern Europe "new Europe" appears. Indeed, a very good Baltic-Adriatic dorsal link of good connectivity starts from the NE-SV diagonal of Poland (the Mazurian lakes - the Warsaw-Lodz-Upper Silesia region) and continues on a route connecting Moravia and the west of Slovakia with the regions of the basin of Vienna, and further through Slovenia, Croatia, northern Italy to the Adriatic. This dorsal is in sharp contrast with the western part of Poland, but especially with the eastern part, which together with the Baltic countries in the north and the regions of eastern Slovakia and eastern Hungary and further from Romania and Bulgaria form a true depression of poor connection and access. This phenomenon predictably overlaps a similar, albeit attenuated, spatial drawing of regional GDP distribution.

For Western Europe, the high regional GDP figures take into account to a large extent the existence of various favorable factors, such as the concentration of economic and financial centers in the Paris area, the London basin, the Frankfurt-Rhine ring, the Amsterdam-Brussels area, northern Italy, on the Spanish coast. In Central-Eastern Europe, in the absence of these economic strengths, GDP geography depends more on infrastructural equipment, a context similar to the good territorial connectivity overlooking the Polish dorsal.

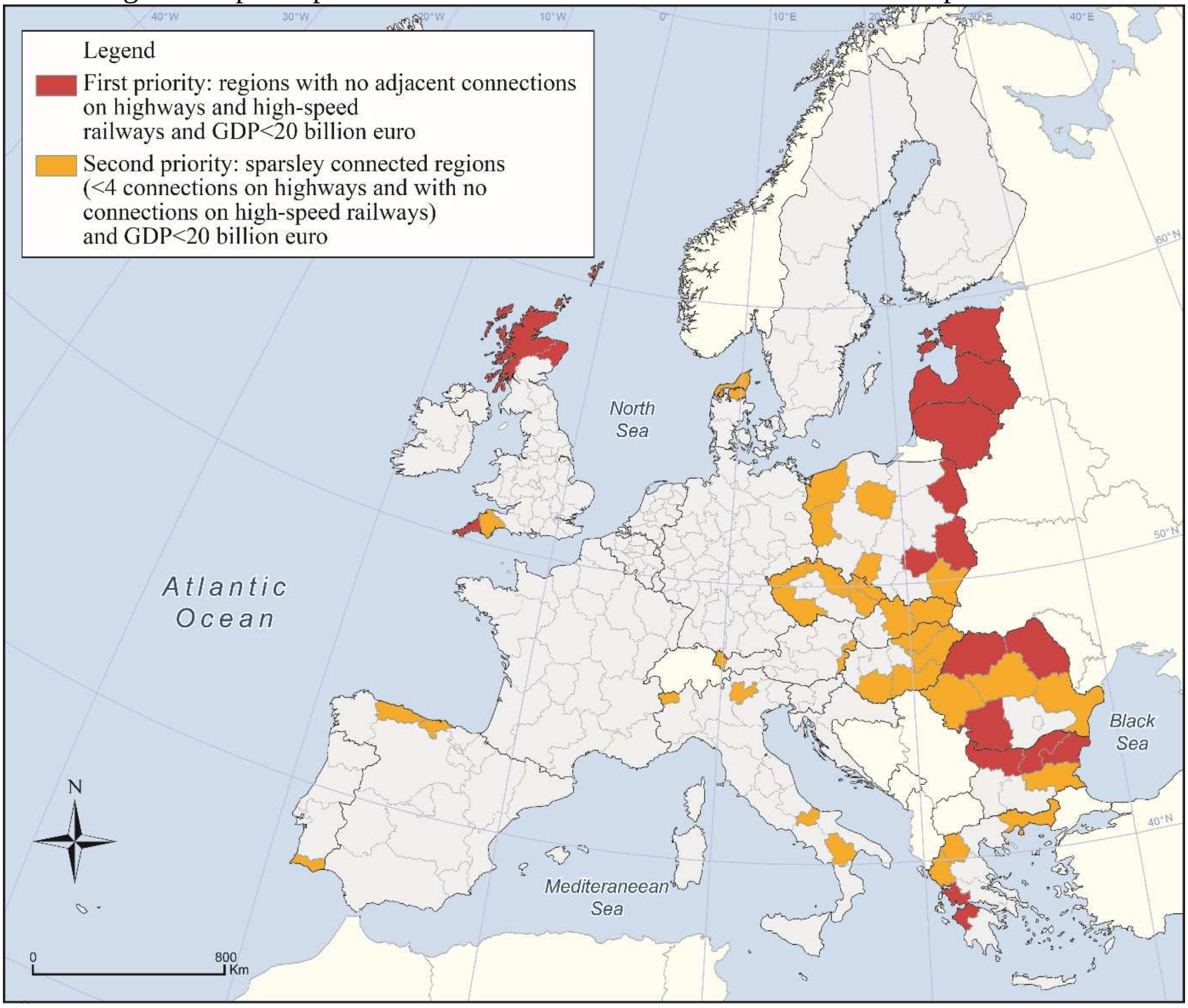
In order to identify the regions for which the increase in territorial accessibility would have a major impact on economic growth, we used the spatial interpolating method of the territorial connectivity deficits (regions with interconnection levels below the European average) and the volume of regional GDP (regions with GDP below EURO 20 billion / year). Mapping the relation between the degree of territorial interconnection and the regional GDP reveals the segregation of lower GDP areas in two categories according to the level of accessibility deficit registered.

The two categories of identified areas (Figure 3) are, in fact, a hierarchy of the territorial interconnection priorities that Community and national decision-makers should consider in order to homogenize regional economic development:

- 1st level priority areas are regions with a regional GDP below EURO 20 billion and no external connections on highways and high-speed railways: Baltic states, eastern Poland, northern and southwest Romania, northern Bulgaria, western Greece, northern Finland, the northern extreme of Scotland, Northern Ireland, the outskirts of the Cornwall peninsula.

- 2nd level priority areas include regions with a regional GDP below EURO 20 billion and external connections below the Community average (less than 4 external links on highways and 0 high-speed railways connections); have a more ubiquitous distribution in the EU, occupying preponderant areas in Central Eastern Europe but also marginal areas in the West Europe.

Figure 3: Spatial priorities for territorial interconnection in the European Union



Source: Author's own representation

5. CONCLUSIONS

By reporting the degree of territorial interconnection to the economic potential defined by regional GDP, we quantified the impact of spatial accessibility on regional economic development in the EU. Based on the model we developed, we identified areas most vulnerable to isolation or poor accessibility, for which the improvement of interregional contact infrastructures could be a significant premise for regional economic growth.

In this context, we propose a two-level spatial hierarchy of territorial interconnection priorities, with a view on improving economic and territorial cohesion in the Union. The first priority for the expansion of transregional contact infrastructures is the regions with a regional GDP of less than EUR 20 billion and with no external links of highways and high-speed railways, and the second priority concerns regions with a regional GDP below EUR 20 billion and with external connections below the Community average.

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INTERNATIONAL COOPERATION OF THE MIDDLE URALS WITH THE COUNTRIES OF THE EUROPEAN UNIOIN AT THE PRESENT STAGE. THE REPUBLIC OF CYPRUS IS TAKEN AS AN EXAMPLE

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Abstract: *Russia and Cyprus have always been particularly close to each other. The attitude of the Cypriots to the Russians is sincere and respectful. For several decades, these two countries have been interconnected by historical, political, business relations, which are friendly and have a significant impact on the development and cooperation of both states.*
Diplomatic relations between the countries, then still the USSR, were established in 1960, when Cyprus was proclaimed an independent republic. The amicable nature of bilateral relations is reflected in the identity of the views and positions of both countries on resolving major international issues, as well as the Russian support of the Republic of Cyprus on reaching a fair solution to the Cyprus issue based on UN Security Council resolutions.
The successful economic development promoted the transformation of the Republic of Cyprus into the international center of banking services and business, one of the biggest tourist resorts in the world, and the language learning center that is very popular with school children and students.
Since 2014, the General Consulate of the Republic of Cyprus has been operating in the capital of the Urals, the city of Yekaterinburg. Its activity is aimed at strengthening and developing economic, commercial, cultural, business relations, attracting tourists from the Urals to the Mediterranean island. In their speeches and meetings, representatives of the Consulate General always note the attractiveness of Cyprus, and also focus on its competitive advantages compared to other countries.

Keywords: *international cooperation, development prospects, foreign trade, tourism, services, investments*

Introduction

Cyprus and Russia have long and close relations. The Slavic alphabet, Cyrillic, is based on the Greek alphabet, and Greek is the main language of Cyprus. Both countries are united by Orthodoxy.

Diplomatic relations between the countries, then still the USSR, were established in 1960, when Cyprus was proclaimed an independent republic.

The friendly nature of bilateral relations is reflected in the identity of the views and positions of both countries on resolving major international issues, as well as the Russian support of the Republic of Cyprus on reaching a fair solution to the Cyprus issue based on UN Security Council resolutions.

[103] Ural federal University named after the first President of Russia B.N.Yeltsin, Russia
[104] Ural federal University named after the first President of Russia B.N.Yeltsin, Russia

The attitude of the Cypriots to the Russians has always been and remains sincere and respectful.

Discussion and Results

The locals and visitors often call Cyprus as an island of love. In recent years, it has become one of the most popular resorts visited by Russian tourists all year round. Statistics for the period from 2005 to 2014 (tables 1 and 2) clearly shows that the number of Russians who visited Cyprus was many times higher than the number of foreign tourists vacationing in the Republic during the same period [1].

Table 1 - The number of Russian tourists served by tourist firms (thousand people)

	Years					
	2005	**2010**	**2011**	**2012**	**2013**	**2014**
Total Russian tourists in different countries	4396,3	8203,9	8023,7	8942,2	9883,0	8487,1
Cyprus	15,0	45,9	80,2	122,5	153,7	109,6

Table 2 - The number of foreign tourists served by tourist firms (thousand people)

	Years					
	2005	**2010**	**2011**	**2012**	**2013**	**2014**
Total Russian tourists in different countries	678,2	225,9	263,9	236,8	348,5	291,9
Cyprus	0,1	0,1	0,9	1,0	0,9	0,0

According to the survey of tourist companies' employees, such a popularity of Cyprus with Russian tourists can be explained by the following reasons:

First - the mild climate on the island, low air temperature, the predominance of sunny and warm days, rare and intermittent rain.

Second - safety in any place of the island at any day time; the absence of wars and political conflicts in the region, any violation is punished by strict laws.

Third - good hotel service, various entertainment activities, shops for customers with different financial opportunities.

Fourth - the versatility of rest: beach holidays, visits to spa salons, walks in the mountains, sightseeing, sightseeing trips, varied and unique cuisine in restaurants and cafes and etc.

Fifth - the ideal sea for diving, a lot of scuba diving clubs, opportunities for water skiing, mountain skiing, sailing, windsurfing, golf, tennis, horseback riding, jeep safari.

Sixth - the island is an open-air museum, where tourists have a unique opportunity to visit ancient Orthodox churches and ruins, minarets and monasteries, Roman amphitheaters, castles, luxurious Venetian palaces and etc.

Seventh - Cyprus is a family holiday, especially with small kids, providing: clean beaches, safe waterslides for children, shallow depth along the coast, professional animators, competitions, games, concerts, clubs, children's menu in restaurants and hotels, a large range of children's products in stores and shopping centers.

Eighth - the absence of a language barrier, because Cypriots perfectly know English, communicate with tourists with pleasure; Russian residents who own real estate, businesses, and also work in Cyprus communicate with compatriots in their native Russian language.

Ninth - the popularity of eco-tourism, which provides a unique opportunity to live in villages in traditional Cypriot conditions, officially supported by the Government of Cyprus.

Tenth - visa-free entry into the country, which today is of great importance for tourists when choosing a place to rest.

Another confirmation of Cyprus popularity among Russians is the fact that over the past five years, the island has become one of the ten most visited countries in the world. Priority was given to Egypt, Turkey, Germany (table 3) [2]. As employees of travel agencies say, Cyprus has "its tourists" that is connected with good service and rest at a high competitive level.

Table 3 – Abroad trips made by Russians tourists 2015 - 2011 (thousand trips)

№	Country	Years					
		% by 2014	2015	2014	2013	2012	2011
1.	Egypt	-13,4	1054,6	1218,0	1177,9	803,9	488,6
2.	Turkey	-25,7	1031,5	1387,8	1212,9	936,4	1132,7
3.	Germany	-29,6	284,2	404,0	413,4	334,6	324,4
4.	Thailand	-53	255,9	545,5	570,7	458,5	421,2
5.	Italy	-35	234	358,6	346,8	265,0	262,0
6.	Spain	-43	233,6	410,3	401,9	291,7	237,3
7.	UAE	-46	185,4	345,0	346,7	265,3	188,0
8.	Greece	-53,5	176,8	380,1	399,7	203,7	201,0
9.	China	-56,6	156,4	360,4	484,2	572,7	631,8
10.	Cyprus	-31	150	217	213,8	140	123,4
	Total:	- 33,8	5489,3	8293,0	8522,6	6473,2	6069,7

In 2016 the situation has changed in the tourist market of Russia. Countries waiting for the Russians at their resorts (Egypt and Turkey) were closed for political reasons; so many Russian tourists spent their holidays inside the country, visited neighboring countries or rested in other states.

As for Cyprus, the island entered the top ten most visited places by Russians again by the number of tourist trips (table 4).

Table 4 - Number of tours abroad in 2016 (thousands)

№	Total: From them to the countries:	Years			
		% by 2015	2016	2015	2014
		-8	31659	34390	42921
1.	Abkhazia	11,3	4257	3824	3282
2.	Finland	-5,6	2894	3067	4283
3.	Kazakhstan	-8,8	2850	3125	3330

4.	Ukraine	8,8	1804	1657	2558
5.	China	30,5	1676	1284	1731
6.	Estonia	2,3	1511	1477	1775
7.	Poland	-16,5	1104	1322	1608
8.	Germany	-4,9	1057	1111	1435
9.	Thailand	28,4	867	675	1250
10.	Cyprus	47,8	813	550	670

Moreover, the table shows that the tourist flow to Cyprus in 2016 increased by 47,8% compared with the previous year and amounted to over 800 thousand people. According to the data of travel agencies, Cyprus was recognized as the most popular destination visited by Russian tourists on May holidays.

The Statistical Service of Cyprus “Cystat” also shows some interesting data. Thus, 2016 was the record-breaking year when the number of tourists visiting the island was more than 3 million people, which is almost 20% more than in 2015.

Cypriots explain such an increase in tourists’ interest to the island by cheap euro, a stable and safe political situation in the country at that time. The largest number of tourists who came to Cyprus in 2016 were residents of the UK, followed by tourists from Russia, Greece and Germany. In 2017, the increase in flow to Cyprus tourist sector continued [3].

Currently, economic and trade relations between Russia and Cyprus are at a high level, that can be confirmed by figures in table 5.

Table 5 – Trade between the Russian Federation and foreign countries, million US dollars

	Export					Import				
	Years					Years				
	2000	2010	2014	2015	2016	2000	2010	2014	2015	2016
Total	89269	337467	433173	393512	285674	22276	197184	253776	182902	182267
Countries of EC	36893	211469	258537	165581	130667	11144	95518	118499	70194	69878
Cyprus	1722	1641	610	244	283	35,5	27,0	48,6	59,2	12,7
Other countries	52376	125998	174636	227931	155007	11132	101666	135227	112708	112389

According to the data of the report on foreign trade between Russia and Cyprus, in 2016 the trade turnover increased by 10,34% compared with 2015. Russia's exports to the economy of the Republic of Cyprus increased by 15,94% compared with 2015, while Russia's imports from Cyprus, on the contrary, decreased by 12, 73% compared with the same period.

As for the share of Cyprus in the foreign trade turnover of Russia in 2016, it amounted to 0,0715% versus 0,0576% compared with the previous year, thus Cyprus took the 83rd place (against 87 place in 2015) in the Russian trade share in 2016.

The share of the Republic in Russia's exports in 2016 amounted to 0,0991% against 0,0710% in 2015 and in terms of the share in Russian exports in 2016, Cyprus took 73rd place (against

79 in 2013). And the share of Cyprus in Russian imports (91st place against 88th place in 2015) was 0,0283% versus 0,0324% in 2015.

Cyprus imports from Russia mainly oil, ferrous and non-ferrous metals, wood, etc. In its turn, the Republic supplies citrus fruits, pharmaceutical products and food products to Russia [4].

In recent years, the Republic of Cyprus has attracted an increasing number of Russian businessmen. Successful economic development contributes to transforming the country into an international center for banking services and business. In addition, Cyprus is an excellent base for investments, in particular direct, as well as for developing various business activities. Table 6 shows that Cyprus is a leader in attracting direct investments from Russia among the largest recipient countries of direct investments [5].

Table 6 - Direct investments from Russia into the economy of the countries – largest recipients of direct investments, million US dollars

Total direct investments. From them to the countries:	**2014**	**2015**	**2016**
	57082	22085	22314
Cyprus	23546	4249	9827
Virgin Islands (UK)	718	3301	1795
Switzerland	6927	203	1433
The Bahamas	756	1054	1205
Turkey	1183	1475	1184
Ireland	91	479	1139
Singapore	817	383	888
USA	1654	819	873
The Netherlands	2132	461	841

The growth of foreign exchange, political instability in the world, the criminal situation in a number of countries and many other factors resulted in Russian tourists' giving greater preference to rest inside their country in the period from 2010 to 2016 (table 7) [6].

Table 7 - The number of Russian tourists sent by travel agencies in tours of Russia and foreign countries

	2010		**2014**		**2015**		**2016**	
	number, thousand people	%, to total number	number, thousand people	%, to total number	number, thousand people	%, to total number	number, thousand people	%, to total number
Total	8203,9	100	8487,1	100	7889,2	100	6706,3	100
Russia	1741,0	21,22	1974,2	23,26	2628,2	33,3	3284,2	48,97
Cyprus	45,9	0,6	109,6	1,3	123,5	1,56	224,4	3,34

For years, the Republic of Cyprus has been actively developing cooperation with individual regions of the Russian Federation. Thus, since 2014, the Consulate General of Cyprus has been operating in the capital of the Urals, Yekaterinburg. One of its functions is to promote Cyprus as a resort and a place of investments, as well as the development of economic, scientific and cultural ties between Cyprus and Sverdlovsk region.

In November 2015 at the meeting with the Governor of Sverdlovsk Region, the General Consul of the Republic of Cyprus in Yekaterinburg noted that "Cyprus and Sverdlovsk region have good relations and a steady flow of tourists. Cyprus and Yekaterinburg are connected by direct regular flights and thousands of Ural citizens come to the island during the tourist season. Now we are actively working at all year round flights from Yekaterinburg to Cyprus since there is a demand for these flights, and it is quite high." [7]. Today there are regular charter flights from the Urals to Cyprus. In particular, the "North Wind" and "Ural Airlines" fly to the island three times a week, the airline "Russia" - five times.

The vast majority of travel companies and tour operators in the region work with the resort cities of Cyprus. Such operators as: "Coral Travel", "Teztour", "Pegas Touristic", "Biblio-Globus", "Intourist" and others are the most popular with the Ural tourists.

In April 2016 the consulate took part in the exhibition LETO-2016, organized and held at the exhibition center "EKATERINBURG EXPO".

In May 2016 the consul attended an event dedicated to the start of direct flights to Cyprus from Yekaterinburg, where he expressed his gratitude to everyone who helped to organize the rest of Russian tourists in Cyprus.

In August 2016 the Consul General visited Tyumen with the aim of arranging the tourist forum to attract participants from other cities located in the consular district and inviting heads of local tour offices to take part in it.

In October 2016 a tourist forum "Cyprus: alternative tourism" was held in Yekaterinburg, where residents of the city and region were presented with new tourist opportunities of Cyprus. Besides, two photos - exhibitions: "The World Heritage of Cyprus: History, Myth and Religion" and "People and the Earth" were organized by the Consulate, also with the aim of attracting attention and interest to the country.

In the same month, the Consulate General in Yekaterinburg took part in the EXPOTRAVEL-2016 exhibition, which was held at the EKATERINBURG EXPO Exhibition Center, as well as in a mini-seminar devoted to tourism in Cyprus in winter.

Thus, the Consulate General of the Republic of Cyprus in Yekaterinburg is actively working at attracting Ural tourists to the Mediterranean Sea Island. In his speeches and meetings, the consul repeatedly pointed out the attractiveness of the island, the willingness to receive and serve tourists, focused on the competitive advantages of Cyprus compared to other countries.

One can also quote his words in an interview: "The growth of the exchange rate directly affects prices of the tourist market. Perhaps new prices will reduce the flow of Russian tourists to Cyprus, but nothing doing. What we are trying to do is to keep prices at the same level, and maybe even lower. Unlike Turkey, we have a more developed tourism system. Yes, we cannot compete in price, but we are trying to surpass Turkey in quality of services. We hope that the effect will be less severe than it is predicted today, and many Russians will rest in Cyprus. I think that they will get interested in nature, mountains and atmosphere of the region. Some large travel companies sending tourists to Cyprus, consider possibilities of inbound tourism from Cyprus to Sverdlovsk region" [3].

The question of inbound tourism in the Urals in general, and in Sverdlovsk region, in particular, is interesting and important. Tourism is necessary for the historical, political, economic, educational, cultural development of regions.
For many years, the Middle Urals was closed to foreign tourists. Recently, more and more people from different parts of the world come to the region to discover interesting historical

facts, enjoy regional nature, and make a pilgrimage to holy places. But as a mass phenomenon, foreign inbound tourism in the Middle Urals is a matter for future.

Active cooperation between Russia and Cyprus is observed in the field of economy, business, international relations, etc. Thus, in November 2015, a business forum was held at the Ural Chamber of Commerce and Industry: “Cyprus and Russia: New Opportunities for Business Cooperation”. Its purpose was to develop bilateral trade, economic and investment relations, attract Russian investors and entrepreneurs to cooperate with Cyprus enterprises.

Despite this, it is important to note that today the Republic of Cyprus is not one of the main foreign trade partners of Sverdlovsk region. A significant contribution of the region to the foreign trade was made by Cyprus until 2002, when turnover reached $17 mln, then the volume of trade relations significantly decreased. According to the Ural Customs Administration, at the end of 2016, the foreign trade turnover of Sverdlovsk region and the Republic of Cyprus amounted to $ 41 thousand, all exports. In the first half of 2017, export deliveries increased by more than 3 times, but no import deliveries were made (table 8).

Table 8 - Indicators of foreign trade of the Sverdlovsk region with the Republic of Cyprus 2012-2016

Years	Turnover			Exports, thous. US dollars	Import, thous. US dollars	Balance, thous. US dollars
	thous. US dollars	place	share%			
2012	14	128	0,00	14	0	114
2013	0	-	0	0	0	0
2014	3031	81	9,03	0	3031	-3031
2015	522	93	0.01	518	4	515
2016	41	112	0,00	41	0	41

In 2015, Sverdlovsk region exported mainly chemical products to the Republic of Cyprus, and imported engineering products. In 2016, mineral products and metals were added to the export of chemical products to the Republic of Cyprus; no imports were made. In the first half of 2017, export growth was mainly due to supplies of printing products and wood, while there were no deliveries of chemical products, and imports were not resumed either [8].

Unlike indicators of foreign trade, international cooperation in many areas between Sverdlovsk region and the Republic of Cyprus is rapidly growing. In July 2016, an Agreement on cooperation between the administration of Polevskoy (Sverdlovsk region, RF) and Cannavia (the Republic of Cyprus) was signed. In September of the same year, the Agreement on twin relations between Revda (Sverdlovsk region, RF) and Kato Pyrgos Tillirias (Republic of Cyprus) was signed [9].

The development of friendly relations and strengthening cooperation between Sverdlovsk region and Cyprus are facilitated by the so-called “no-tie” meetings. Thus, in July 2017 in the residence of Sverdlovsk region Governor, the opening of the exhibition "Russian artists paint Cyprus" was held. This project was implemented in the framework of strengthening twin relations of the Cyprus city of Kannavia and the town of Polevskoy, Sverdlovsk Region.

And in January 2018, for the fifth time, the team of the Consulate General of the Republic of Cyprus took part in an international bowling tournament among diplomatic and trade missions of foreign countries accredited in Yekaterinburg. Representatives of the General Consulate consider that sport unites people; therefore such events contribute to the development of friendly relations between states [10].

In October 2017, a meeting of the heads of municipalities of the Republic of Cyprus with the heads of municipalities of Sverdlovsk region was held at the Ministry of International and Foreign Economic Relations of Sverdlovsk region. During the meeting, issues of cooperation in such areas as small and medium business, scientific, technical and educational work, the implementation of research and educational programs, exchange programs for students, exhibitions and other problems were discussed. [8].

In March 2017, the World Trade Center of Cyprus and Delfi Partners held the largest real estate conference, the purpose of which was to stimulate interest in investing in the Cyprus real estate sector and promote Cyprus as an attractive regional real estate investment center.

The official partners of the conference were the Cyprus Chamber of Commerce and Industry, the Organization for the Promotion of Tourism in Limassol, the Cyprus Investment Agency and the Association of Large Investment Projects. This conference was also attended by businessmen, investors and entrepreneurs from Sverdlovsk region and the city of Yekaterinburg [11].

In March 2018, Cyprus President N. Anastasiadis assessed the prospects for holding the World Exhibition EXPO 2025 in the capital of the Urals, stating: “We have excellent relations in our political, economic, and cultural fields, which we would like to develop further. I think that EXPO-2025 can help us in it.” The exhibition is defined as: “Transforming the world: innovation is better life for future generations” and it covers the following aspects: the impact of innovation on the environment, technology, education, health, human well-being, economy, etc., as well as attracting innovations for developing Yekaterinburg, Sverdlovsk region and the world [12].

In April 2018, the tour operator “Biblio-Globus” with the participation of representatives of Cyprus well-known hotel chains organized an event for Yekaterinburg tourist community dedicated to beginning the summer season in Cyprus. The business breakfast was attended by representatives of the Consulate General of the Republic of Cyprus in Yekaterinburg, as well as the Cyprus Tourism Organization.

Another event, also held in April 2018 at the exhibition center EKATERINBURG EXPO, was the participation of the General Consulate of the Republic of Cyprus in the exhibition LETO-2018, during which visitors of the exhibition got answers to all their questions on history of Cyprus, its sights and places for rest. Among the regular exhibitors were leading travel companies, the largest tour operators in Russia, representatives of foreign countries, airlines and hotels, insurance companies, banks, and the tourist press [11].

Conclusion

Thus, international cooperation between Russia, on the whole, and Sverdlovsk region, in particular, and the Republic of Cyprus is manifested in all spheres of life. The Consulate General of Cyprus in Yekaterinburg is actively working to establish, strengthen and develop economic, commercial, cultural, business relations, attracting tourists from the Urals to the Mediterranean island. In their speeches and meetings, representatives of the Consulate General have always noted the attractiveness of Cyprus, and also focus on its competitive advantages compared to other countries.

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THE POTENTIAL EFFECTS OF BREXIT ON THE INTERNATIONAL TRADE OF THE UNITED KINGDOM[105]

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Abstract: *The process of the United Kingdom (UK) leaving the European Union, as a result of the 2016 referendum, brings a lot of uncertainties regarding the impacts of new regulations of trade relations between the UK and other EU member states as well as other countries worldwide. The purpose of this research is, based on a review of the UK's history as an EU member, and the analyses of its current international trade, to determine the potential effects of the process of the UK leaving the European Union to its future trade with the rest of the world. In this paper, four different models by which further trade relations between the United Kingdom and EU could be regulated are discussed. Each of these models has its advantages and disadvantages, and it is not possible to determine with certainty which one of them would be the most beneficial for the UK. Even though a large number of UK's trade partners are not EU members, it is evident that the trade with other countries worldwide can easily be a subjected to change. For that reason, the United Kingdom should primarily base its trade on relations with EU member states, with the assumption of further cooperation with other counties.*

Keywords: *BREXIT, EU, international trade, United Kingdom*

1. INTRODUCTION

In 2016 the United Kingdom became the first EU state member who activated Article 50 of the Treaty on European Union[109], and based on the referendum results, began the process of withdrawing from the EU[110]. The last phase of the exiting process should be finished in February 2019 when the UK will officially become a "former "state member. If the history of this country regarding European integration is taken into consideration, it is evident that the exiting process is merely an extension of a behavior pattern this country has had during the years, including special demands and needs based on their historical and economical success.[111] The end of this process represents new economic, political and social challenges both for the United Kingdom and for the European Union. Furthermore, the trade aspect, as the focus of this paper, represents an important part of their future relations.

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[109] Implemented as one of the key changes of the Treaty of Lisbon from 2007. It implies that any Member State may decide to withdraw from the Union.
[110] Commonly known under the term Brexit. The referendum votes were 51,8% in favour of leaving the EU.
[111] In fact, in 1975, shortly after entering the European Economic Community in 1973, Great Britain held a referendum about staying in the Community where 67.2% of votes were in favour of "remain".

The core research problem emerges from the current inability to determine clear practices of the UK’s international trade once they are no longer a member state of the EU. The aims of this research are to analyze the historical course of the UK's trade, and to determine the potential impact of Brexit on future international trade relations. The purpose of the research is to scientifically determine the potential perspectives of the UK's trade policy outside of the EU. In this paper, the descriptive analyses of key figures for the UK’s international trade have been applied, which have been collected from relevant international databases (World Bank and The Observatory of Economic complexity). This research is based on the available data for the period 1973 to 2017.

After the initial considerations in which the key research elements are defined, the descriptive analysis of the UK's international trade has been conducted, and the potential effects of exiting process on the future flows of Britain's trade have been determined. The research is continued by determining potential directions of the UK's trade outside the EU. Lastly, the paper is concluded with final considerations representing the synthesis of scientifically based facts which emerged as a result of this research.

2. ANALYSIS OF THE UNITED KINGDOM'S INTERNATIONAL TRADE

The analysis of the UK’s international trade has been based on the following indicators: (1) export and import of goods and services (% GDP), (2) international trade balance (% GDP), (3) foreign trade coverage ratio, and (4) the Terms of trade (ToT). While, the calculation of foreign trade coverage ratio is based on the following equation:

$$k(m) = (X + M) / Y \tag{1}$$

where X represents export, M represents import and Y represents national income of a certain county.

Furthermore, the benefits of foreign trade are usually presented using the indicator ToT, which can be calculated as a ratio between import and export prices:

$$Pm / Px \text{ [i.e. } Px / Pm] \tag{2}$$

Where Pm represents import prices, and Px export prices.

The United Kingdom (UK) became a member state of European Economic Community in 1973, and since then it started developing strong trade relations with other members, primarily through the Customs Union [5]. Data from Appendix 1 illustrates, with a few exceptions, the constant increase in shares of import and export in its GDP which the UK made since 1973. For example, the export increased from initial 20.2% of GDP to 28.2% of GDP in the observed period, while the import has increased from initial 24.2% of GDP to 31.9% of GDP. In addition, it is possible to conclude that throughout this period, the UK was mainly an import-oriented country, and it mostly had a trade deficit. The trend in foreign trade coverage ratio indicates a higher importance of foreign trade in comparison with the beginning of the period. The average value of ToT leads to the conclusion that the UK benefited from its foreign trade throughout the whole observed period (the average value of ToT in the observed period is 180.6792), and those benefits are especially noticeable before the year 2000.

The UK’s export mainly consists of cars (12%), pharmaceutical drugs (5.2%), gold (4%), gas turbines (3.5%) and aircraft parts (2.5%). On the other hand, the UK mostly imports gold (8.2%), cars (7.8%), pharmaceutical drugs (3.1%) and car parts (2.5%) [8]. The UK’s most important trade partners, with 14% of total export, are the United States. Moreover, it is important to mention that six out of fifteen UK’s most important trade partners are countries outside the EU, and are as such the destinations for almost 30% of the UK’s total export (Table 1).

Table 1: Top 15 United Kingdom's partners in export and import in 2017

No.	Export countries	% of total export	Import countries	% of total import
1	USA	14	GERMANY	14
2	GERMANY	9.5	CHINA	9.8
4	FRANCE	6	USA	7.5
5	NETHERLANDS	6	NETHERLANDS	7.3
6	SWITZERLAND	5.1	FRANCE	5.8
7	IRELAND	5.1	BELGIUM	5.3
8	CHINA	5	LUXEMBOURG	5.3
9	BELGIUM	4.7	ITALY	3.9
10	LUXEMBOURG	4.7	SPAIN	3.4
11	SPAIN	3.3	IRELAND	3
12	ITALY	3.2	NORWAY	2.9
13	HONG KONG	1.9	JAPAN	2.6
14	JAPAN	1.7	TURKEY	2.5
15	UNITED ARAB EMIRATES	1.7	SWTZERLAND	2.2

Source: developed by authors based on The Observatory of Economic Complexity (2018)

Similar to export, 27.5% of the UK’s total import comes from the non-EU countries, mostly from China and the USA. This kind of import and export structure indicates that the UK is sufficiently connected with global partners outside the EU. The situation mentioned above should represent the base for the development of new trade agreements after the exiting process finalizes. Nevertheless, it should be noted that the current situation is a consequence of the UK’s integration in international trade as a whole. It is uncertain whether those trends will continue once the UK becomes an independent entity faced with the challenge of developing its own and separate trade relations with global partners.

3. POTENTIAL EFFECTS OF BREXIT ON UNITED KINGDOM’S TRADE POLICY

The concrete effects of Brexit will be seen in the long run. In the near future, changes are possible in the decision making process, regarding the trade and foreign direct investments, changes in headquarters (from the EU to the United Kingdom and vice versa, depending on company’s business orientation) as well as the effects on export due to the devaluation of the currency [6]. Having the long-term consequences in mind, the UK will, due to Brexit, find itself outside the European Single Market and the Customs Union; therefore, some tariff and non-tariff barriers will have to be implemented, which will increase the costs of international trade. However, such situation offers new possibilities of developing trade partnerships outside of Europe for the UK. Having Britain’s current trade relations in mind, the question of strengthening trade relations with the USA and other members and of NAFTA,[112] creating a free trade zone along with the Commonwealth countries,[113] poses itself as a possibility.

The data mentioned earlier demonstrates the connection between the United Kingdom and trade partners outside the EU, in accordance with the UK's current trade policy. According to it, a question emerges: should the import share from countries of South America, Asia, and certain developing countries have been higher during the last three or four years [7]? The stated does not necessarily have to represent a high-risk level because the lower contribution to trade of those countries can be explained by certain economic cycles and by adjustments on the market in China. That thesis is supported by the IMF reports from 2016 [4], which show positive growth perspectives for economies in Asia, Middle East, Africa and Central Europe (Appendix 2). Based on the report, in the period between 2016 and 2021, China and Hong Kong should have the highest growth of GDP (in average, 6%), followed by, countries from the Middle East and North Africa, while the lowest growth is predicted for countries from the ex-Soviet Union.

Furthermore, it is necessary to consider the future trends regarding the UK's export (Appendix 3) and its future destinations (Appendix 4). Conducted research illustrates that the UK's export will reach the highest growth rates in the period between 2014 and 2020, while in the long run (between 2021 and 2030) the growth slowdown can be expected. Higher growth in the near future will mostly be a result of higher export in fast growing countries (13% in 2030, which is three times larger rate than in 1999; 4%) E7[114], especially China and India, due to the fast economic growth in those countries. However, the European Union will remain UK's most important trade partner [6]. In fact, the trade with developing countries (especially export) can easily face changes because of unexpected events on foreign and domestic markets. This will not be the case with export-oriented countries whose economies are much more similar to the UK economy. Due to that, it is important for the UK to maintain current trade relations with the EU member states, as well as with the USA. The politics of president Donald Trump will surely have a big impact on the development of future trade relations with the USA as he stated that Brexit can only have positive effects on British trade, and has announced some new trade agreements between the USA and the UK in the future [3]. With his previous decisions and protectionist approach in mind, it is not possible to claim with a great certainty whether those trade agreements will be realized.

4. DEVELOPMENT PERSPECTIVES OF UNITED KINGDOM’S TRADE RELATIONS AFTER THE WITHDRAWAL FROM THE EU

The development perspective for the UK’s trade relations after Brexit is complicated and uncertain, and due to that it is not possible to make a singular conclusion. In this paper four different models of the future UK trade are taken into consideration; Norwegian Model, Swiss Model, EFTA Model and WTO model.
By implementing the ***Norwegian Model***, the UK should organize its trade in accordance with rules and principles of the European Economic Area (EEA), founded in 1994, which gives the opportunity to countries outside the EU to (mostly) participate in the European Single Market.

[112] North American Free Trade Agreement, member states are USA, Mexico, Canada. However, the protectionist approach that the USA has and the possible implementation of tariffs in certain sectors bring the existence of this organization into question.
[113] Common name for a community of 53 countries, mostly former British colonies.
[114] Common name for a group of fast-growing countries: China, India, Brazil, Mexico, Russia, Indonesia and Turkey.

Among the EEA members[115] there is a free movement of goods, services, labour and capital[116] [1]. Even though there is free trade between the countries within the EEA, they are not a part of Customs Union, which enables them to determine the way of conducting their own trade policy for countries outside of the EU[117]. Some restrictions of this model are: the implementation of rules of origin in export, the possibility of the EU implementing anti-dumping measures, payments to the EU funds for regional development. If the UK embraces this model, it would certainly have to pay for its participation in the EEA.

Furthermore, it is possible to determine future trade relations by implementing the ***Swiss Model***[118], whose key advantages are the flexibility and freedom in the decision making process regarding the participation in EU initiatives, as well as the similar level of integration and trade of goods as in the case of the EEA[119] membership [2]. Implementing the Swiss Model could be beneficial if the UK wants to have more freedom in deciding in which segments of EU policies it wants to participate. On the other hand, this kind of "a la carte" approach does not bring the same level of market approach as it does with the membership in the EEA, which could in future cause extra expenses for the UK. The models are based on solutions which enabled future economic integration with other EU member states, and partial participation in the European Single Market[120].

EFTA approach is a possible solution, based on which the British goods exported to the EU, as well as the ones imported from the EU, would not be charged with tariffs. However, the free movement of labour or services would not be possible. Due to the fact that the UK in this case would not be a part of the Single Market it can be assumed that there could be some dissents in certain EU directives and in non-tariff barriers to the trade. If changes in core paradigms of the EFTA[121] would happen, primarily regarding the non-tariff barriers and free movement of labour and capital, it can be concluded that this approach would not be an adequate solution for the UK because the only benefit in this case is the absence of tariff barriers which is not nearly enough.

In the fourth model, if the UK and the EU do not make any of the prior mentioned agreements, the future trade of the UK will be regulated based on the rules of the World Trade Organization (WTO), by which export to the EU, and other state members of the WTO, would be a subject to tariffs based on a principle of the most favored nation. Due to the fact that the WTO has not

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[115] Current members of the EEA are EU state members, along with Iceland, Norway and Liechtenstein.

[116] On the other hand, the limitations of the agreement refer to agriculture and fishing, Customs Union, common trade, common foreign and security policy, judicial system, internal affairs, and economic and monetary union.

[117] By withdrawing from the EU, the United Kingdom automatically stops being a member of the EEA. If the UK wants to once again become a member of the EEA, it would first need to enter the EFTA, which is questionable because in that case, the UK would have to accept the EU legislation, continue with payments and accept the jurisdiction of the European Court of Justice and the European Commission.

[118] Even though it is not a member state of the EU or the EEA Switzerland has arranged its trade relations with the EU with bilateral agreements, and by being a member of European Free Trade Agreement (EFTA) it has the right to trade with all non-agricultural goods among all state members of the EU.

[119] Switzerland decided to be a part of integration with the EU state members by accepting and applying most of the EU directives, it also pays a contribution to the European Regional Funds.

[120] The reason why Brexit was carried out was the fact that the UK voters were unsatisfied with its position in the EU, and they decided to make some changes regarding their participation in the Union. Due to that, it is possible to question if the prior mentioned models represent an acceptable change in comparison to the previous level of integration they were clearly unsatisfied with.

[121] EFTA started with its activities to accomplish the goal of *reducing tariffs in order to reduce the costs of trade and promoting international economic integrations.* However, with the affirmation of WTO, EU and bilateral agreements the focus in making the trade relations has been put on removing the non-tariff barriers and on free movement of labour and capital.

made a progress in market liberalization of services, such as the European Union did, the prior mentioned could block access to the EU market of services for the British companies. Furthermore, the WTO does not assume the free movement of labour, but there are no restrictions in the movement of capital [16]. One of the positive aspects of this model is the possibility that the UK sets its own tariffs for import. In case the trade is regulated only by the WTO rules, the UK would be able to set the same tariffs as the EU did in earlier stages, which could possibly lead to their decrease[122]. In addition, by rejecting the participation in a higher level of integration, the UK would gain greater political power[123].
The summary display of the prior mentioned models is given in Table 2.

Table 2: Trade possibilities for United Kingdom outside of EU

Model	**For**	**Against**
EEA – Norwegian Model	• being a part of the Single Market • the possibility to make trade relations independently from EU	• application of the Single Market rules without the possibility to influence their decision making process • respecting the rules of origin for the export of goods • the possibility to apply anti-dumping measures of the EU • deposing funds to the EU budget
Swiss Model	• free movement of goods and people within the EU • the possibility of making trade relations independently from the EU • the possibility of non-participating in EU programs on a case basis	• obeying the EU rules of origin based on bilateral agreements, without participating in their decision making process • no agreement with the EU regarding the trade of services • paying the fees for participating in EU programs
EFTA	• free trade of goods within the EU • the possibility of making trade relations independently from the EU • no obligation to accept economic policies and regulations of the EU • no obligation to contribute to the EU budget	• no free movement of people within EU • no access to the EU market of services • goods exported to the EU need to comply to EU standards for products

[122] In case of import tariffs the UK would implement, they would be lower than the EU ones, and that would have a positive effect on its consumers. However, this kind of approach would have a negative effect on British producers who would have bigger competition due to cheaper import.
[123] If the United Kingdom would stop being a part of the Single Market, they would be able to determine their own policies and standards, independently from the EU. It is important to note that every disagreement in prior mentioned policies could cause a non-tariff barrier which would make the trade more difficult and increase its costs.

WTO	• the possibility of making trade relations independently from the EU • no obligation to accept economic policies and regulations of the EU • no obligation to contribute to the EU budget	• no free movement of people within the EU • trade with the EU is based on the principle of the most favored nation and non-tariff barriers from the WTO • goods exported to the EU need to comply to EU standards for products • no access to the EU market of services

Source: Developed by authors

5. CONCLUSION

The conducted research indicates key challenges for the United Kingdom's trade relations they might face once the process of Brexit is finalized. The efficiency of future trade flows and the adjustment to global trends will mostly depend on the choice of the right trade model and the adjustment of economic and political power holders to new conditions. The scientific contribution of this paper comes from an overview of Britain's international trade throughout the years and identification of key challenges and impacts of Brexit to the UK's future trade flows. Future research in this area should be oriented on quantifying the Brexit effects on economic growth and employment, as well as other macroeconomic indicators which will occur due to changes in the UK's trade paradigm.

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APPENDICES

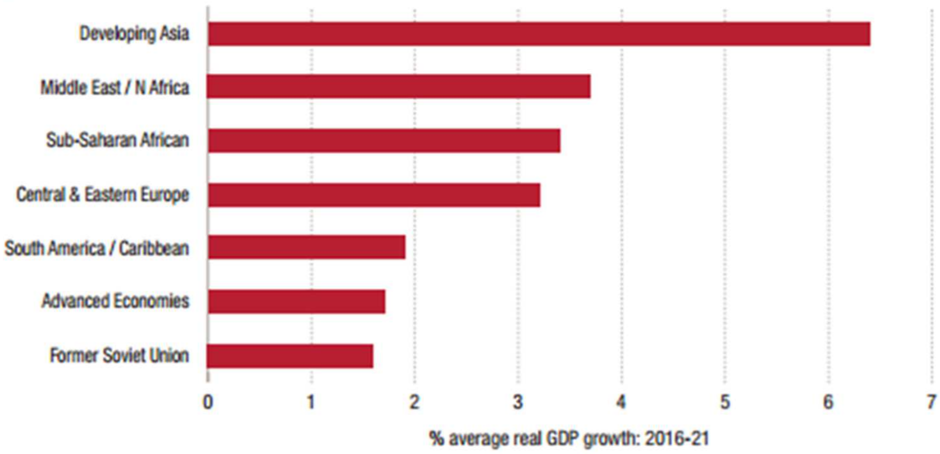
Appendix 1 Key Trade Indicators of the United Kingdom in the Period 1973-2017

Year	GDP (US dollars)	Export (% of GDP)	Import (% of GDP)	Trade balance (% of GDP)	Export (US dollars)	Import (US dollars)	Export+ Import (US dollars)	Foreign Trade Coefficient	Terms of trade (2000=100)
1973	192537971582.56	20.20	24.27	-2.29	42319966193.04	46726319206.27	89046285399.31	0.462487	-
1974	206131369798.97	21.98	31.01	-4.74	54134726975.22	63913005142.59	118047732117.81	0.572682	-
1975	241756637168.14	26.26	26.55	-1.68	60131751769.91	64182355530.97	124314107300.89	0.514212	-
1976	232614555256.07	24.87	28.53	-1.10	63803000539.08	66371104941.60	130174105480.68	0.559613	-
1977	263066457352.17	27.43	28.37	0.68	76429436071.86	74631432408.86	151060868480.73	0.574231	-
1978	335883029721.96	29.05	26.14	1.29	92132689165.87	87814120038.35	179946809204.22	0.535742	-
1979	438994070309.19	27.43	26.45	0.36	117692773401.10	116130537907.67	233823311308.77	0.532634	-
1980	564947710899.37	26.81	23.93	2.14	147243570299.79	135165171740.65	282408742040.44	0.499885	306.1728
1981	540765675241.16	26.06	22.67	2.77	137573579983.92	122614146704.18	260187726688.10	0.481147	357.5758
1982	515048916841.37	25.44	23.24	1.86	129279904088.05	119677158455.63	248957062543.68	0.483366	331.8182
1983	489618008185.54	25.10	24.28	0.94	123517042898.29	118897239502.80	242414282401.09	0.495109	326.6667
1984	461487097632.35	25.23	27.03	-0.06	124456923915.94	124719335328.55	249176259244.48	0.539942	282.4561
1985	489285164271.05	26.97	26.23	1.09	133642893223.82	128330405544.15	261973298767.97	0.53542	228
1986	601452653180.89	27.31	24.91	-0.59	146317372031.66	149845629434.18	296163001465.85	0.492413	142.1053
1987	745162608269.33	24.33	24.77	-0.91	177765542572.32	184579715312.96	362345257885.28	0.486263	136.3636
1988	910122732123.80	23.86	24.69	-3.20	195530105122.73	224667372287.44	420197477410.17	0.461693	139.3617
1989	926884816753.93	21.48	25.51	-3.57	203357496400.52	236491017670.16	439848514070.68	0.474545	136.8421
1990	1093169389204.55	21.94	24.42	-1.81	247134900923.30	266964398792.61	514099299715.91	0.470283	156.6038
1991	1142797178130.51	22.61	22.27	-0.37	250225066137.57	254445071252.21	504670137389.77	0.44161	142.4528
1992	1179659529659.53	21.90	22.91	-0.70	262045550193.05	270309090733.59	532354640926.64	0.451278	134.5455
1993	1061388722255.55	22.21	24.42	-0.35	255401609928.01	259162370875.83	514563980803.84	0.484803	129.7619
1994	1140489745944.29	24.06	25.29	-0.02	288205468472.61	288445784205.69	576651252678.30	0.505617	118.8679
1995	1335218557677.13	25.27	24.89	0.27	335938141076.22	332281836831.31	668219977907.53	0.500457	125.4386
1996	1408781591263.65	25.16	25.57	0.17	362578783151.33	360199687987.52	722778471138.85	0.513052	147.3684
1997	1552483628028.81	25.74	24.89	0.40	392686640471.51	386404715127.70	779091355599.21	0.501835	146.0784
1998	1638511096389.53	25.29	24.53	-0.79	388872143093.74	401897979463.40	790770122557.14	0.482615	102.9412
1999	1665623685487.79	23.73	25.16	-1.55	393179097233.46	419048697621.74	812227794855.20	0.487642	105.0505
2000	1647951278559.54	23.61	26.69	-1.84	409412921773.34	439791193826.60	849204115599.94	0.515309	100
2001	1621510004318.41	24.84	27.04	-2.30	401127105225.28	438498632503.24	839625737728.52	0.517805	90.86948

2002	1768408273381.29	24.74	26.57	-2.80	420412170263.79	469845623501.20	890257793764.99	0.503423	92.23517
2003	2038395102040.82	23.77	25.94	-2.40	479728979591.84	528697142857.14	1008426122448.98	0.494716	100.9348
2004	2398555474185.28	23.53	26.07	-2.63	562286708165.51	625270963017.21	1187557671182.72	0.495114	117.617
2005	2520701818181.82	23.44	27.25	-2.57	622238181818.18	686989090909.09	1309227272727.27	0.51939	152.9293
2006	2692612695492.18	24.69	29.12	-2.41	719146274149.03	784018399264.03	1503164673413.06	0.558255	176.4954
2007	3074359743897.56	26.71	27.34	-2.48	764371748699.48	840508203281.31	1604879951980.79	0.522021	181.6111
2008	2890564338235.29	24.86	29.67	-2.87	774711397058.82	857529411764.71	1632240808823.53	0.564679	223.3731
2009	2382825985355.97	26.80	28.32	-2.19	622603209222.62	674718803551.96	1297322012774.58	0.544447	157.9378
2010	2441173394729.62	26.13	30.82	-2.61	688754984314.56	752366408693.95	1441121393008.51	0.59034	191.8977
2011	2619700404733.37	28.21	32.05	-1.54	799277937659.92	839606976489.97	1638884914149.89	0.6256	225.3154
2012	2662085168498.93	30.51	31.71	-1.98	791497327717.21	844201156322.77	1635698484039.97	0.614443	227.2532
2013	2739818680930.19	29.73	31.68	-2.02	812795126346.15	868085386896.45	1680880513242.60	0.613501	223.8164
2014	3022827781881.39	29.67	30.25	-2.00	853874777613.82	914479030510.28	1768353808124.10	0.585	209.2686
2015	2885570309160.86	28.25	29.10	-1.71	790107053896.83	839561218721.02	1629668272617.85	0.564765	134.5188
2016	2650850178102.14	27.38	30.33	-2.07	749003762572.53	803925592427.63	1552929355000.16	0.585823	121.2276
2017	2622433959604.16	28.26	31.93	-1.40	800593204589.45	837427058259.18	1638020262848.63	0.624618	-

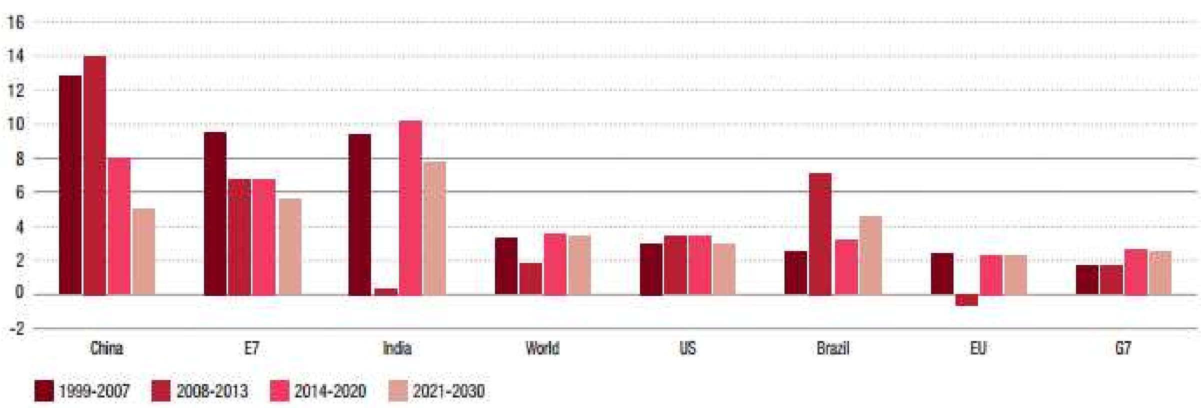
Source: Developed by authors based on World Bank (1-7). 2018

Appendix 2. GDP Growth in Medium Run for Specific Country Groupings



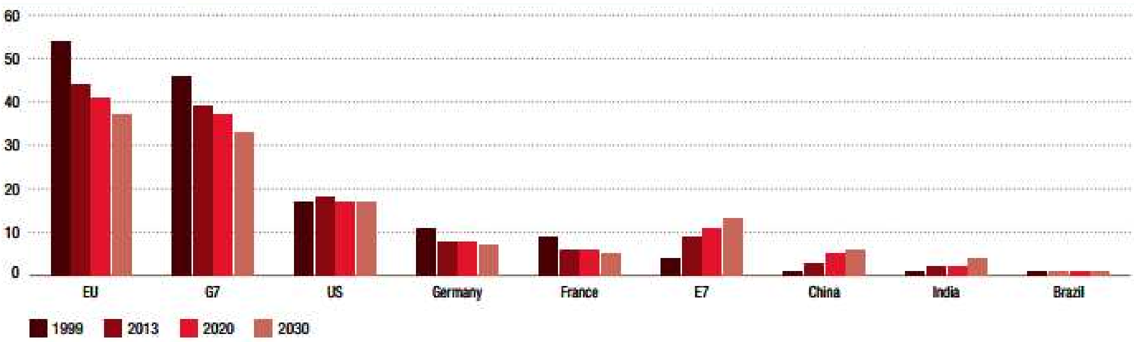
Source: IMF World Economic Outlook. 2016

Appendix 3. United Kingdom Exports By Country by 2030



Source: Sentance. 2016

Appendix 4. Export destinations of the United Kingdom by 2030



Source: Sentance. 2016

MULTI-CRITERIA ASSESSMENT OF VISEGRAD GROUP ECONOMIES´ PERFORMANCE

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Abstract: *To assess the economic performance of states, there are indicators reflecting their economic success. In developed countries of world economy, in addition to economic development, also the social, environmental and other factors, which particularly affect the quality of life or the welfare of the country's population, are becoming more and more significant. Within the criticism of gross domestic product, several alternative approaches and indexes have emerged, such as Human Development Index, Global Competitiveness Index, Legatum Prosperity Index, Index of Economic Freedom and others. The aim of this article is to find the dependence between the gross domestic product per capita and the selected alternative indicators, and to evaluate the performance of Visegrad Group countries.*

Keywords: *Performance, Gross domestic product, Human Development Index, Global Competitiveness Index, Legatum Prosperity Index, Index of Economic Freedom, Visegrad Group*

1. INTRODUCTION, GOAL AND METHODS

The current society pays a great attention to the assessment of economic performance and social development not only regarding scientific research, but also in terms of formulating the starting points for practical economic policy. Thus, the economy performance assessment is very important not only because of theory but also economic policy and practice. Based on studying the achieved level of macroeconomic variables and their development it is possible to understand and explain many problems related to economic growth, the cyclical development of an economy, the relationship between consumption, savings and investment, inflation and unemployment issues, macroeconomic balance and quality of life.

Indicators evaluating economic performance of states are reflecting their economic success however in advanced countries of the world, in addition to economic development, the social, environmental and other factors, generally affecting the quality of life, the welfare of country's population, are to be used more and more. Regarding the criticism of unilateral focus on economic indicators assessing the performance of particular economies, new indicators have emerged that represent an alternative option to basic economic indicator, such as GDP.

The goal of the paper is to present the results of our own research in the field of economic performance theory, its measurement, analysis and use of alternative indicators containing the

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social aspect of economic development of a society. In the study, we evaluate the dependence of selected alternative indicators of economic performance (Human Development Index, Global Competitiveness Index, Prosperity Index, Index of Economic Freedom) and GDP per capita in Visegrad Group countries (Slovak Republic - SR, Czech Republic - CR, Hungary - HU and Poland - PL), and based on a multi-criteria approach, we evaluate the economic performance of Visegrad Group countries. We use statistical data from Eurostat [1] and other relevant institutions reporting those alternative indicators [2] - [5].

In this study the methods of analysis, comparison and synthesis are to be used. We also use the Pearson's correlation coefficient to calculate the dependency of selected alternative indicators and GDP per capita, and the scoring method to assess the performance of Visegrad countries.

The Pearson's correlation coefficient r measures the linear correlation between two variables X and Y and can be defined as:

$$r = \frac{\sum (X-\bar{X})(Y-\bar{Y})}{\sqrt{\sum (X-\bar{X})^2 \sum (Y-\bar{Y})^2}} \tag{1}$$

where:

X, Y = the individual variable
= the sample mean of variable X, Y

It has a value between +1 and −1, where 1 is total positive linear correlation, 0 is no linear correlation, and −1 is total negative linear correlation.

To evaluate the economy performance of Visegrad Group countries, we use one of the multi-criteria methods - the scoring method. In scoring method, within the each indicator we assign 100 point to the country reaching the highest score, and we assign the following points to the other states as follows:

To the other states as follows:

$$b_{ij} = x_{ij} / x_{j\max} \times 100 \tag{2}$$

Where:

xij = the value of the j-indicator in the i-state
xjmax = the highest value of the j- indicator
bij = point assessment of i- state for j - indicator.

Then we calculate the integral indicator di as the sum of points from particular indicators for each country. The best is the state where the integral indicator will reach the highest value.

The scoring method shows, through the number of points being obtained, the relative differences among states in observed indicators, while all territorial units are being compared with the best territorial unit in particular indicator. The advantage is the ability to aggregate the indicators being evaluated by different measure units into one synthetic characteristic, which represents a dimensionless number. By means of the integral indicator obtained this way, it is possible to determine the ranking of individual states, as well as to identify differences among countries and determine how countries are lagging behind each other.

In professional literature and scientific papers, the scoring method is used due to various reasons; however there are different types (forms) of it. Scoring method as one of the methods for multi-criteria evaluation of variants and performance of enterprises is presented by Neumannová [6], Synek et al. [7], Zalai et al. [8], Rejnuš [9] and others. The scoring method, as a method - how to assess the level of regions based on a number of indicators and subsequently to assess regional differences, is presented, for example, by Kutscherauer et al. [10], Tuleja [11], Svatošová and Novotná [12], Michálek [13], Hamada [14]. To assess the performance of states by a scoring method provides a comprehensive view how the observed countries are successful. However, the results of such assessment depend on the indicators being chosen and on the countries being involved in the survey.

2. THEORETICAL BASIS FOR THE ECONOMIC PERFORMANCE OF STATES ASSESSMENT

The goal of advanced economies in the world is to increase their economic performance, which is an expression of their economic success. The issue of economic performance is observed by many authors, such as Nordhaus and Tobin [15], Piketty and Saez [16], Osberg and Sharpe [17], Lisý [18], Habánik [19], Klvačová and Malý [20], Haviernikovå and Koišová [21] and others. By all mentioned authors the gross domestic product is considered to be the basic indicator for the assessment of state economic performance. The Gross Domestic Product (GDP) is considered to be a basic economic indicator because it reflects the performance of an economy based on the result of production factors activity being located in the territory of a country. In monetary terms, it is presented by the value of final products and services produced in the territory of a particular country in a certain period (e.g. year), no matter who is the owner of the production factors being created, it is about the final products and services that went through the official market.

Either way, this indicator measures only the economic performance of a country over a certain period. The imperfections being showed by GDP can be divided into three basic groups according to the sources of inaccuracies and imperfections that GDP includes. In particular, there are inaccuracies caused by distorted valuation, inaccuracies caused by incompleteness of data and inaccuracies resulting from the principal structure of GDP.

According to Večerník [22], against the gross domestic product being as a leading indicator a research on its critique and construction alternative indicators have been raising for several decades to better reflect and express the overall performance of economy as well as social system.

We agree with Krajňáková and Vojtovič [23] that by the GDP as indicator which main task is to assess the final production, it cannot be expected to measure and evaluate all other aspects of people's lives. That is why for a more accurate and detailed assessment of economy's performance and well-being, it is appropriate to use a combination of several indicators that take into account other aspects reflecting how the society is being developed.

In response to the unilateral usage criticism of gross domestic product as an indicator to measure the economy performance, in the second half of the twentieth century new indicators are emerging as an alternative way to this basic macroeconomic indicator taking into account also other aspects of life for the population in society. The performance of national economies is then assessed on the basis of different areas how the society is running and the quality of life of its population. For example, it can be an assessment on rating the human development, prosperity, competitiveness, social welfare, or economic freedom.

Human Development Index (HDI) is an indicator designed by United Nations to assess the status and development of human development rate and apart from the economic aspects (gross national income per capita) it is taking into account other the economic aspects of human development such as life expectancy and level of education.

The competitiveness of economy is assessed by the World Economic Forum by means of the Global Competitiveness Index (GCI). This index examines the ability of an economy to compete in international economy, taking into account 12 areas of competitiveness.

The term prosperity appears to be an alternative concept for performance. Prosperity as a multidimensional magnitude is assessed by Legatum Institute, based in London, by means of Legatum Prosperity Index (LPI). Prosperity is evaluated on the basis of nine areas (pillars).

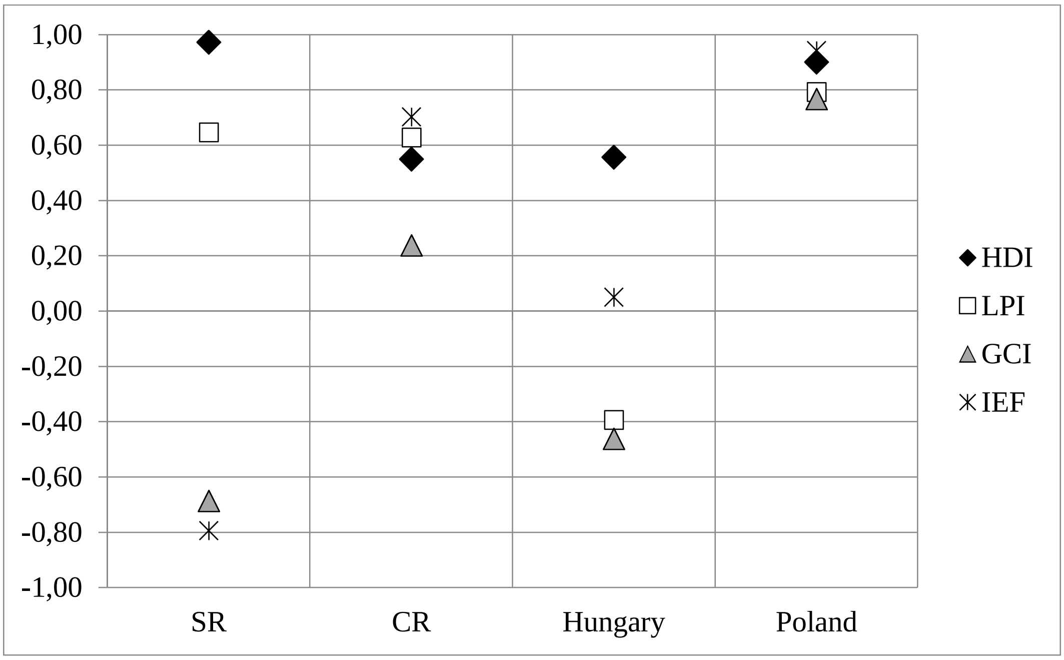
More often, in the literature, the performance and economic level of states is linked to economic freedom. Economic freedom as a complex of individual partial freedoms is able to be quantified by measuring these partial components. The US Heritage Foundation, in collaboration with The Wall Street Journal, is compiling an Index of Economic Freedom (IEF) as a study annually assessing the level of economic freedom based on 12 components of freedom.

Each of these alternative ways to assess the performance of economies has (as well as GDP) its strengths and weaknesses. The shortcomings of these indexes result, for example, from the reliability, respectively inaccuracy of particular sub-indicators, the interchangeability of indicators, and the usage of so-called "soft data" and so on.

3. THE DEPENDENCE OF ANALYZED ALTERNATIVE INDICATORS AND GDP IN V4 COUNTRIES

Based on the analysis of GDP per capita, HDI, LPI, GCI and IEF, we examine the dependency of assessed indicators and gross domestic product per capita by means of Pearson correlation coefficient. This dependence was evaluated for the 2007-2016-time series, regarding the variable of Human Development Index it is the period of 2007-2015, as data for 2016 has not yet been published. The correlation coefficient values are shown in Figure 1.

Figure 1: The dependence of GDP and selected alternative indicators (correlation coefficient)



Source: own processing, own calculations

The results of correlation analysis show the different values for the dependence of GDP and indicators assessed in individual Visegrad Group countries. The strong GDP and HDI dependence has been proved in Slovak Republic and Poland. In Czech Republic and Hungary, we can see a moderate GDP and HDI dependence.

GDP and LPI dependence is moderate in all countries, apart from Hungary where dependence is indirect. In case of GCI, the results in individual countries are very different, ranging from the negative dependence in SR and Hungary to the moderately strong dependence in Poland.

When assessing the GDP and IEF dependency we can see the negative dependence in Slovak Republic, meaning that GDP per capita is increasing despite the economic freedom is getting worse. In Poland, the GDP and IEF dependence is strong.

4. MULTI-CRITERIA EVALUATION OF VISEGRAD GROUP COUNTRIES PERFORMANCE

Regarding the V4 countries multi-criteria evaluation, we take into account the results of individual states in the basic macroeconomic indicator and in the selected alternative indicators, i.e. we evaluate the following variables: GDP per capita, HDI, GCI, LPI and IEF. The assessment is executed during the period for which the data is available in all selected indicators i.e. for the years of 2007-2015.

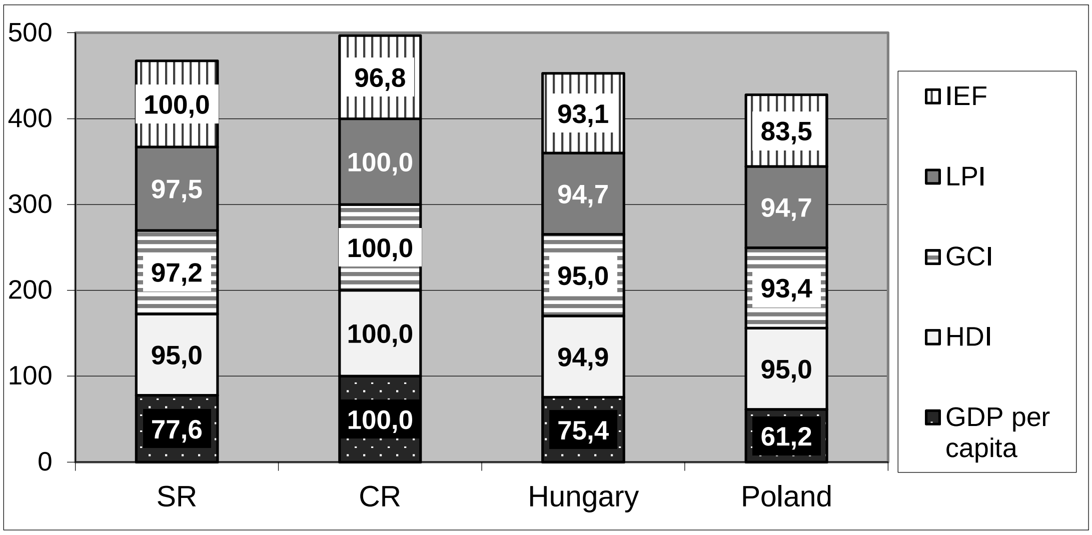
4.1 THE V4 COUNTRIES PERFORMANCE IN 2007

Year 2007 is the first year when the economy performance alternative indicators values of all the V4 countries are available for the assessment process. Based on the results achieved within the GDP per capita indicator and selected alternative indicators, by scoring method we assessed the performance of individual V4 countries' economies. The comparison of integral indicators

in V4 countries within the structure according to the number of points being obtained for each indicator is shown in Figure 2.
In 2007, the best rating, a total of 496.84 points, was obtained by Czech Republic, achieving the best results in four out of the five observed indicators, only slightly behind SR within the IEF indicator. SR obtained 29.61 points and ranked the second position (it received a total of 467.23 points), when reaching a fairly balanced rating in each indicator, apart from the GDP per capita indicator. Hungary got the third position with a sum of 452.98 points, having the weakest rating in GDP per capita. Poland finished with a score of 427.76 points.

The most balanced points were obtained by the countries in LPI and GCI indicators, while the largest gap between the best performing country CR and other V4 countries was in GDP per capita, where Poland reached only 61.2% of GDP per capita in CR.

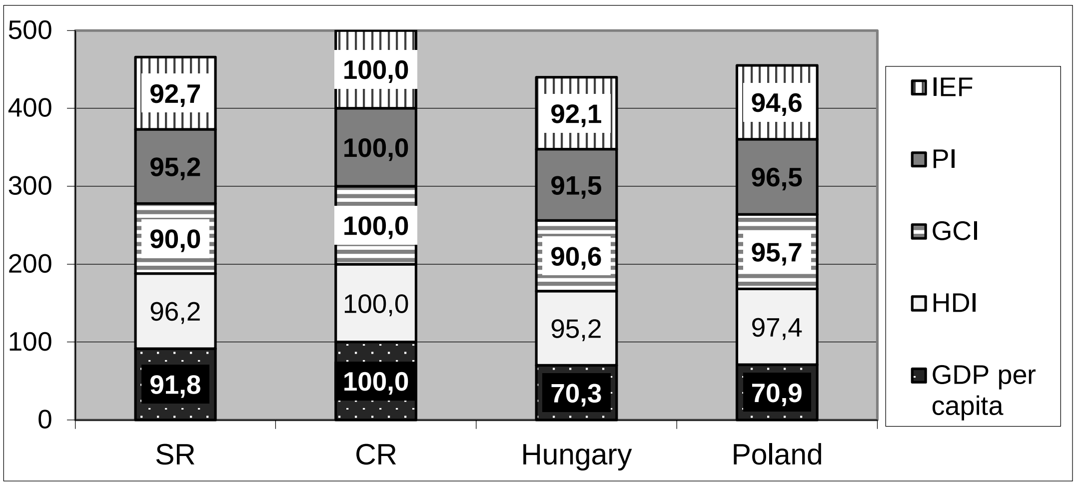
Figure 2: V4 countries performance in 2007. Source: own processing, own calculations



4.2 THE V4 COUNTRIES PERFORMANCE IN 2015

Year 2015 is the last year in which the data is available for all observed indicators. The performance of V4 states in 2015 as determined by the scoring method is shown in Figure 3.

Figure 3: V4 countries performance in 2015. Source: own processing, own calculations



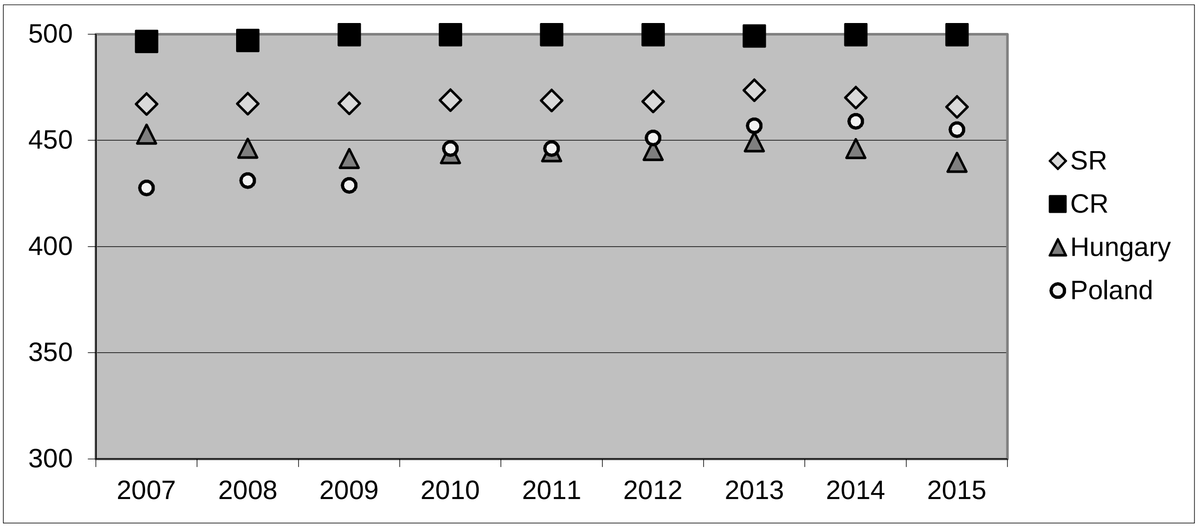
Also in 2015, CR had the best results in all evaluated indicators, reaching the maximum value of integral indicator (500 p.). The second notch belongs to SR (465.91 p.), worsening its position in comparison with 2012 in all indicators except GDP per capita.

Third in ranking, Poland has achieved better results than in 2007 (455.13 p.), but being behind SR by 10.78 p. The last is Hungary, where the value of integral indicator has been reduced to 439.76 points as compared to 2012 due to worse assessment in all indicators, apart from GDP per capita.

4.3 THE V4 COUNTRIES PERFORMANCE COMPARISON IN 2007-2015

The results of V4 countries were also quantified by using the scoring method for the other years of the 2007-2015-time series and the development of integral indicator values during the selected time series is shown in Figure 4.

Figure 4: V4 countries performance comparison in 2007-2015. Source: own processing, own calculations



From the previous analyzes as well as from the graphical presentation, it follows that in the period of 2007-2015 CR has achieved the best results within the V4 countries in the observed indicators. In the six out of nine observed years, Czech Republic has received the best rating in all selected indicators.

The performance of SR has been increasing almost every year (apart from the last two years) i.e. approaching the CR level. The best rating has been reached by SR in 2013 - 473.31 points. Poland's performance rating has been increasing, but in 2009 and 2015 there was a slight decline in its performance. Poland scored the most points in 2014 - 459.09 points.

In the first three years Hungary has been more successful than Poland, but has reached the lowest amount of points since 2010 within the V4 countries. In 2007 Hungary reached 452.98 points, in 2015 only 439.76 points.

Generally speaking, the difference within the performance of V4 states are decreasing, i.e. the gap between the other V4 countries and CR (except Hungary) has become smaller during the observed period. The smallest differences within the of V4 countries performance detected by the scoring method were in 2013 and 2014.

The largest differences can be seen in GDP per capita indicator; although in the last few years they have been slightly decreasing. The differences within V4 countries performance in the selected alternative indicators are much lower, which also results from the fact that the composite indicators are taking into account mostly the multiple sub-areas of society, companies and individuals, and are aggregating and averaging these sub-variables.

CONCLUSION

GDP has been and still remains the basic criterion how to assess the economy performance for decades, even though it does not reflect the overall complexity of the country's social and economic development and does not address the issue of the country's economic development in more complexes.

Along with the GDP criticism, several alternative approaches and indexes have emerged to eliminate the imperfections implied by GDP. These alternative concepts and approaches, on one hand, seek to capture the economy performance more precisely, but also are still oriented to extend this concept to other dimensions. In our paper, we focused on selected composite indicators: HDI, GCI, LPI, IEF.

Based on the correlation analysis, we found out strong GDP and HDI dependence in SR and Poland, and a strong dependence of GDP and IEF in Poland. By the Multi-Criteria Analysis of V4 countries' performance, we found out that CR has achieved the best performance, followed by SR. From 2010 Poland has reached the third notch and the last is Hungary. The performance of other V4 countries is close to rating of CR.

The assessment of Visegrad Group economies performance through the scoring method is only one of the options for a comprehensive multi-criteria assessment of economic and social levels of states. We realize that the scoring method as a multi-criteria method guarantees a certain degree of objectivism, but it also has certain pitfalls resulting from subjectivism, which is related to the selection of assessed indicators that may not fully reflect economic performance and social progress in a country. Another barrier to more detailed research over a longer timeframe are the different reporting periods for each alternative performance indicator and the unavailability of data for the last completed year. Nevertheless, we believe that the results of our research will be beneficial to other fields of economic science, especially macroeconomics, and will become the basis for further research on the issue.

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THE INTERDEPENDENCY OF ECONOMIC FREEDOM AND ECONOMIC GROWTH IN V4 COUNTRIES

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Abstract: *Economic Indicators such as Index of Economic Freedom and Gross Domestic Product are interrelated, thus it is interesting to observe their trend as well as to measure their mutual influence separately. The Index of Economic Freedom is a composite index being compiled from the assessment of ten categories within the four key domains. Countries with higher Economic Freedom Index have higher economic performance as well as faster gross domestic product growth, and higher gross domestic product per capita.*
We observe the development analysis of both indicators within the V4 countries in a wider context of European countries. Within the period under review, the best values within the surveyed indicators of V4 countries were reached by Czech Republic, relatively the worst values were obtained by Poland. The GDP growth rate in V4 countries was highest in Slovak Republic and Czech Republic within the observed period, meanwhile a decline in GDP growth was observed by all V4 countries that experienced a strong financial crisis in 2009. Czech Republic has been reaching the highest GDP per capita values within the V4 countries during the whole period under review.
Time series analysis, comparison and correlation analysis are the basic methods of finding and assessing the issue. The processing data were obtained from the Eurostat database, Fraser Institute, and The Heritage Foundation.

Keywords: *Gross Domestic Product, Economic Growth, Economic Freedom, Index of Economic Freedom, Economic Freedom of the World, V4 Countries.*

1. INTRODUCTION

States seek to implement economic policy measures which would increase economic performance and bring economic success. In addition to the economic development of a particular country also other factors such as social and environmental affect the quality of life in general and overall welfare of the country.

The core indicator of the country's performance is the gross domestic product (GDP). This indicator measures the economic performance of the country over a certain period. In the last few decades Gross Domestic Product indicator is linked to other indicators that complement this indicator and are more focused on other determinants of economic development such as economic freedom, competitiveness, investment, consumption, and so on.

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Economic freedom is essential to achieving economic progress and economic growth. The expression of economic freedom is freedom of each individual, property right and freedom and competition in the markets without excessive interference by state institutions. An economic policy that increases economic freedom creates the foundation for higher economic growth and higher living standards in the country.

The aim of our contribution is to evaluate the development of GDP and economic growth and economic freedom and their interdependence in the states of the Visegrad Group. In this paper, we used the time series analysis, comparison and correlation analysis, based on the statistics provided by Eurostat [1], The World Bank [2], The Heritage Foundation [3], and the Fraser Institute [4].

2. THE THEORETICAL BACKGROUND OF ECONOMIC GROWTH AND ECONOMIC FREEDOM

Economic growth is the most important parameter contributing to development of the economy. It is a process through which the production capacity of the economy is increased [5]. As Habánik and Koišová [6] show, increasing economic growth also means increasing the supply of products and services the economy is capable of providing. Every economy seeks to achieve long-term growth respectively sustainable growth. In order to maintain the growth in the economy, it is necessary to support it through the use of new technologies, their development and the use of new knowledge in economic practice.

This results in a long-term increase in the ability of the economy to provide its people with more products and services and to contribute to their better lives.

Economic growth is most often measured by the indicator of the rate of economic growth expressed by the percentage growth of the real gross domestic product in a given year compared to the previous year. Economic growth is closely linked to economic freedom. Economic freedom is generally characterized by a state in society where there are no government interventions, restrictions on production, distribution and consumption of goods and services. In this context, the primary function of the government should be the protection of private property and the provision of basic infrastructure for the smooth implementation of the exchange of goods and services.

The liberal view of economic freedom has been developing since the 16th century in the works of J. Lock, later A. Smith and other economists. Today's understanding of economic freedom stems from these theories and can be understood as a continued development of Smith's principles. [7] The basis for economic freedom is private ownership, freedom in the provision of services and the ability to make own decisions about own resources [8].

In current scientific works, individual authors define economic freedom differently. Miller and Kim [9] define economic freedom as a state in which each individual can act with maximum autonomy and independence with minimal barriers to seeking his economic livelihood and greater prosperity.

Lawson [10] perceives economic freedom as an economic system of private ownership and a free market, with its core elements being personal choice, voluntary exchange, freedom to compete on the market and protection of person and property. Gwartney, Lawson and Hall [11] understand economic freedom as a condition where individuals have the option of choosing and entering into voluntary exchanges to the extent that they do not harm individuals or property of other individuals. Lisý et al. [12] note that the level of economic freedom in the country significantly affects economic growth and economic levels. Economic freedom affects the level of foreign direct investment, employment, rate of disputes, the distribution of pensions, the degree of poverty, but also the development of the economic cycle.

Although each of the perceptions of economic freedom is slightly different, what they have in common is the principle of protection of private ownership i.e. the right of the owner to dispose of their property according to their interests, the recognition of the existence of the free market where the role of the state is to secure the rights of owners.

As already mentioned, economic freedom is closely linked to economic growth, essentially economic freedom fosters economic growth. Moers [13] embraces economic freedom along with the protection of property rights and a sound legal system as the pillars of economic growth. Webster [14] explored the relationship between economic freedom and economic growth, and concluded that economic freedom is a predicament for sustainable economic growth.

Similarly, North [15] and Sen [16] emphasize the importance of economic freedom for economic progress. North argues that one of the main reasons for slower economic development of Spain, Portugal and their colonies in South America (compared to the United Kingdom and its colonies in North America) was the lack of economic freedom, low protection of private property against expropriation by the state.

Moravčík [17] states that the level of economic freedom in the country significantly affects economic growth and economic level. Economic freedom is influenced by the level of foreign direct investments, employment, rate of disputes, distribution of pensions, the degree of poverty, and the development of the economic cycle.

Interactions between economic freedom, income inequality and economic growth were examined by Ismail and Hook [18]. Their empirical results show that economic freedom and income inequality are statistically significant determinants of economic growth, improved economic freedom and income equality lead to economic growth.

Kešeljević [19], in connection with the importance of economic freedom, also maintains that a private initiative in a well-protected property environment and a good legal system, high quality institutions, clear playing rules and consensus building can lead to significant differences in economic development across countries.

Gwartney and Lawson [20] have found in their research of economic freedom that in freer economies the rate of economic growth is higher, there is more investment, the productivity of investment is higher, there is less poverty, the distribution of income is more equal, people live longer and there is less corruption in business and government. They also proved a high degree of dependence between economic freedom and political rights and civil liberties. Economic freedom raises incomes and improves living standards. The freer the economy the higher is the rate of economic growth, and the wealth of people. Moreover, economic freedom clearly increases life expectancy, improves the lives of the poor, improves the lives of children and supports democracy and many other desirable aspects of healthy societies. [21]
Diaz a Montes [22] examined by means of a structural equations model, an account of the economic freedom factors and their importance. According to them economic freedom

manifests through: business freedom, trade freedom, fiscal freedom, government size, monetary freedom, investment freedom, financial freedom, property rights, freedom from corruption and labour freedom. Their results show that all the considered freedoms have statistical significance. The most influential freedoms are the ones related to the property rights and the freedom from corruption, showing that a sense of safety is of the utmost importance for the economic freedom. There is a negative correlation between the economic freedom and the fiscal freedom and between the economic freedom and the government size. Based on their findings, they created their own economic freedom index.

3. ECONOMIC FREEDOM ASSESSMENT

Economic freedom as a complex of individual partial freedoms is quantifiable by measuring these partial components. The measurement and evaluation of economic freedom has been done by several institutions as well as by independent researchers. Among the world's most significant indicators, the Index of Economic Freedom and Economic Freedom of the World can be included in the assessment of economic freedom.

Index of Economic Freedom

The US Heritage Foundation, in collaboration with The Wall Street Journal, is compiling an Index of Economic Freedom (IEF) study each year. This indicator has been showing since 1995, within the economic freedom assessment in more than 170 countries. The Index defines economic freedom as "the limitation of governmental influence on decision-making process on production or consumption of goods and services beyond being necessary to preserve the freedom by itself" [23]

The Heritage Foundation [3] states on its website, that economic freedom is the fundamental right of every human to control his or her own labor and property. In an economically free society, individuals are free to work, produce, consume, and invest in any way they please. In economically free societies, governments allow labor, capital, and goods to move freely, and refrain from coercion or constraint of liberty beyond the extent necessary to protect and maintain liberty itself.

The assessment of economic freedom by Economic Freedom Index is based on partial components, which consist of other quantifiable indicators.

The Index of Economic Freedom focuses on four key aspects of the economic environment over which governments typically exercise policy control: Rule of law, Government size, Regulatory efficiency, and Market openness. These aspects consist of components such as Property Rights, Judical Effectiveness, Government Integrity, Tax Burden, Government Spending, Fiscal Health, Business Freedom, Labor Freedom, Monetary Freedom, Trade Freedom, Investment Freedom and Financial Freedom. Each of the twelve economic freedoms within these categories is graded on a scale of 0 to 100. A country's overall score is derived by averaging these twelve economic freedoms, with equal weight being given to each. The resulting index ranges from 0 to 100, where 100 represent the highest number of points. [3]
Based on the number of points earned, a ranking of rated states is compiled and the states are divided into five groups: free (score 80-100), mostly free (score 70-79.9), moderately free (score 60-69.9), mostly unfree (score 50- 59.9), repressed (score 0-49.9).

Within the economic freedom assessment, the Heritage Foundation builds on the databases and findings of many institutions and international organizations, such as World Economic Forum, World Bank, International Monetary Fund, World Competitiveness Report; Doing Business; Country Risk Assessment and many more.

Economic Freedom of the World

Canadian think-tank Fraser Institute is another institution dealing with the economic freedom assessment. Since 1986, this institute has been organizing an international conference on economic freedom with the participation of major world economists (Michael Walker, Milton Friedman, Rose Friedman, Douglass North, Gary Becker, William Niskanen and Gordon Tullock), culminating in issuing the publication titled the Economic Freedom of the World [24]. The basis of economic freedom by Fraser Institute is: personal choice, voluntary exchange coordinated by markets, freedom to enter and compete in markets, and protection of persons and their property from aggression by others. Individuals have economic freedom when property they acquire without the use of force, fraud, or theft is protected from physical invasions by others and they are free to use, exchange, or give their property as long as their actions do not violate the identical rights of others. Individuals are free to choose, trade, and cooperate with others, and compete as they see fit. [25]

Since 1996, Fraser Institute has set up the Economic Freedom of the World (EFW), being designed to measure the extent to which state institutions and policies are consistent with the protection and freedom of individuals to make their own economic decisions. According to Fraser Institute [4], crucial elements for freedom are following aspects are: private property protection, a fair legal system, equal treatment of agreements, a stable monetary environment, a low tax burden, free foreign trade, and a low degree of state interference.

On the basis of the stated above, the Economic Freedom Index of the World consists of five major areas: government size, law and security of property rights, money, and free foreign trade regulation. Within the five major areas, there are 24 components in the index. Many of these components are themselves made up of several sub-components. In total, the index consists of 42 distinct variables [4]. Values for all variables are retrieved from external sources to avoid subjectivity from index creators. Data from the International Country Risk Guide, the Global Competitiveness Report, the World Bank's Doing Business project, etc. is used. The index for previous years is updated by each new release in order to take into account the revision of basic data. For some countries the data is recalculated back to 1970.

Each component and sub-component is placed on a scale from 0 to 10 that reflects the distribution of the underlying data. When subcomponents are present, the sub-component ratings are averaged to derive the component rating. The component ratings within each area are then averaged to derive ratings for each of the five areas. In turn, the five area ratings are averaged to derive the summary rating for each country. [4]

However, in relation to the economic freedom assessment, it should be noted that there are also various negative aspects of its measurement (suitability and accuracy of data used) and some authors reject the economic freedom assessment as such because they claim that economic freedom is not the only thing that matters, there are many other things being seen by people as more important [26] - [28]. As Kešeljevic [19] points out, economic freedom indexes may have certain shortcomings, as they are based on the idea of absolute, individual and objective economic freedom. His detailed political and economic analysis of economic freedom has shown that economic freedom is collective, relative and subjective issue. Moreover, according to the author cited above, these indexes do not pay attention to different cultures, norms and values that undoubtedly have a strong influence on understanding the economic freedom issue.

4. THE ANALYSIS OF ECONOMIC GROWTH AND ECONOMIC FREEDOM IN VISEGRAD GROUP COUNTRIES

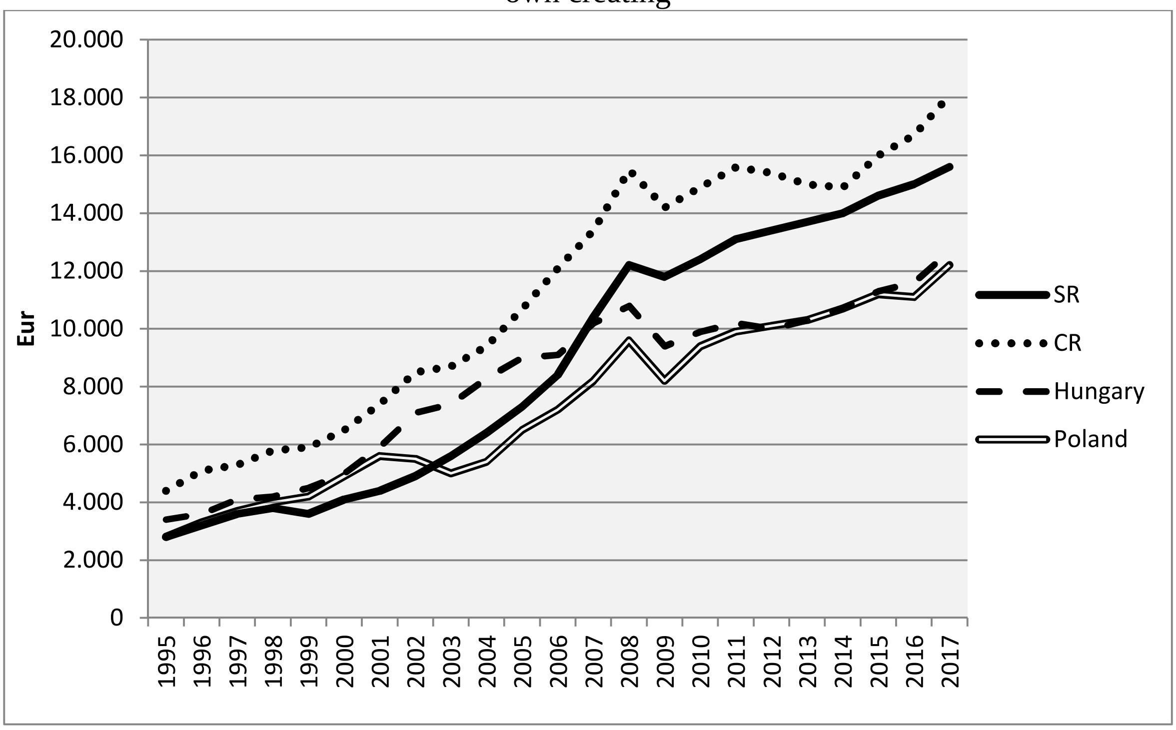
The Visegrad Group is an informal block of four Central European post-communist countries: Slovak Republic, Czech Republic, Hungary and Poland. It was formed during a meeting of representatives of the Czech and Slovak Federal Republic, Hungary and Poland on 15 February 1991 in Vyšehrad, northern Hungary, with the goal and vision of closer cooperation in the region of Central Europe. [29]

The Visegrad Group wants to contribute to building a European security architecture based on effective, functionally complementary and mutually reinforcing cooperation and coordination within existing European and transatlantic institutions. In order to preserve and support cultural cohesion, the cooperation within the Visegrad Group will be promoted by the dissemination of values in the field of culture, education, science and information exchange. All activities of Visegrad Group are aimed at strengthening stability in Central European region. The participating countries perceive their cooperation as a challenge and its success as the best proof of their ability to integrate into structures such as European Union. [30]

4.1. THE ECONOMIC GROWTH ANALYSIS IN V4 COUNTRIES

The assessment of economic growth is measured by using the Gross Domestic Product indicator. GDP as a traditional indicator of the performance of economies; it evaluates the result of the activity of economic entities located in the territory of a country. The development of GDP per capita in Visegrad Group countries in 1995-2017 is shown in Graph 1.

Figure 1: Development of GDP per capita in V4 countries (Eur, market prices) Source: [1], own creating



GDP per capita in the V4 countries was increasing year by year, with the exception of 2009 when also the V4 countries experienced an economic crisis resulted in a decline of GDP per capita. In Czech Republic, GDP per capita was slightly decreasing even after 2011, in Poland in 2002 and 2003, in SR in 1999.

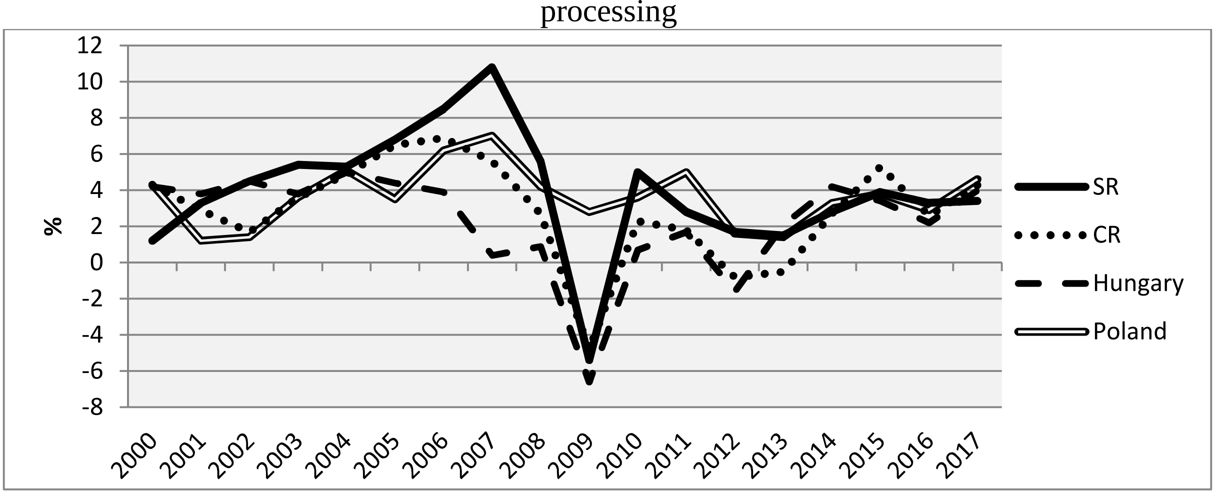
During the whole observed period, the highest GDP per capita was reached in Czech Republic, in 1995 it was 4400 EUR, and in 2016 it was already 16500 EUR, being a significant increase by 275%. By 2006, the second highest GDP per capita among the V4 countries was recorded in Hungary, but in 2007 Slovakia got ahead of Hungary and Poland also in 2012-2015. In Hungary, GDP per capita moved up from € 3400 in 1995 to € 11500 in 2016, i.e. more than 238%. During the observed period, the biggest leap in GDP per capita was recorded in Slovakia - from EUR 2800 to EUR 14900 in 2016, i.e. by 432%. In Poland, a positive GDP per capita development can be observed, especially after 2003. Overall, GDP per capita increased from EUR 2800 in 1995 to EUR 11000 in 2016, an increase of almost 293%.

Real Gross Domestic Product, i.e. GDP, being expressed in constant base prices, is the basis for determining the growth rate of GDP (the economic growth rate), which is one of the key indicators of a successfully performing economy and favorable economic growth achievement, and is one of the basic macroeconomic objectives. Habánik [31] argues that while GDP is the basic parameter of economic prosperity, GDP growth is an indicator of economic development. Figure 2 shows the evolution of economic growth rate in V4 countries.

The GDP growth rate in Visegrad group countries in the years of 2000-2016 was developing variably. In Slovak Republic, significant growth 10.8% can be observed in 2007, which is the highest GDP growth rate in whole observed period in all V4 countries. However, in 2009, the economic crisis in Slovak Republic showed a significant decline in GDP (by 5.4%). In upcoming years, Slovak economy has achieved lower GDP growth than in the pre-crisis period.

The GDP growth rate in Czech Republic was similar to the one in Slovak Republic with the difference that not such big values of economic growth were achieved as they were in SR, the highest growth in Czech Republic was recorded in 2006, 6.9%. Also Czech economy was hit hard by the crisis, GDP dropped by 4.8% in 2009. In the next two years, GDP growth was positive, but in 2012 and 2013, GDP growth rates were negative.

Figure 2: The real GDP growth rate development in V4 countries (%) Source: [2], own processing



The GDP growth rate in Hungary was different. The transformation of economy, associated with liberalization, privatization and tax reforms, started the economic growth that helped Hungary join European Union. However, government indebtedness and termination of some reforms have gradually led to economic problems, and since 2005 there has been a slowdown in economic growth. Economic problems have been fully visible during the financial and economic crisis, with GDP drop by 6.6% in 2009. Although in the following two years Hungary experienced a slight recovery, another decline in gross domestic product can be seen in 2012 (by 1.6%). Since then, Hungary has experienced moderate GDP growth, real GDP has been moving up by 4% in 2014 and by 2% in 2016.

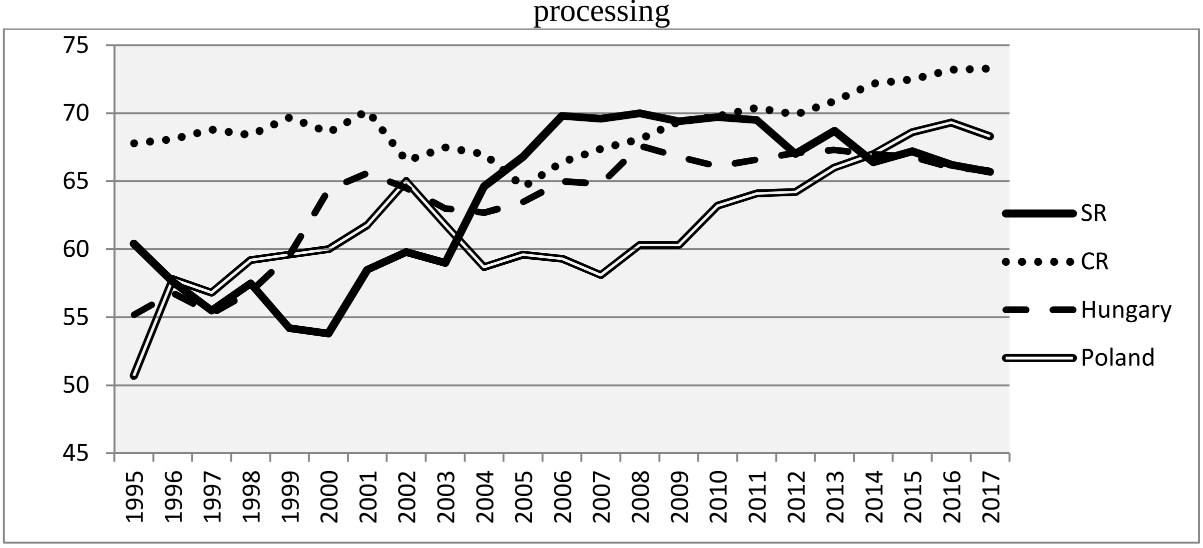
In Poland, annual real GDP growth can be seen (at most in 2007: 7%). Poland, as the only economy among the V4 countries, was not so badly affected by recession, and the economic crisis caused a slowdown only in the real growth of gross domestic product. In 2016, the real GDP increased by 2.7%.

4.2. DEVELOPMENT OF INDEX OF ECONOMIC FREEDOM IN V4 COUNTRIES

The Heritage Foundation reports an Index of Economic Freedom, already issuing an assessment for the year of 2017. The development of Economic Freedom Index in V4 states is shown in Figure 3.

The Index of Economic Freedom in V4 countries had a positive development in the period under review. In Slovak Republic, the Economic Freedom Index was increasing significantly in 2000-2006 when it reached the value of 69.8 in 2006. In 2005-2008 even Slovakia achieved the best results among the V4 countries. However, the results got worse and the index dropped to 65.7 in 2017, being the worst value among the V4 countries.
In most years during the observed period, Czech Republic has reached the highest value within the Economic Freedom Index, with an annual growth since 2005, and in 2017 the Index reached 73.3. Poland had the worst results in 2003-2013, but the index was rising gradually from 58.1 (2007) to 69.3 in 2016, making Poland rank second among the V4 countries after Czech Republic. The development of Economic Freedom Index in Hungary was fluctuating, the highest value was reached in 2008, 67.6.

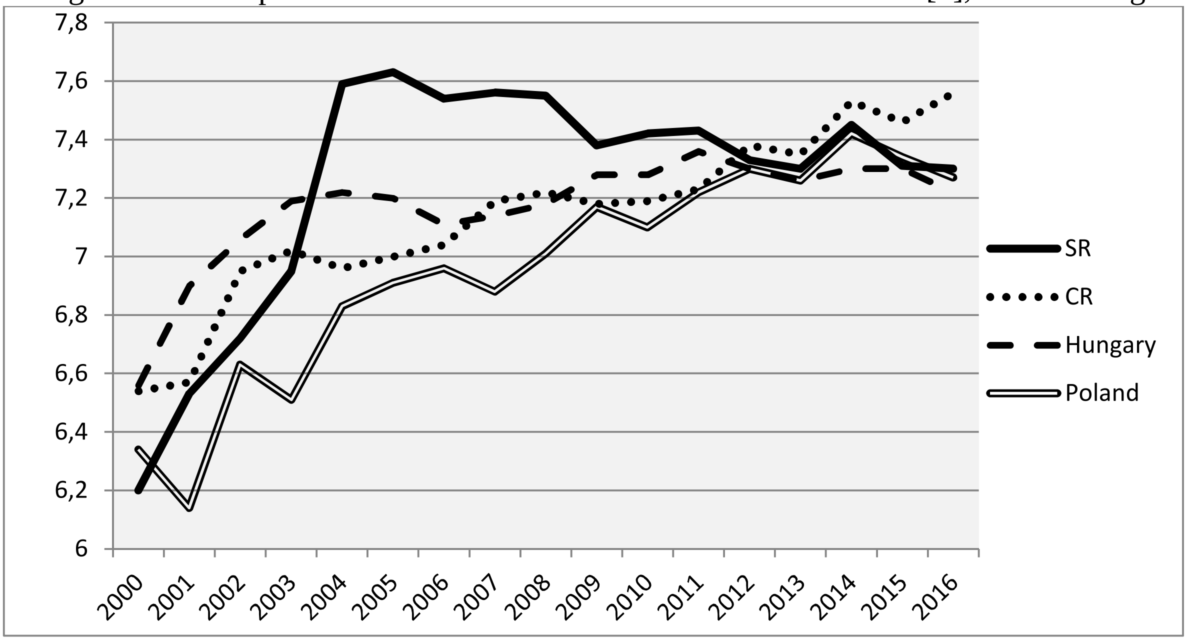
Figure 3: The Index of Economic Freedom Development in V4 countries. Source: [3], own processing



4.3. DEVELOPMENT OF ECONOMIC FREEDOM OF THE WORLD IN V4 COUNTRIES

A complete time series, in which the Fraser Institute is assessing the economic freedom in Visegrad Group countries, has been in action since 2000. Figure 4 shows the development of EFW by 2015, based on the 2017 annual report.

Figure 4: Development of Economic Freedom of the World. Source: [4], own creating



The graphical representation shows that the values of economic freedom in V4 countries have improved over the period under review. The most significant improvement within the index is observed in Slovak Republic in 2000-2004 (from 6.2 to 7.59) and Slovakia has become the most economically free country of V4 and was keeping this position until 2011. After 2004, however, the economic freedom index in Slovak Republic generally got worse, dropping to 7.31 in 2015.

Czech Republic achieved a score of 6.54 in 2000; making the EFW the second best among the V4 countries. Gradually, the EFW Index of Czech Republic improved, when Czech Republic topped the Visegrad countries, and the value of the index increased at 7.53 in 2014.

In the first years of the period under review, Hungary has been the most economically free country among V4 countries, but the slowdown in 2006 and in the last three years and the current improvement within the economic freedom in other V4 countries were the reasons why Hungary fell down to the last position among V4 countries in 2014, with the index value 7.3.

The development of the EFW index in Poland can be described as fluctuating, jumping, with a significantly increasing tendency, having the second highest growth after Slovakia. Although in 2001 the Index fell to 6.14; in the following years, it was gradually increasing to 7.42 in 2014. In 2015 the EFW index slightly dropped to 7.34.

4.4 ECONOMIC FREEDOM AND GDP DEPENDENCE

In this section, we will figure out the dependence of assessed indicators and gross domestic product per capita by means of Pearson correlation coefficient. This dependence was assessed for the 2000-2017-time series (for EFW 2000-2016). The correlation coefficient values being found are shown in Table 1.

Table 1: Dependence of economic freedom indexes and GDP. Source: own calculations

Indicator/Country	*SR*	*CR*	*Hungary*	*Poland*
IEF	0.71	0.64	0.39	0.71
EFW	0.60	0.91	0.81	0.89

The results of the correlation analysis show the different values of GDP and the assessed indicators in individual countries of Visegrad Group.

The highest dependence between economic level and economic freedom (IEF and EFW) is in Poland. In CR and Hungary there is a strong dependence between GDP per capita and EFW, the moderate dependency between GDP per capita and IEF. In case of SR, we found a slight dependence between the economic level and both indexes of economic freedom.

CONCLUSION

In many scientific studies and publications, the economic freedom and its relationship to economic performance and other socio-economic indicators is being assessed. Studies show that economic freedom positively influences the level of well-being of the nation. The level of economic growth is the basis of prosperity. In terms of economic growth development in V4 countries, the best results in the whole observed period are reported by Czech Republic, both in terms of economic growth and GDP per capita. Hungary has been achieving good results in this indicator, after the crisis Czech Republic was followed by Slovak Republic. In Poland, the positive development of GDP per capita can be observed after 2003, but Poland is still ranked as the last within the V4 countries. Within the Economic growth rate indicator, the best results were obtained by Slovak Republic from 2004 till 2009. However, in average, Poland has relatively achieved good results during the whole observed period; after 2015 the development in this indicator in the V4 countries is becoming balanced.

Economic freedom values in V4 countries during the period under review are achieving good values. The most significant improvement within the index is observed in Slovak Republic in 2000-2004 (from 6.2 up to 7.59) and Slovakia was the most economically free country within the V4 countries, and was keeping this position until 2011. After 2011 Slovakia was replaced by Czech Republic, the other V4 countries have a balanced development after 2011.

The values of dependence between economic growth and economic freedom differ in V4 countries. Relatively highest dependence is shown by Poland and the least dependence by Slovak Republic. In Czech Republic and Hungary, the economic freedom indicators (IEF and EFW) have significantly different values.

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LOCAL CURRENCY SYSTEMS IN GERMAN-SPEAKING COUNTRIES - SELECTED ISSUES

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Abstract: *Alternative currencies, including local currencies, have recently gained enormous popularity. The oldest local currency is the Austrian currency Wörgl, created in 1932, the main feature of which was the loss of value by 1% in the absence of its use. Unfortunately, the Central Bank of Austria closed the project a year later; however, the rise of Wörgl gave an impulse to create more local currency systems. In 1934, the WIR project was launched in Switzerland (from German "we"), it is the oldest local currency still functioning today. Currently, there are about 5,000 local currencies of various types around the world, and new ones are constantly arriving, but this article will examine, due to their specificity, only local currency systems in German-speaking countries.*

The purpose of this paper is to identify the similarities and differences between selected local currencies in German-speaking regions. The functioning of local currency systems, prerequisites for the creation of such systems and causes for the fall of some of them will be analyzed. The author will identify the reasons for impulses to create local currencies in these regions and will look for the answer to the question: "Why did local currencies appear in the German-speaking countries as one of the first in the world?".

The territorial range includes the following countries: Germany, Austria, Switzerland and Luxembourg. The time range will cover the years 1932-2017. The subject of research will be selected systems of local currencies. The article is a descriptive analysis based on studies of mainly English-language literature, Community Currencies in Action (CCIA) reports, selected local currencies websites, and financial law studies. The comparative method was used to examine the similarities and differences in the functioning of local currencies in German-speaking countries.

The conducted research has shown that local currencies largely support the development of regions, encourage entrepreneurship and strengthen the position of enterprises, mainly the SME sector. Local currency systems do not only affect the local market, but also have an influence on the development of the economy of the whole country. The research shows that local currencies have become the simplest chance for selected regions to reduce unemployment, increase investment attractiveness, and sometimes even eliminate social unrest and petty crime.

Keywords: financial market, money, local currencies

1. INTRODUCTION

In 1932, when first local currency Wörgl appeared, nobody assumed that it may initiate occurrence of similar ventures all over the world, which will be a real alternative for the traditional money. The idea of local currency, in spite of simplicity of use, may turn out to be the most efficient way of development of local community. The aim of the study is characteristics and analysis of selected local currencies in German-speaking countries, where several dozen of such currencies are functioning. These countries can be seen as pioneers in

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implementation of local currencies systems. It is accepted, that the first local currency in the world occurred in 1932 in Austria. However, Swiss currency WIR has been functioning continuously since 1934 as the oldest local currency which is still in use. It is also worth paying attention to Regiogeld system, created in Germany, which gathers local currencies of German-speaking countries. Regiogeld system, as unique in Europe, provides support to creators of local currencies and users of the currencies.

Territorial scope of the study covers such countries as: Germany, Austria, Switzerland and Luxembourg. The temporal scope spans years 1932 – 2017 and the subject of studies is selected systems of local currencies. The article has a character of descriptive analysis which was conducted based on studies of Polish, English and German literature, publications of Community Currencies in Action (CCIA), the websites of selected local currencies and studies in the field of financial law. A comparative analysis method was used in order to examine similarities and differences in functioning of local currencies in German-speaking countries.

2. THE IDEA OF LOCAL CURRENCIES

Local currencies are subgroup of alternative currencies whose functions can be described best as „conventional tender of a certain social group". Therefore, local currencies are an alternative to money traditionally used in a given country [1]. The idea of application of local currency as an attractive way of the local development, especially of small and medium-sized enterprises, which is implemented since less than a hundred years. The concept of alternative currency is closely linked to notion of social economy and constitutes „the core" of the development of local communities. Local currencies occur mainly in developed countries. In western Europe communities involved in social entrepreneurship very often appoint and create local currencies [2].

Local currencies can be material or in a form of IT record as virtual money (cryptocurrency). They are not supported and are not subject to interference by governmental authorities or central bank. The advantages of systems of these currencies are lack of inflation and low maintenance costs [3]. Local currencies are not transferred outside the region where they are functioning, but they increase the local market. The currency supports local businesses by generating local trading, so it functions as a catalyst of local entrepreneurship and integrates the community of the region. Their greatest benefit is involving capital on a given area, reducing the problem of gridlock and preventing situations from speculations which distort the idea of traditional money [4].

Among about 6000 currencies, local monetary systems dominate – social currencies (80-90%) [5]. The marketing of the local currencies is promoted by **Community Currencies in Action (CCIA)**, partially funded by European Union, which supports existing systems of local currencies and helps to implement new pilot currencies on the market. As at May 2015 CCIA kept 6 programmes of pilot currencies: *SoNantes* in France inspired by Swiss WIR, *Makkie* and *TradeQoin* in Netherlands, *E-Portemonnee* in Belgium, *Brixton £* in Lambeth and *Spice Timebanks* in Great Britain [6].

3. SELECTED LOCAL CURRENCIES OF GERMAN-SPEAKING COUNTRIES

In **Austria**, **Wörgl** – the currency named after the town and created in 1932, is a pioneer of local currencies. The mayor Michael Unterguggenberger who took into consideration rising unemployment and deepening global crisis, decided to use the concept of Silvio Gesell, an economist, and issued Wörgl shilling, which was exchanged at hard peg 1:1 into schilling issued by the Central Bank of Austria [7]. The owner of an alternative currency had to go for a stamp to the office every month and pay 1% of its nominal value. Silvio Gesell called this fee a *demurrage* tax (also called negative yields). The essence of demurrage is mandatory fee for downtime of money which should encourage to spend money. In case of Wörgl it enforced 13 times faster money turnover than turnover of Austrian schilling in economy [3]. As a result, unemployment fell over in few months and economic situation improved significantly (many jobs appeared, poverty fell, the town made planned investments, new residential buildings were built as well as ski jump) [7]. Unfortunately, the Central Bank of Austria closed the project after a year, thus poverty came back to the town. Nevertheless, Austrian Wörgl became a pioneer of systems of local currencies worldwide.

In **Switzerland** local currency **WIR** was created. It was inspired by Austrian Wörgl and is considered to be the oldest local currency which is still in use. WIR is an abbreviation for „Wirtschaftsring" (from German language „economic cycle") but also „Wir" (from German language „we") [8]. This local currency is mainly involved in support of small and medium-sized enterprises of the construction, building, manufacturing and hotel sectors. WIR has been functioning continuously since 1934 and has complete cover in tangible assets (it is created against the assets) [9]. The members of this system may take out interest-free credits [3]. Since 2004 WIR franc has been registered as currency and is functioning parallel to Swiss franc, while in 2005 the Swiss uttered WIR Euro as third national currency. Since 2013 WIR has had over 60 000 users: 45 000 SMEs and 15 000 entrepreneurs and shareholders [8]. In 2013 WIR organized about 17% local business of Switzerland and it is estimated that by the end of 2018 it will be about 20%. In 2017 WIR Bank recorded profits of about CHF 15 million, while its assets amounted over CHF 5 trillion with about CHW (WIR Swiss franc) 1 trillion [10].

In **Luxembourg**, local currency was introduced by Mayor Camille Gira and project coordinator Max Hilbert. The currency named **Beki** was introduced at the end of 2012 in Redange canton [11]. The currency is converted into euro 1:1 and was mainly designed from the need to move canton towards environmental sustainability and support of small and medium-sized enterprises what, on the assumption, will enhance autonomy of the region [12]. In order to use the currency, businesses and private citizens have to be „De Kar" members – organization which manages Beki local currency. Although the currency is completely convertible to euro, the consumers, in order to exchange Beki back to conventional currency, have to pay handling fee of 5% (it ensures income for further functioning of the currency and additionally encourages expenses in local currency instead of euro) [11]. At the beginning of 2016 500 000 euros were converted to Beki currency and number of consumers reached almost 100 companies and associations. A great proponent of Beki is local shopping mall PALL in Oberpallen with about 20 shops, restaurants and providers accepting local currency Beki. Also, farms selling organic vegetables, local bakers and EIDA (local environmentally-friendly power station) are consumers of this currency. Some consumers accepted even 20 000 Beki on single invoice [13]. Beki currency belongs to German network of local currencies (Regiogeld), which is presented in Figure 1.

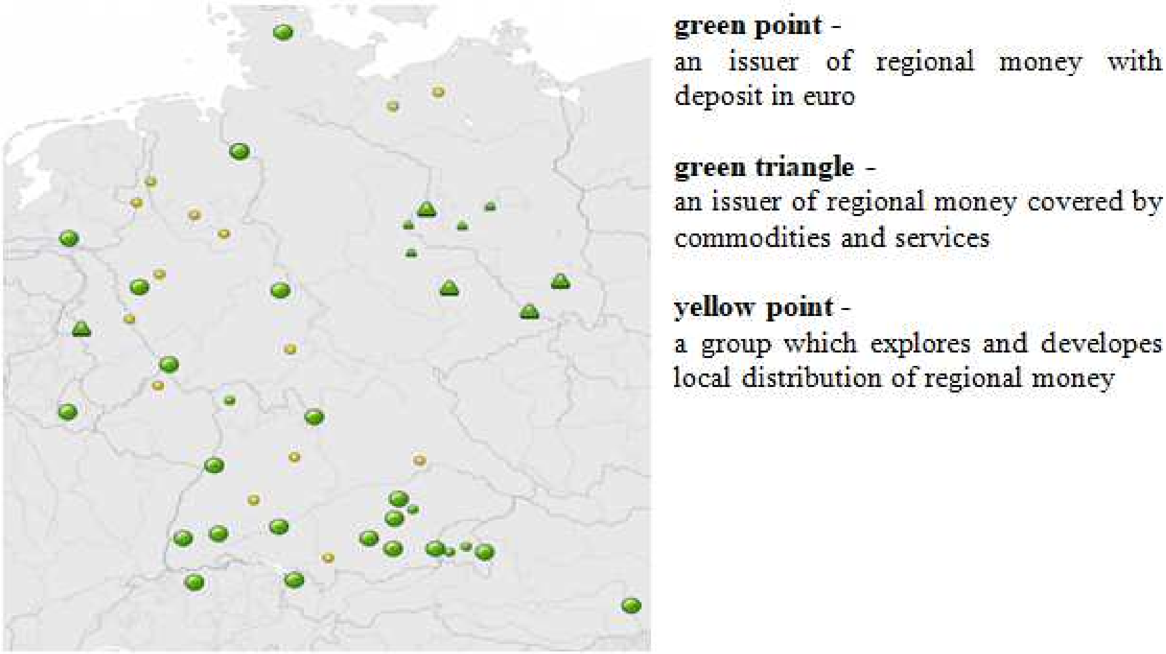

Figure 1: The members of Regiogeld network

Germany is a country where several local currencies are functioning (there are 46 as on 2016), some of them belong to **Regiogeld** network (Fig.1.). Regiogeld brings together local currencies of Germany (*Chiemgauer, Havelblüte, Elbtaler, Vorarlberger Talente* and others – together 28), Luxembourg (*Beki*), Switzerland (*Tallent*) and Austria (*STYRRION*) [14]. The organization provides professional assistance for regions which decided to implement alternative currency. On its website, the organization updates a map of local currencies, also advises and arranges trainings and conferences. The idea of Regiogeld is to complement national currency by regional money [15]. Association in Regiogeld is to promote economies in order to increase welfare in regions by [16]:

- merger purchasing power of regions by promoting regional businesses and stimulating regional economic cycles,
- support in selling regional products, generating new revenues and creating new jobs,
- help in shortening transport routes and hence, promoting environmentally friendly way of running the business.

Chiemgauer local currency, created in 2003 in Prien am Chiemsee in Bavaria (in **Germany**), also belongs to Regiogeld network. The creator of the project was an academic staff Christian Gelleri who launched Chiemgauer currency together with students [17]. Preserving the movement of banknote requires payment from the owner once in every three months in form of *demurrage* tax. The proponents of the system estimate, that Chiemgauer circulates in cycle 2.5 times faster than euro. The entrepreneurs who take part in the programme pay 100 euros once and pay a monthly sum of 5 to 10 euros (depending on trading), moreover exchange Chiemgauer to euro requires to pay 5% commission by the entrepreneur [18]. The good point is the possibility of taking out a micro-credit in this local currency. Chiemgauer also supports non-profit organizations, which buy 100 Chiemgauers for 97 euros and sell for 100 euros, gaining 3% for their own prosperity [19]. In 2003 EUR 68 286 was exchanged to new currency and in 2012 it was EUR 1864 463. The turnover reached 5.1 million euros. In 2010 it was disbursed micro-credit of 20 000 Chiemgauers. From April 2010 to December 2011 275 credits were granted. In May 2013 it was possible to pay in local currency 567 entrepreneurs from such sectors as catering, supermarkets, car workshops and hotels [2]. The success of Chiemgauer led to establishing other, similar Regiogeld programmes, such as Havelblüte, Sterntaler and Urstromtaler [19].

Sozialmarkt (*from German language social market*) is an interesting initiative in German-speaking countries, which balances between social economy and alternative currency. First Sozialmarkt'es occurred in 2006 in order to give work to long-term unemployed. Products, which are hand-made by unemployed, very often fixed appliances which had been found on a dump, are offered on Sozialmarkt. Gold thaler is the currency which equals 50 cents and can be bought in a checkout during Sozialmarkt, and it enables purchases [2]. Additionally, within Sozialmarkt in Austria there are special shops for people with low income, where they can buy cheaper goods (at wholesale prices) [20].

Studied local currencies of German-speaking countries has been compared in Table 1.

Local currency	***Country***	***Year of establishment***	***Is it still functioning?*** *	***Belonging to Regio-geld*** **	***Attitude of the country's authorities to functioning of local currencies***	***Objectives***	***Characteristic***
Wörgl	Austria	1932	No[1]	No	Negative (elimination of the currency and penalties for the founder)	improvement of the socio-economic situation of the town	demurrage tax (1% per month of nominal value of the currency)
WIR	Switzerland	1934	Yes	No[2]	Positive (favorable financial law: WIR Franc and WIR Euro[3)])	support of small and medium-sized businesses	possibility of taking out a micro-credit in WIR
Beki	Luxembourg	2012	Yes	Yes	Neutral (lack of precise legal measures)	- environmental sustainability - support of small and medium-sized businesses	handling fee 5%[4]
Chiemgauer	Germany	2003	Yes	Yes	Neutral (lack of precise legal measures)	support of non-profit organizations (3%)[5]	- monthly commission from 5 to 10 euros[6] - exchange to euro requires 5% commission

* According to data as at 30 October 2018
** Source: Regiogeld, *Aktuelle Regiogeld-Initiativen* http://regiogeld.com/aktuelle-regiogeld-initiativen/ [access: 29-10-2018]

1 Project Wörgl was closed down by Austrian authorities in 1933
2 WIR is attempting to create own currency network covering whole Switzerland
3 Since 2004 WIR Franc is registered currency functioning parallel to Swiss franc, additionally the Swiss introduced WIR Euro as third national currency in 2005
4 The consumers have to pay a handling fee of 5% in order to exchange Beki to conventional currency
5 Chiemgauer supports non-profit organizations which buy 100 Chiemgauers for 97 euros and sell for 100 euros gaining 3% for their own prosperity
6 Depending on trading

Table 1: Comparison of selected local currencies in German-speaking countries over the period 1932-2017

Local currencies of German-speaking countries, although they were introduced in different periods of time (1932-2012) and different economic conditions, have relatively similar objectives and targets. Some currencies, for instance German Chiemgauer, support local non-profit organizations, which by buying and selling local currency may gain 3% of its initial value. Other currencies support sector of small and medium-sized enterprises and sustainable development of region. The majority of local currencies systems have been functioning continuously since their creations (Austrian WIR has been developing for 86 years), but some of them had to be closed because of unfavorable legal measures in a given country (as in the case of Austrian Wörgl). Undoubtedly the aim of all local currencies was to achieve higher turnover than circulation of traditional money. This aim was fulfilled by demurrage tax, commissions, handling fees or fees dependent on trading.

A virtue is belonging of studied currencies to Regiogeld system (Beki, Chiemgauer) which supports initiatives of creating systems of local currencies. Although WIR does not belong to Regiogeld, it attempts to create own currency network covering whole Switzerland, what must be also considered to be a positive phenomenon which supports economic development of the country. Unfortunately, majority of German-speaking countries misses precise legal measures concerning local currencies systems. German Bundesbank tolerates regional currencies considering that they are not traditional money or any other financial instrument (similarly in Luxembourg and Austria). German local currencies are called coupons and they can be used by member of one of associations operating in particular system of alternative currencies. However, in Switzerland financial law might be considered as favorable (as it accepts WIR Franc and WIR Euro simultaneously with Swiss franc WIR and WIR Euro).

4. SUMMARY

A great opportunity for areas relegated socially and economically with high unemployment rate, are alternative currencies. Even if there is openness to changes in these areas, it is lack of one important thing – money. When it appears (for instance in form of Union Funds) it disappears quickly because of orders for companies outside the region or spending in foreign discount stores. In regions suffering from lack of cash, it may be useful to introduce local currency. In German-speaking countries it meant improvement of development prospects: unemployment started to fall, local prosperity was improving and as a consequence it activated and developed the region. The efficiency of local currencies is due to the fact that using their results in keeping money in local turnover, which generates the growth of monetary transactions in local communities, and this has a positive effect on economic growth (buy mainly local products in local businesses by consumers of local currencies).

Systems of local currencies in German-speaking countries are created in order to reduce social exclusion, unemployment and poverty. Thereby contributing to integrating the local community, by increasing wellbeing, they create a new look at the chances of development of the region. Globalization, digitization, continuous threat of a crisis and deepening social inequalities, growing areas of poverty and unemployment, political conflicts, corruption and social unrests obviously support the formation of this kind of initiatives. Existing systems of local currencies do not compete with official currencies as it is not their objective.

Future functioning of local currencies is unknown but still growing and mounting problems of socio-economic nature and parallel development of communication technologies may lead to situation in which 21st century will become a century of development of many alternative currencies.

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ICELANDIC WAY OF ECONOMIC DEVELOPMENT AFTER THE CRISIS

Ewa Szymanik[129]

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Abstract: *The article presents the consequences of the crisis for Iceland, its current situation and conclusions for the future: the ability to make use of competitive advantages, the advantages and threats of rapid development of tourism and construction industry, the location of a large number of cryptocurrency "mines". The aim is to show the effects of applying unconventional solutions. The descriptive analysis was used as the research method.*

Keywords: *Iceland, economic development, tourism, cryptocurrency, opportunities and threats*

INTRODUCTION

In recent years Iceland was the centre of attention due to the speed with which it overcame the crisis. The unconventional solutions, pace and depth of the changes made Iceland a model country to others. However, it was also criticised. Therefore, it is worth taking a closer look at its current situation and analyzing the development way chosen by this country.

The aim of the article is to present the current situation of Iceland, the sources of its successful overcoming of the crisis and analysis of opportunities for further economic development, as well as to draw attention to the possible threats and potential sources of further breakdowns.

2. GENERAL CHARACTERISTICS OF THE ICELANDIC ECONOMY

According to [17], the financial crisis are rapid changes in financial markets, related to the lack of liquidity of business entities, insolvency and state intervention in economic processes. Incidents in Iceland are a perfect illustration of this definition. The reason for the sudden collapse were the wrong moves of the representatives of major banks involving investment of foreign clients' money in US mortgage bonds. At the peak, assets of Icelandic banks exceeded GDP tenfold.

The Icelandic economy was developing quite rapidly before the crisis. It attracted foreign direct investment, which reached 33% of GDP in 2007. Despite the collapse in the following year, the inflow (albeit much smaller and shaping differently) took place until 2016, when for the first time the outflow of foreign investments reaching almost 6% of GDP was observed [12].

The economy of Iceland started to develop very quickly after a sharp downturn in 2008. According to [26] Iceland was ranked 20th in the world and 11th in Europe among the most competitive economies. Table 1 shows current economic situation of Iceland.

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Table 1. Economic situation of Iceland (selected years 2008-2017)

	2008	2010	2013	2014	2015	2016	2017
GDP (bln ISK)	1551	1620	1891	2006	2214	2453	2555
GDP increase (%)	1.5	-3.6	4.4	1.9	4.2	7.5	3.6
Inflation (%)	12.8	7.5	6	4.1	2	1.7	1.8
Unemployment (%)	3	7.6	5.4	4.9	3.4	3	2.7
The average employment in the touristic sector (thousands)	9.97	11.23	16.07	17.82	20.4	24.28	27.22
The average employment in the touristic sector (% of employed)	5.6	6.7	9.2	10	12.1	33.8	37.5
The employment in fishery and agriculture (%):	5	6	4.4	4.5	4.2	3.9	3.5
Industry	22	18	18.5	18.4	17.8	17.8	17.7
Services	73	76	76.7	76.9	77.7	78.3	78.6
Budget deficit/surplus (bln ISK)	-202	-158	-34.8	-1.5	-18.2	308.4	38.7
Budget deficit (% GDP)	-13.1	-9.8	-1.9	-0.1	-0.8	12.6	1.5
Current balance (bln ISK)	-348	-95.7	127	92.4	148		
Trade balance (bln ISK)	-6.7	120.2	40.2	4.3	-30.6	158.8	105.1
Tourism income share in GDP (%)	4.6	3.5	4.9	5.6	6.7	8.4	-

Source: own calculations on the basis of http://www.statice.is/, 02.05.2018

The growth rate, which has been maintained since 2011, is mainly the result of high government expenditure and tourism development, though not only. The unemployment rate - always low – is until declining. Iceland again became a country with net inflow of immigrants [13], mostly employed in the tourism sector.

According to [10], Iceland is ranked 11th in the global ranking of economic freedom and 5th in Europe. It has one of the best systems of protection of property rights, low corruption and high economic freedom. In 2017 public debt reached 53.2% of GDP.

The country has been developing quickly after the deep recession, which reached the bottom in 2011. These positive changes are, among others, the result of a good use of loans obtained from IMF, Nordic countries, Russia and Poland[130]. Iceland repaid its loans before the due date - until autumn 2015 [7].In the same year Iceland was also the first country to exceed the pre-crisis level of economic development.

3. ECONOMIC TRANSFORMATION

The economy of Iceland changed after the crisis. Firstly, overheating of the economy stemmed from overinvestment in the energy sector developed mainly for the purposes of the aluminium industry. There was a situation in which the production of aluminium was not important, construction related to it really mattered, constituting main source of development. Secondly, previous reforms enabled a creation of financial bubbles and a threefold increase in prices on the real estate market [23], which was connected with an easy access to loans. The collapse of

[130]Poland lent 214 million dollars to Iceland [19].

the largest banks prevented further rapid growth - their debts exceeded almost tenfold the value of GDP.

The IMF estimates that the costs of the crisis amounted to 40% of GDP. Net costs of fiscal support and restructuring of domestic banks amounted to 19.2% of GDP[3].

These problems came as a shock to Icelanders. They often did not have any savings, so they could not cope after losing their sources of income. Some of them emigrated looking for work abroad. Apart from a rise in unemployment, tax rate also increased [1], while salaries remained unchanged. A necessity to make savings appeared.

The authorities took a radical action. Banks were allowed to collapse, no debts were repaid to foreign creditors. The devaluation of the Icelandic króna turned out to be a success (by 70%) what triggered inflation, which in 2009 amounted to 18% per annum [15], and salary increase was frozen. The focus was shifted from the banking sector to traditional industries (fishing and tourism), in the development of which helped a decline in value of the currency. Depositors were assured to receive their bank deposits, national entities were granted reliefs in repayment of existing loans, public expenditure was cut.

Iceland had some advantages over the countries of the Union when it started to fight the crisis. Firstly, it had relatively low foreign debt (28.5% of GDP in 2008) and achieved budget surpluses each year. Secondly, it had floating exchange rate of the króna, which caused a large devaluation (30-50%), but at the same time it allowed to maintain important export markets [2] and to increase export revenues [16].

The devaluation of the currency helped to keep real salaries at almost the same level, which saved households expenditure from drastic decrease, even though the króna was worth less. Thanks to this the economy started to develop.

Moreover, conclusions were drawn regarding causes and ways of avoiding similar economy breakdowns in the future. A report was created indicating that the main reason of the problems was an excessive creation of money by commercial banks. Findings of the report show how to change it without disrupting the functioning of the entire banking system. Sovereign money system should serve this purpose, where the entire possibility of money creation would belong exclusively to a central bank [21]. The Icelandic government analyzed the report, but did not decide to implement its conclusions. This does not mean, however, that financial issues were set aside. Strong exchange rate fluctuations raise concerns about the overheating of the economy. Various options are considered, such as linking the exchange rate of the króna with another currency (euro) or introducing additional tools, alongside the interest rate, allowing to control the exchange rate [27].

Despite not joining the EU, Iceland uses conveniences of European integration in a selective way - it belongs to the EEA and Schengen area, which promotes development (it adopted 18% of the Union regulations). The country has remained at its own currency, which makes it possible to control the banking system to avoid collapse in the future. The procedure for abolishing capital control was completed in March 2017 (only a part of the provisions regarding, among others, the so-called carry trade was left).

The collapse of the króna also contributed to an improvement of competitiveness of the economy. A great inflow of tourists took place after 2010, for whom holidays on the island became exotic – and cheaper. Because of the crisis Iceland appeared in global media attracting public attention.

Although the economic collapse initially caused a turn towards the development of traditional sectors (fishing, tourism, aluminium production), there was, however, a dynamic shift towards the renewable energy and the development of information technology [22].

What are the threats? According to the report [4] from 2017, the weakness of the country is government instability, still disadvantageous structure of the economy, basing export mainly on the sale of fish and aluminium, susceptibility of economy to overheating and strong financial shocks, as well as still high (despite steady decline) level of foreign debt (reaching 95% of GDP). The exchange rate and risk of inflation are monitored but the threat of the collapse did not disappear, despite low energy prices and the appreciation of the króna. A slight increase in nominal salary supported a growth of inflation expectations. In addition, sudden and large capital flows may lead to short-term disequilibrium and exchange rate volatility putting pressure on the balance of payments.

Other threats result from still a large share of traditional sectors in the economy. Fishing generates about 12% of GDP but it is subject to many limitations, similar to tourism. The lack of ability to provide cheap meals for mass tourism causes a rise in prices, which combined with high prices for accommodation, will limit the inflow of visitors. The analysis carried out by Landsbanki shows that the country has been strongly dependent on this branch of the economy for several years. In 2016, revenues from tourist services reached 39% of the total export value, and are estimated to reach 42% in 2017. Research conducted among 39 countries shows that Iceland is the only one in which there is a positive correlation between currency appreciation and influx of tourists, which allows the conclusion that tourism development is not so strongly linked to changes in the exchange rate, as can be seen in the example of other countries [5]. It is possible, however, that Iceland has already reached its peak regarding the interest of tourists and the trend for visiting it is slowly disappearing, which is caused by high costs of accommodation, although the forecasts indicate that the number of tourists may grow, even though slower, until 2019.

The country is heavily dependent on oil. Moreover, the vast majority of products is imported. Low oil prices translated into transport costs, so the economy developed quickly, which accelerated overcoming the crisis. The situation in the future, however, might change.

Another threat has a potential character, but is similar to the one that triggered the crisis in 2007. This is the cryptocurrency market.

Iceland is a country with high "mining" of cryptocurrency in the "mines". These are computer centres connected to the global Bitcoin network, where computers solve mathematical problems in the process of checking the correctness of transactions between cryptocurrency users. These data centres consume electricity on a massive scale (current consumption by households is approx. 700 GWh per year, while "mines" are expected to consume about 840 GWh) [25]. Production capabilities of the country are limited. Moreover, there is a concern that there are almost no benefits of locating the "mines" for the country because employment in them is marginal, similar to investment capital. They also do not generate tax revenues, hence there was a postulate in the parliament regarding taxation of the "cryptocurrency mines". There can be no total abandonment of the opportunity (many companies would like to make this kind of investment), as this market is developing quickly and although it is burdened with a huge risk, it gives Iceland further development opportunities (the installation of one of the first bitcoin ATM in Europe serves as an example [24]).

Iceland also wants to tighten the tax system. It was proposed to withdraw the banknotes with the highest denominations (10 and 5 thousand krónur) from circulation and to extend the scope of electronic payments as part of the fight against tax evasion. It is estimated that 3 - 7% of GDP has been lost in the last 30 years and the budget loses about 10% of potential revenues annually since many people offering tourist services have been operating within the "grey economy". Moreover, there are suspicions that the country was used as a place of "money laundering" by terrorists [29].

Despite these threats, Iceland's financial situation is good and stable enough so that the government decided to reduce the corporate income tax rate and introduce a single rate of personal income tax. The total rate is 36%, which means a large decrease (from 47%) [18]. This means that the financial capabilities of the entities will increase and will be an additional incentive for development, and thus for an increase in budget revenues.

4. CONCLUSIONS

It is possible to draw some conclusions on the basis of the analysis of the available data.

The implementation, speed and high efficiency of reforms resulted from the specific features of the discussed economy. Iceland is a small country, its residents are disciplined and have a high civil awareness. Due to these, among other things, the country managed to overcome the collapse quickly.

One of the important factors, which contributed to improvement of the situation, is a significant development of tourism, including a very unusual one – following the movies produced on the island. This means that another sector, which might become a driving force of the economy is widely understood artistic creation (in 2012 more than 7 thousand companies were registered in this sector) [15].

Iceland used its unusual competitive advantages: activity of volcanoes, geothermal energy, hydropower stations (aluminum production, server rooms). A global interest in this small country has increased, and consequently – the inflow of financial resources. Since traditional culture is based on education in the humanities, including a common knowledge of English, the country was not surprised by the wave of globalization and is able to take advantage of the sudden increase in interest.

Icelanders made a good use of the inflow of tourists - new accommodations, catering trade development, unusual museums (e.g. Museum of Rock’n’Roll). A developed network of bus connections enables to explore many attractive and difficult to reach places by the use of public transport, operating during summer, with long stops to sightsee the surroundings. Also a widely developed system of campsites and mountain shelters, mountain rescue, tourist information functions smoothly.[131]

[131]Own research

However, the disadvantages have also appeared. Life in Iceland is expensive – ISK 1000 is the basic “unit of account”, which means that the cost of accommodation is very high for an average tourist, which is also due to the high increase in accommodation prices.

The inflow of tourists is intense. In 2016 it was 1767726 people, and in 2017 - 2195271, which means an increase of 24.2% compared to the previous year [27]. This is over six times more than the entire population of the country. This phenomenon is another source of - on the one hand - opportunities, on the other - development threats. Real estate prices are increasing and there are concerns that taking loans for new apartments, rented to tourists, will lead to a growth of another speculative bubble, this time generated by the real estate market. The risk is that growing debt makes entities more susceptible to economic disruptions [6]. Another threat is a burden for the natural environment by such a high number of visitors. Introduction of various limitations is being considered to restrict the freedom of movement of tourists, especially individual ones, which constitute the majority (e.g. by strictly limiting the number of cars to rent or the number of daily visits to national parks). 11% tax on many tourist services was introduced from 01.01.2018 [9]. Also introduction of new types of taxes for this industry is taken into account (additional fees for carriers and hotels, which would mean a further increase in prices) [14]. Increasing distribution of traffic for the whole year is hopeful - slightly less tourists decide to come in the summer, preferring to admire the Northern Lights, which means less burden for the environment, as these usually short journeys to specific places.

During the crisis educated Icelanders decided to emigrate temporarily or started their own business [8], what might become an additional driving force of the economy. There is no doubt, however, that a bigger diversification of the economic base is needed.

Strengthening of the króna is also a factor with a double impact on economic development. On the one hand, it enables accumulation of foreign exchange reserves, on the other - the influx of tourists will not grow forever.
All these determinants: strong wage growth caused by rapid economic development, strengthening of the króna, low inflation, increase in real estate prices and low interest rates are associated with the risk of overheating of the economy. At the same time, however, a good fiscal situation and a positive net international investment position are enabling factors [19], similar to the use of an unconventional solution, which was rescuing own economy at the expense of the refusal of repayment of debts to foreign countries. It turned out, however, that this type of action can be effective - the country is developing very fast, which was also influenced by the fact that Iceland has its own currency - it allowed the government to use an additional tool, i.e. control of the exchange rate. It is possible to draw an important conclusion – one should not hurry with monetary integration.

Undoubtedly, Iceland's development is unique and it is worth observing whether the way chosen by this country will turn out to be adequate in the long turn.

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INCREASING THE COMPETITIVENESS OF BOSNIA AND HERZEGOVINA IN THE REGION IN THE FUNCTION OF ECONOMIC DEVELOPMENT AND INTEGRATION INTO THE EUROPEAN UNION

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Abstract: *The competitiveness of Bosnia and Herzegovina (BIH) in the region has had a more negative than positive trend over the past ten years. The causes for the weak competitive position of BIH and slow economic development are the result of an unstable political situation, poor business environment, incompetent and malevolent resource management, as well as the negative effects of the global economic crisis which has mainly affected small and transition countries such as BIH.*
The aim of this paper is, by analyzing the key factors for BIH's weak competitiveness relative to the region, to suggest adequate guidelines and economic policy measures that are optimal for increasing the competitiveness of the BIH economy, which would ultimately contribute to economic development and accelerate the process of integration of BIH into the European Union (EU). For the purposes of this paper, the definition of competitiveness of the World Economic Forum is accepted. The methods of induction, deduction, compilation and comparative analysis were also used and on the basis of the results obtained; measures are suggested for increasing the competitiveness of BIH in the region.
The results of research suggest that the increase of the competitiveness of BIH's economy in the region is possible primarily through accelerated and continuous economic development, a structural reform of state institutions and by attracting foreign investment, which would also accelerate the process of integration into the EU. The paper also deals with the possibility of regional market integration, with the aim of attracting foreign investment, which would further increase the competitiveness of BIH in the region.

Keywords: *Competitiveness, BIH, economic development, regional cooperation, EU*

1. INTRODUCTION

In this paper, the focus is placed on the issue of increasing the competitiveness of Bosnia and Herzegovina in the region as a contributing factor to the economic development and integration into the European Union. Slow economic development and weak competitiveness of Bosnia and Herzegovina (BIH) have been the focus of many research papers and relevant statistical analyses in recent years, confirming that the current macroeconomic indicators of BIH's economy are not at the same level with the countries in the region[135]. By analyzing internationally recognized scientific papers and statistical data on global competitiveness

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authors agree that the primary reasons for the slow economic development and weak competitive position of BIH in the region are the result of unstable political situation, poor business environment, incompetent and malevolent resource management, as well as the negative effects of the global economic crisis from 2008 which most affected small and transition economies such as BIH. By exploring the macroeconomic indicators and the competitive position of BIH, the authors have determined that the political and economic subsystem in BIH, a country with approximately 3.5 million inhabitants[136],[1] is not dependent solely on internal socio-economic processes but is also dependent on various external political-economic influences, regional and as well as global. This perception was taken into account by the authors of this paper and their economic development premises, the propositions and the guidelines when it comes to increasing the competitiveness of BIH in the region.

2. RESEARCH AIM AND METHODOLOGY

The research aim of this paper is to analyze the key causes of weak competitiveness of BIH's economy and suggest appropriate economic policy guidelines that are optimal for increasing the competitiveness of BIH's economy in the region, which would ultimately contribute to economic development and accelerate BIH's process of integration into the European Union (EU). In accordance with the above-mentioned analysis of the research, the hypothesis of this paper is as follows: Increasing the competitiveness of BIH's economy in the region can be achieved by continuous and sustainable economic development preceded by strong institutional reforms, new strategy for attracting foreign direct investments, and a harmonized regional economic policy which would also accelerate access to EU integration.

By using the methods of comparative analysis and compilation, it is corroborated that BIH can increase competitiveness in the region when first exploiting its comparative advantages to the maximum, along with implementing institutional reforms and new strategies for competitiveness that would create preconditions for sustainable economic development, thereby fulfilling one of the key criteria for integration with the EU. Moreover, by using methods of induction and deduction, the possibility of regional integration of the market is also discussed and problematized with the aim of attracting foreign investments which would, by their capacity, additionally increase global competitiveness of BIH as well as other countries in the region. However, the question arises as to whether this type of market integration in the region is possible considering the mutual distrust of countries that have not yet achieved a common political and economic consensus since 1995.

3. ANALYSIS OF THE COMPETITIVENESS OF THE BIH ECONOMY

In the literature there are a greater number of definitions of the competitiveness of the economy. The definition adopted in this paper is that of the World Economic Forum[137] where competition is defined as a set of institutions, policies, and factors which determine the levels of productivity of a country. The World Economic Forum bases its competitiveness analysis on the Global Competitiveness Index, a comprehensive framework measuring the microeconomic and macroeconomic fundaments of national competitiveness consisting of 114 indicators grouped

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[136] United Nations, Department of Economic and Social Affairs, Population Division (2017). World Population Prospects: The 2017 Revision, Key Findings and Advance Tables. pp.17

[137] The World Economic Forum is an independent international organization founded in 1971, headquartered in Geneva, Switzerland. This nonprofit organization is committed to the improvement of the economies of the countries in the world by including business, political, academic and other leaders of society in order to shape global, regional and industrial strategies.

in 12 pillars[138] [2]. By researching various sources and statistical data from international organizations and domestic state agencies as well as meritorious scientific papers on BIH's regional competitive position, the main causes for BIH's weak competitive position in the region were identified. Taking into consideration data on slow economic development of BIH since 2008, political instability and unfavorable business environment[139], the authors corroborated the current weak competitive position of BIH in the region.

According to the Global Competitiveness Report 2017-2018, [3] BIH is ranked as 103th with a score of 3,87[140] in the Global Competitiveness Index using quantitative methods and survey data by combining 114 development indicators allotted to the previously mentioned 12 pillars of competitiveness. Relative to the region, BIH is at the back with regard to competitiveness, which is evident in Table 1. It is important to note that the Global Competitiveness Index takes into account three stages of development (factors phase, efficiency phase, and innovation phase) through which each country passes depending on the influence of all the 12 pillars of competitiveness. Bosnia and Herzegovina is in the second stage of development together with 31 other counties, which should be both stimulating as well as risky when deciding on the strategy for which increasing competitiveness is at stake, especially in relation to the countries in the region which should be preceded by accelerated economic development.

Table 1: Competitiveness rank of BIH and other countries in the region for period 2008-2017

Year	Total countries	Albania	BIH	Monte-Negro	Croatia	Macedonia	Slovenia	Serbia
2008	134	108	107	65	61	89	42	85
2009	133	96	109	62	72	84	37	93
2010	139	88	102	49	77	79	45	96
2011	142	78	100	60	76	79	57	95
2012	144	89	88	72	81	80	56	95
2013	148	95	87	67	75	73	62	101
2014	144	97	-	67	77	63	70	94
2015	140	93	111	70	77	60	59	94
2016	138	80	107	82	74	68	56	90
2017	137	75	103	77	74	-	48	78

Source: Edited by authors on the basis of the Global Competitiveness Report 2017-2018 [2]

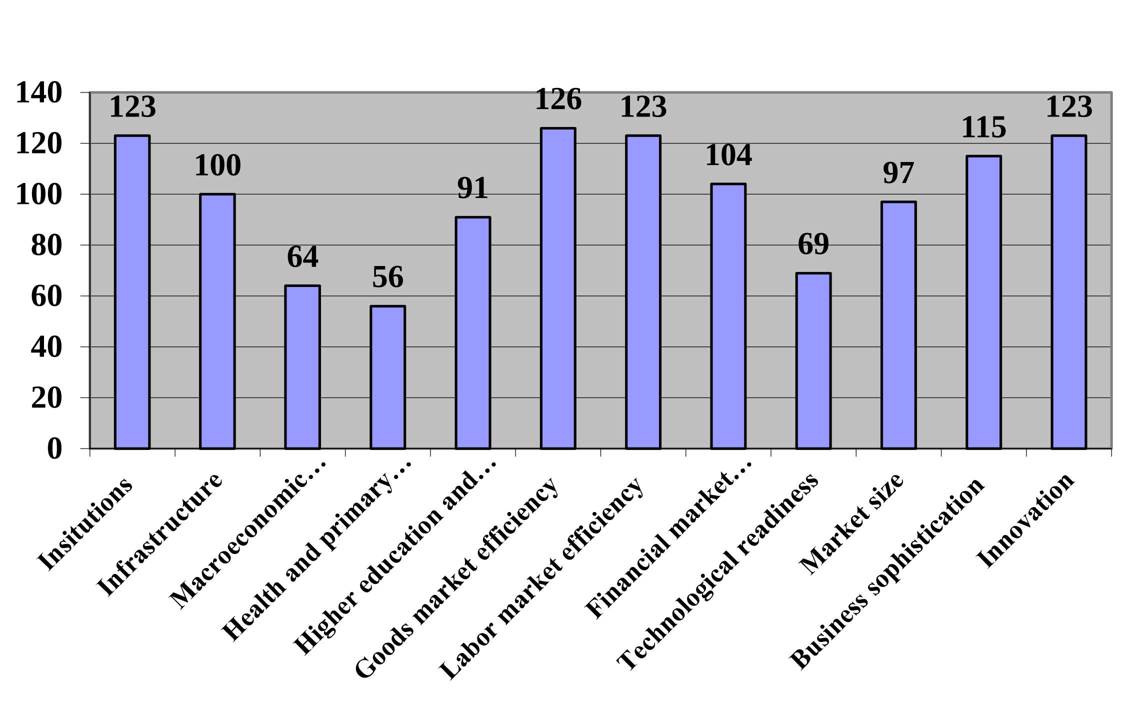
By analyzing the pillar values individually, it is observable that BIH has incrementally improved results in a number of areas, which is evident in the following (Figure 1):

[138] Pillars of competitiveness: 1) Institutions, 2) Infrastructure, 3) Macroeconomic Environment, 4) Health and Primary Education, 5) Higher Education and Professional Training, 6) Efficiency of the Commodity Market, 7) Labor Market Efficiency, 8) Financial Market Development 9) Technological readiness, 10) Market size, 11) Business sophistication and 12) Innovation.

[139] In *Doing Business Report 2018 (World Bank),* BIH is ranked as 86th for ease of doing business

[140] According to the precise calculation methodology, which is the same throughout the world, the average score is comprised of the 12 pillars of competitiveness. Relevant macroeconomic statistics are taken in order to calculate the indicators after which grades from 1-7 are assigned to each indicator.

Figure 1: Index of competitiveness for BIH rank on 12 pillars 2017-2018



Source: Edited by authors on the basis of the Global Competitiveness Report 2017-2018 [2]

Most areas have recorded slight progress, but final evaluations did not change much as other countries advanced faster than BIH. The unchanged spot relative to previous periods (years) was recorded for the pillar Institutions (123rd), business sophistication (115th), and innovation (123rd). From the above, when the competitiveness of BIH is at stake, the weaknesses of the BIH economy are evident relative to the region, and on the basis of these findings the decision makers, prior to making of the economic development and competitiveness strategy need to work expeditiously to solve the problems of dysfunctional institutions, inefficient markets for goods and labor, outdated infrastructure, business unsophistication [4] and insufficient innovation in order to create the preconditions for sustainable economic development and thus increase the competitiveness of the BIH economy.

4. GUIDELINES FOR INCREASING THE COMPETITIVENESS OF BIH ECONOMY

An interconnection and interdependence of the previously mentioned 12 pillars of competitiveness has been identified. It is important to note that the indices of the pillars of competitiveness are also dependent on the indicators of country development such as GDP per capita and the capacity of natural and human resources [5], which led to conclusion that the current competitive position of BIH requires a clear and precise economic development strategy and competitiveness in which decision-makers at the national level will adopt proposals based on empirical research, specifically on the basis of applied strategies previously implemented in smaller transition countries such as BIH.

In accordance with the presented and in line with the Competitiveness Index for Bosnia and Herzegovina for 2017-2018 (Table 1), the authors suggest – in order to create preconditions for increasing competitiveness – urgent reconstruction of existing infrastructure, reform of institutions along with relaxation of political relations, harmonization of regulation of goods and labor markets with EU standards, improvement of business sophistication as well as the development of special innovation strategy. It is completely clear that BIH, by accelerating the economic development in accordance with individual development and competitiveness strategies, will become a more competitive, that is, more successful economy in the region in the long term. The only appropriate question is, in which timeframe is it realistic to do so? This is a key issue because at present the BIH economy is lagging behind the countries in the region, especially when it comes to Croatia as an EU member, but Serbia and Montenegro as well, which have EU candidate status.

It is evident that many reforms and changes in development strategies lie ahead of BIH when it comes to increasing its competitive position in the region. It is important to note that BIH is still awaiting its candidate status in the EU, and for this reason, it is inevitable to observe BIH's competitiveness in a global context, that is, within the framework of EU integration, not only regionally. [6] In the context it is important note that BIH should not limit itself to increasing competitiveness in the region, but it is necessary to harmonize the regulations on export and import of goods and labor markets with the EU so as to create conditions for attracting foreign investments from dominant economies such as Germany, Austria, and Italy.

In accordance with the Global Competitiveness Report 2017-2018 (World Economic Forum) unlike with other transition countries, the authors agree that the following factors have a particularly strong impact on increasing BIH's competitiveness:

I. Domestic and foreign investments,[141]
II. Business sophistication,
III. Technological readiness and innovations.

In order to correctly identify the connection and dependence among these factors as well as among the 12 pillars of competitiveness, the authors suggest, for further research, the use of a complex method of correlation analysis by which the correlation value would be determined by a correlation coefficient, the value of which would range from -1 to +1 (Figure 2). According to Vuković (2013), this method has confirmed that there is interdependence between certain indicators and regional competitiveness factors, especially in investments in science, technology and innovation and in improving the business environment, which is directly related to increasing competitiveness. [7]

Figure 2. The scale of correlation

	Strong negative	Medium negative		Weak negative	Negligible correlation	Weak positive	Medium positive		Strong positive	
-1	-0,8	-0,6	-0,4	-0,2	0	0,2	0,4	0,6	0,8	1

Source: Edited by authors on the basis of Vuković, D. (2013) [7]

It is important to point out that the authors are cautious when it comes to the guidelines for increasing competitiveness only by individual pillars because it is precisely due to their interdependence the question arises as to whether a country's competitive index can grow in continuity in this way?

Analyzing the competitive position of other countries in the region, especially Croatia and Serbia, the authors confirmed that the previously mentioned factors also have a significant impact on their competitiveness as they are countries with similar economic potential and natural resources, human capacity and capital [8]. It is for that exact reason that the authors

[141] It refers to domestic investment in production capacities, new technology and human resources (investment in education and professional training)

believe that the integration of the regional market with the aim of attracting foreign direct investments would increase the regional and global competitiveness of BIH.

5. RESULTS

Interdependence of economic development, competitiveness and BIH integration process in the EU has been confirmed on the example of BIH's competitiveness in the region. The strategy for increasing the competitiveness of the BIH economy should be observed in this context as it is not enough for a country to be successful or competitive by development indicators or pillars of competitiveness only, as each of them has a different degree of influence on the economic development and integration process in the EU. For instance, by using the methods of induction and deduction, the authors obtained the results that only institutional reform or improving business sophistication will not significantly increase the overall levels of competitiveness of BIH in the region. Taking into consideration the financial and capital constraints of BIH with regards to investing in development and strategies for new technologies and innovations, [9] Bosnia and Herzegovina can solve this problem by external borrowing (in the short-term) or with new strategy for attracting foreign investments from economically more dominant EU countries (in the long-term).

The final research results in this paper point out and confirm that increasing the competitiveness of the BIH economy in the region can be achieved in a relatively short period through accelerated and continuous economic development, with the structural reform of state institutions, by improving business sophistication, attracting foreign investments and investing in innovation. However, by analyzing the interconnection between the 12 pillars of competitiveness and then the individual development indicators it is confirmed that in the long term BIH cannot significantly increase its competitiveness in the region unless it observes competitiveness in its strategy as a complex whole in which each factor and development indicator can have a positive or negative implications. In this context it is important to note that the key role in implementing the new strategy of development and increased competitiveness should be given to reliable strategic investors and private sector leaders [10] who have the capacity to innovate, invest, and produce a quality good which would facilitate BIH's access on the regional and global market.

6. CONCLUSION

From the analysis of the report on global competitiveness it is evident that Croatia, Serbia, and Montenegro have succeeded in increasing their overall global competitiveness indices relative to BIH, although not for all individual competitiveness pillars, which is a great opportunity for BIH. In that context the authors agree that examples from countries in the region, can serve as a guideline and guidance in improving the macroeconomic indicators of development and increasing competitiveness of BIH, [11] and in particular that applies to the example of Croatia and Serbia which are currently showing great results in attracting foreign investments.

The current weak competitive position of BIH in the region is clearly observable. By analyzing the global competitiveness index for BIH, it is estimated that, in the future, the BIH economy can become more competitive in the region only if in the upcoming period develops faster than the surrounding countries (Croatia, Serbia, and Montenegro). The future harmonization of regional market policy and the emphasis on creating an integrated market space, with the aim of attracting foreign direct investments, would certainly further strengthen BIH's competitive position, which at this moment is not realistic. The authors are of the opinion that increasing the competitiveness of BIH and regional market integration, should be one of the main topics for future discussions and scientific papers on the global level, which would certainly help economic policy makers in this region to improve the global competitive indices of their respective countries based on the empirical research findings and proposed guidelines in their new development strategies.

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ANALYSIS OF THE IMPACT OF THE AGROSECTOR'S SHARE ON DIFFERENCES IN THE PERFORMANCE OF REGIONS AT NUTS-III LEVEL: A CASE STUDY OF THE SLOVAK REPUBLIC

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Abstract: *There are differences between the territorial units of each economy, which can be easily quantified using the economic performance indicators of the region. The causes of regional disparities are the natural, geographical, environmental and demographic conditions of localization of economic activities. These specified types of conditions represent assumptions or limitations in the formation of the sectoral structure of economic activities in the territory. Opinions of theorists and empirical findings confirm that each of the sectors has a different ability to contribute to the formation of national product, gross fixed capital as well as added value. Due to the different economic effects of the represented sectors, there may be a gradual increase in differences in economic performance of territorial units or even loss of ability of independent development of the region. Accordingly, it can be stated the existence of regional disparities between the territorial units of the Slovak Republic at the regional level. Differences are identified in a different representation of sectors on the economic structure of the territory, in the value of GDP creation as well as the formation of fixed capital of individual regions. Agrosector is considered as the sector with the least contribution to the creation of a national product. Therefore, in the manuscript we analyze the existence and the strength of the relationship between the share of the agricultural sector in the structure of the economy and the indicators of the economic performance of the region as well as the existence or absence of a trend of increasing interregional differences. In order to identify the preservation of the development capacities of territorial units, we analyzed also the differences in the ability of regions with different range of agrosectors to form development capital.*

Keywords: *agrosector, economic performance, differences, regions, Slovak Republic*

1. INTRODUCTION

The economic development of countries is reflected not only in the growth rates of gross domestic product per capita, but also in the structural transformation of the economy. These transformations represent changes in the nature of the economy and in the role of particular activities of the economy. The changes take place, inter alia, in the three-sector structure of the economy. Theoretical basis for the analysis is comprised in the three-sector theory of economy put forward by Fisher, Clark and Fourastie [1] - [3], who have identified the

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agricultural sector, industrial sector, and the service sector in various areas of economic activity [4]. Transformation of agriculture from the dominant sector in relatively poor countries to a very small sector in the richest countries is a major feature of economic development. After 1960, it can be observed downward trend in the share of agriculture sector in the total GDP in most developed economies in the world, including Western Europe. In Eastern European countries, this trend is gaining after 1989.

2. THEORETICAL BACKGROUND

The primary causes of historical development of the structure of national economic activities consist in changes in demand for the production of individual sectors, most often in growing demand for industrial production and growing demands for the provision of services of various kinds.

The economic changes taking place in Central and Eastern European countries are rooted in market-based mechanisms that have created new avenues of social and economic development in the region and have altered well-established economic systems. Changes of this type have prompted adjustments in social and economic structures, which have responded to changing economic conditions in the global marketplace [5].

This development has its consequences and given the variety of causes and the severity of these consequences, this issue is given a great deal of attention both in economic practice and at academic level. There are a number of studies that confirm the gradual reduction of the primary sector on the basis of empirical observations of the long-term development of the structure of the economic system. There are several indicators to measure the performance of agricultural production. The role of agriculture in a national economy is best characterized by the share of agriculture in GDP, which is shrinking all over the world [6].

Older and also more recent published studies are looking for the causes of a reduction in the share of the agricultural sector mainly in market and economic factors. The most causes are of a political nature - pricing policy in the agricultural and industrial sectors has a significant impact on the relative prices of these goods, and in the least developed countries a negative impact on agricultural production [7]. Some authors argue that the size of the rural population positively determined the percentage contribution of agriculture to GDP. Thus for regions with larger rural populations the percentage contribution of agriculture to GDP was higher suggesting that the greater supply of rural labour was responsible for relatively higher agricultural production [8].

For other authors, the availability of resources is a factor of the economic growth of the sectors [9] - [11]. The primary sector is linked to the availability of natural resources, the secondary sector with the availability of technical factors, and the development of the tertiary sector is linked to the human capabilities. These factors, according to the authors, determine growth of the sector, localization of the sectors into specific areas and consequently limit the economic growth of these areas. The regions with a high proportion of the agricultural sector have traditionally lower GDP and lower living standards, measured by income per capita [12]. The result is the deterioration of the economic situation of the rural population, the emergence of regional disparities in the social and pension situation of the population, then the gradual outflow of inhabitants from these areas into larger agglomerations, and thus the reduction of the autonomous development capacity of the area.

3. METHODOLOGY

The aim of the submitted contribution is to identify the positive impact of the agrosector on preservation of developmental capacities of territorial units. The solution is based on the quantification of the relationship between the share of the agricultural sector in the structure of the economy and the economic performance indicators of the region as well as the existence or absence of a tendency to increase interregional disparities.

To fulfill this goal, we have identified four indicators that were the subject of further analysis. The aim of the set of indicators is to capture the linkage between the development of agriculture and the overall development of the region. The monitored indicators are:

- GDP per m^2 (Gross Domestic Product),
- total GVA per m^2 (Total Gross Value Added)
- agriculture GVA per m^2 (Agriculture Gross Value Added),
- agricultural production per m^2.

The relationship between the above indicators is monitored:
a) using a simple regression model whose veracity is verified by the coefficient of determination:

$$R^2 = \frac{\sum_{i=1}^{n}(y_i - \hat{y}_i)^2}{\sum_{i=1}^{n}(y_i - \bar{y}_i)^2} \quad (1)$$

where: y_i - measured value of dependent variable
$\hat{y}_i$ - estimated value of dependent variable
$\bar{y}_i$ - average value of dependent variable

b) by using a sequence correlation analysis (due to the failure to prove the normality of the input data), namely the Kendall coefficient:

$$r_K = \frac{n_c - n_d}{n(n-1)/2} \quad (2)$$

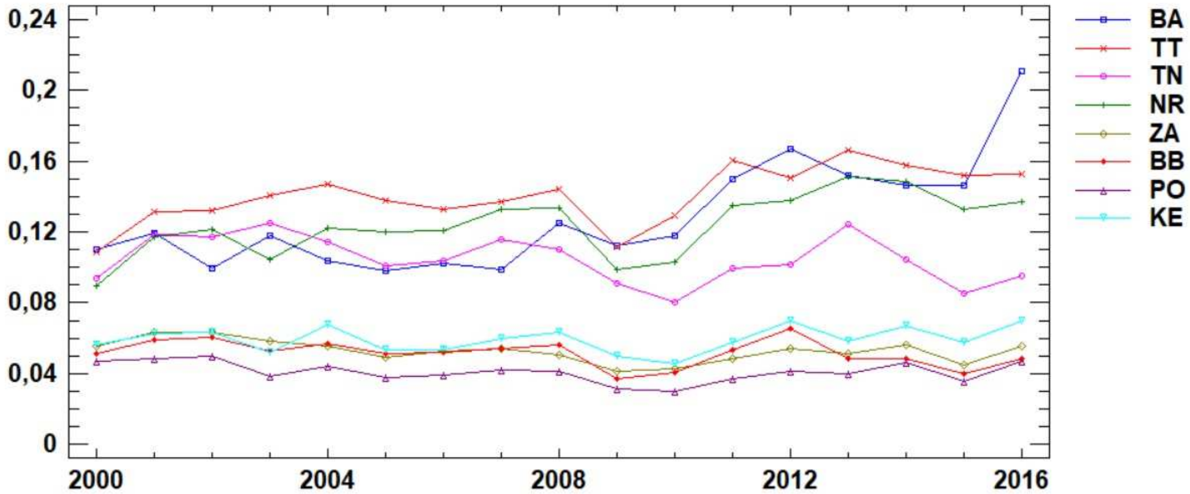
where: n - number of observations of pair of variables
n_c - number of discordant pairs
n_d - number of concordant pairs

Due to higher objectivity, the interpretation of the results obtained during the monitored period 2000 - 2016 is supplemented by year-to-year indices and variation coefficient. All analyzes are processed in MS Excel, Statgraphics and Statistics.

3. RESULTS AND DISCUSSION

The first step of the analysis is the identification of trends in the development of agricultural production in individual regions of Slovakia. The development of this indicator (EUR per m2 of agricultural land) over the reference period is captured in Figure 1.

Figure 1: Trend of agricultural production development in the monitored period



where: BA – Region of Bratislava, TT – Region of Trnava, TR – Region of Trenčín, NR – Region of Nitra, ZA – Region of Žilina, BB – Region of Banská Bystrica, PO – Region of Prešov, KE – Region of Košice

As we can see in Figure 1, there are differences in absolute values between regions, that prove the dominance of the regions located in Western Slovakia. Differences can be also observed in the overall development, year-on-year changes and overall variability over the period 2000-2016.

Table 1: Comparison of the development of agricultural production in individual regions of the SR

Region	**Model without intercept**		**avg yearly index**	**CoV**
	R-squared	**Slope**		
Region of Bratislava	0,9505	0,00636764	1,053008	0,237104
Region of Trnava	0,9887	0,00700590	1,027183	0,111831
Region of Trenčín	0,9851	0,000052160	1,010872	0,126073
Region of Nitra	0,9826	0,000061685	1,036235	0,139003
Region of Žilina	0,9870	0,000026281	1,006946	0,116989
Region of Banská Bystrica	0,9808	0,000025619	1,011749	0,143245
Region of Prešov	0,9817	0,000020441	1,012598	0,139965
Region of Košice	0,9869	0,000029497	1,027932	0,119195

Based on the above results, there is a positive trend in agricultural production in all regions, which is minimal. Average year-on-year changes over the entire observed period range from 0.69 to 5.30%. The variability expressed by the coefficient of variation in any region was not lower than 11%, i.e. negative and positive fluctuations are de facto compensated for each other. The difference region is BSK with significantly different variability and small average annual change. The linear relationship of agricultural production (EUR per m2 of agricultural land) with the other monitored indicators is captured in Table 2.

Table 2: Correlation of agricultural production with selected indicators

Region	GDP	GVA – all	GVA – agr.
Region of Bratislava	0,49*	0,49*	0,46*
Region of Trnava	0,54*	0,54*	0,60*
Region of Trenčín	-0,28	-0,28	-0,17
Region of Nitra	0,54*	0,54*	0,57*
Region of Žilina	-0,29	-0,29	-0,09
Region of Banská Bystrica	-0,28	-0,28	-0,17
Region of Prešov	-0,20	-0,20	-0,12
Region of Košice	0,16	0,16	0,24

* $\alpha = 0,05$

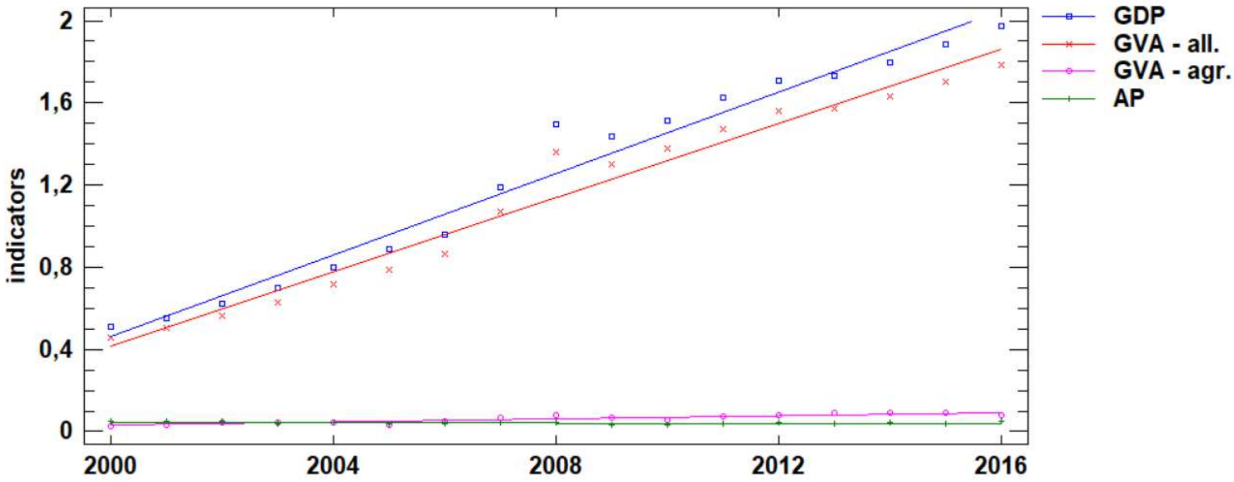
Based on the relationships captured above, the regions can be divided into two groups. The first group are the regions where agricultural production was significantly correlated with other indicators. This group included 3 regions in the west of the country (BA, TN, NR). In this group, therefore, there is no change in the relative differences between the output in agriculture and the total output in the region in the period under review. In the other five counties, this indicator does not linearly correlate with other indicators, while the observed differences are noted in Table 2.

Table 3: Comparison of development of indicators in selected regions of the Slovak Republic

Region	Indicator	Model without intercept		avg yearly index	CoV
		R-squared	slope		
Region of Trenčín	GDP	0,8900	0,001452820	1,079246	0,365100
	GVA – all.	0,8881	0,001131372	1,080221	0,368598
	GVA – agr.	0,8800	0,000042416	1,096240	0,379251
	AP	0,9851	0,000052160	1,010872	0,126073
Region of Žilina	GDP	0,8640	0,00121432	1,091979	0,411607
	GVA – all.	0,8622	0,00109827	1,092870	0,414893
	GVA – agr.	0,9368	0,000028607	1,073643	0,269952
	AP	0,9870	0,000026281	1,006946	0,116989
Region of Banská Bystrica	GDP	0,8987	0,000593327	1,078392	0,348864
	GVA – all.	0,9470	0,00536498	1,079430	0,352365
	GVA – agr.	0,8516	0,000042673	1,121818	0,432956
	AP	0,9808	0,000025618	1,011749	0,143245
Region of Prešov	GDP	0,8687	0,000627537	1,090408	0,403577
	GVA – all.	0,8668	0,000567523	1,091299	0,406925
	GVA – agr.	0,8991	0,000030586	1,086341	0,347848
	AP	0,9817	0,000020441	1,012598	0,139965
Region of Košice	GDP	0,8924	0,000955296	1,080483	0,360696
	GVA – all.	0,8906	0,000863796	1,081429	0,364050
	GVA – agr.	0,8983	0,000030837	1,088727	0,349356
	AP	0,9869	0,000029497	1,027932	0,119195

Based on the above calculations, we note especially the differences in growth rate, expressed as the regressed value as well as the average annual index (GDP, GVA - all). When comparing agricultural production with the last indicator (GVA - agr.), the difference is mainly their variability, respectively constancy of indicators (CoV).

Figure 2: Comparison of regression functions in PSK



Over the years, the differences between agricultural production and the other two monitored indicators have increased significantly. The reason for this is the stagnation of agricultural production, as well as the constant growth of these indicators - GDP and total GVA. When comparing agricultural production with GVA in this sector, it is possible to follow a similar trend but with different variability, i.e. GVA in this sector is significantly more heterogeneous.

CONCLUSION

There are differences between the territorial units of each country. These can be identified both in economic and social terms. According to the empirical findings and opinions of academics, the reason for the emergence of regional disparities is the existence of prerequisites for the localization of certain types of economic activities into the territory. It regards the presence or absence of primary (natural) and secondary (personnel and capital resources) assumptions. Their occurrence results in a different structure in the region of localized sectors.

The analyses carried out on the economic performance data set of the self-governing regions of Slovak Republic confirm the existence of regional disparities. On the basis of a comparison of territorial performance through GDP per capita, the self-governing regions of the Slovak Republic can be divided into two groups. The dominant regions are the self-governing regions located in the West Slovakia. Economically less efficient are territorial units located in worse geographical conditions, with a higher share of rural area and lower density of economic activities (TT, ZA, BB, PO, KE).

The reason for the increase of regional disparities may be the larger share of sectors that are considered as less efficient and less able to form development capital. In view of the above criteria, the agriculture is generally considered to be such a sector. On the monitored sample of self-governing regions, we identified the difference in the ability of the sector to form fixed capital. As in the previous case, the magnitude of these differences can be assessed in two groups of self-governing regions - a smaller lag compared to the region's average was confirmed in a group of more economically developed regions (BA, TN, NR) than in economically less developed regions.

The third level of examination consisted in analyzing development trends. Long-term lower formation of fixed capital and value added of the agricultural sector may be the cause of the increase of regional disparities. According to our findings, with the years, the differences between agricultural output and the other two monitored indicators have significantly increased. The reason is the stagnation of agricultural production and the constant growth of GDP and total GVA. When comparing agricultural production with GVA in this sector, it is possible to follow a similar trend but with different variability, i.e. GVA in this sector is significantly more heterogeneous.

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ANALYSIS OF INCOMES STRUCTURE IN SLOVAK REPUBLIC IN THE YEAR 2016

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Abstract: *The paper deals with the analysis of incomes structure in regions of Slovak republic based on European Union statistics on income and living conditions in Slovak republic data in the year 2016. The empirical probability mass function and empirical cumulative distribution function are formulated using the given sampling weights. Based on these functions the median whole gross household incomes for the whole Slovak republic and separately for eight Slovak regions are estimated. The results of analysis show that the differences among Slovak regions according to the median whole gross household incomes are mostly only moderate.*

Keywords: *median incomes, sampling weights, empirical probability mass function, empirical cumulative distribution function*

1. INTRODUCTION

The analysis of incomes structure in Slovak republic will be analyzed based on the data from the European Union Statistics on Income and Living Conditions (EU-SILC) realized in Slovak republic in the year 2016. EU-SILC is an instrument aiming at collecting timely and comparable cross-sectional and longitudinal multidimensional microdata on income, poverty, social exclusion and living conditions. This instrument is anchored in the European Statistical System (More in details see in [1]). The start of the EU-SILC instrument was in 2004 for the EU-15.

The survey containing more components such as random sampling, stratification, clustering, ratio estimation and so on is obviously called complex survey. All these procedures require using of auxiliary information. When the survey is complex, sampling weights based on auxiliary information and design effects are commonly used to simplify matters and to provide the correct results.

The construction of empirical probability mass function and empirical cumulative distribution function enabling to estimate the median with aid of sampling weights will be described in the paper. The analysis of the regional structure of incomes in Slovak republic based on estimated median whole gross household incomes will be realized.

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2. METHODS

Distributions of incomes or wages are obviously skewed and outliers are present. An outlier in a set of data is an observation (or subset of observations) which appears to be inconsistent with the remainder of that set of data ([2], p. 7). In such distributions the median is considered as good measure of central tendency because of its stability and robustness toward outliers. Alternatively also some less-traditional measures of location could be interesting as good measures of central tendency in such distributions, for example trimmed mean, Winsorized mean or M-estimators (More in details see for example in [3]). The using of the mean after removing of outliers is also possible and offers good results (See for example in [4]).

Suppose we know the size N of finite population U. Symbol x denotes variable under study and also its values, $U = \{1, 2, ...N\}$ is the set of unit indexes in the population. Symbol S denotes sample from the population – subset containing n units from U. Let's π_i be the inclusion probability − probability that unit $i \in U$ will be in random sample. Sampling weights for any sampling design are defined as follows

$$w_i = \frac{1}{\pi_i} \tag{1}$$

Sampling weight of unit i can be interpreted as number of units in the population represented by unit i.

The estimators of the parameters in arbitrary sampling designs can be expressed by sampling weights. If sampling weights are equal for all observations units, the sample is called self-weighting. Each observed unit in such sample represents the same number of unobserved units in the population. If sampling weights are not equal for all observations units, the sample is called non-self-weighting. If the sample is non-self-weighting, point estimates of quantities produced by standard statistical software will be biased.

Suppose that the values for the entire population of N units are known. A value of probability mass function (PMF) in x is

$$p(x) = \frac{N_{(x)}}{N} \tag{2}$$

where $N_{(x)}$ is number of units whose value is x. A value of cumulative distribution function (CDF) in x is

$$F(x) = \sum_{y \le x} p(y) \tag{3}$$

Note that it is probability mass function and cumulative distribution function of observation from the population because the „model-free“ or „distribution-free“ approach to sample survey is under consideration (For more details see in [5], pp. 8-9).

Empirical probability mass function $\hat{p}(x)$ is defined as follows

$$\hat{p}(x) = \frac{\sum_{i \epsilon S:\, x_i = x} w_i}{\sum_{i \epsilon S} w_i} \tag{4}$$

Empirical cumulative distribution function $\hat{F}(x)$ is

$$\hat{F}(x) = \sum_{y \leq x} \hat{p}\,(y) \tag{5}$$

Population quantiles $\hat{Q}_p$ are estimated as follows (According to [6]). Let y_1 be the largest value in the sample for which $\hat{F}(y_1) \leq p$ and let y_2 is smallest value in the sample for which $\hat{F}(y_2)$ $\geq p$. Then

$$\hat{Q}_p = y_1 + \frac{p - \hat{F}(y_1)}{\hat{F}(y_2) - \hat{F}(y_1)}(y_2 - y_1) \tag{6}$$

3. ESTIMATES OF MEDIAN WHOLE GROSS HOUSEHOLD INCOMES IN REGIONS OF SLOVAK REPUBLIC

The analysis of regional structure of incomes was effectuated on the data from the survey EU-SILC realized in Slovak republic in 2016. The stratified two-stage survey is regularly yearly applied in Slovak republic. A stratification is effected with two stratification variables – region and settlement size. There are eight regions in Slovak republic: Bratislava, Trnava, Trencin and Nitra in western Slovakia, Zilina and Banska Bystrica in central Slovakia, Kosice and Presov in eastern Slovakia. The EU-SILC sample is non-self-weighting. The using of sampling weights in estimation is suitable.

The 5,738 households were included to databases in 2016 also with the corresponding sampling weights. Data from EU-SILC 2016 are concentrated in many sets. Each household has one identification number. The analysis of the whole gross household incomes in eight Slovak regions was realized. Firstly the matching of needed data – sampling weights and whole gross household incomes was effected according to household numbers. Then the matched data were distributed according to regions. Each region was analyzed separately. The values of the empirical probability mass function were calculated according to (4) and the values of the empirical cumulative distribution function according to (5) for each region.

The estimate of median whole gross household income was calculated according to relation (6) separately for each region and for the whole Slovak republic. The estimate of population median whole gross household income for the whole Slovak republic in the year 2016 equals 14,631 euro's. The estimates of median in regions are in Table 1. In the brackets are the order numbers of layout according to the median whole gross household income.

Table 1: Regional structure of median whole gross household income in 2016

Region number	*Region name*	*Estimate of median whole gross household income in 2016 (Euros)*
1	Bratislava	16,000 (1.)
2	Trnava	15,258 (3.)
3	Trencin	15,557 (2.)
4	Nitra	13,286 (7.)

5	Zilina	15,023 (4.)
6	Banska Bystrica	12,900 (8.)
7	Presov	14,372 (6.)
8	Kosice	14,678 (5.)

4. CONCLUSIONS

The obtained ordering of regions according to median whole gross household income is very interesting. The difference between first Bratislava and second Trencin regions is not very large. The median household incomes of the third Trnava, fourth Zilina and fifth Kosice are also very close. There are bigger differences among last three regions. The median whole gross household income of Banská Bystrica is surprisingly low. The median whole gross household income of the first Bratislava is about 24 % greater than in the last Banska Bystrica. The first five regions have the median whole gross household income greater and the resting regions less than the whole Slovak republic.

If the sample is non-self-weighting, point estimates of means, totals and other quantities produced by standard statistical software will be biased. So in this case the using the standard statistical software to point estimation is inappropriate. It was the case also in mentioned application. The point estimation of parameters using sampling weights was needed. It is clear that the estimate obtained with aid of finite weights which allow the used sample design, non-response and potentially also coverage error better reflects the reality. Note that the steps of the weighting process are quite subjective. Even computing the base weights can be subjective; for example, in many telephone surveys, the number of telephones per household is not obtained and, thus, not used for computing inclusion probabilities. But there is general agreement in the statistical community that, for estimating descriptive statistics, weights should always be used even though some estimates may not benefit from this practice.

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THE TWIN DEFICITS PROBLEM IN INDIA

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Abstract: *The main aim of this paper is to investigate the twin deficit problem for the Indian economy using Granger Causality Test for the period 1988-2017. The co-integration analysis shows that there is a long run relation between budget deficit and current account balance. Despite the high savings rates, the twin deficits are valid for the Indian economy. The direction of the relationship is budget deficit to current account balance according to Granger Causality Test results. This result is consistent with the traditional Keynesian twin deficit hypothesis.*

Keywords: *Budget Deficit, Current Account Balance, Twin Deficits, Granger Causality.*

1. INTRODUCTION

Twin deficit hypothesis suggests that there is a positive and strong causality relationship between the current account deficit and the budget deficit (Parkin, 2000, p.848). In other words, the budget deficit by the increase in government expenditures is called the twin deficit, which affects the balance of current accounts negatively. In the early 1980s, the United States faced a major budget deficit problem. This budget deficit has led to a decline in economic activity. In the following process, budget deficits were also accompanied by high deficits in the balance of current account. This situation initiated the "twin deficit" debate, which expresses the relationship between the two deficits, and the relationship between the two deficits has become an important issue of economic policies (Khalid and Guan, 1999: 389). The debt crisis that emerged in developed countries following the 2008 global financial crisis, which has deeply affected the world, has led to a re-questioning of the budget and current account deficit relationship in many countries. It is important to know the direction of budget and current account balance deficits relation in terms of finding a solution to the twin deficit problem.

The budget deficits lead to current account deficits, and these two deficits appear at the same time according to twin deficit hypothesis. In a sense, the twin deficit hypothesis represents the collective action of budget deficits and current account deficits.

Budget deficits and current account deficits, which are the main indicators of economic policies, are chronic problems in many developed and developing countries.

One of the most fundamental economic problems facing most developing countries is the current account deficit and the choice of policy to be implemented to address this deficit (Bayraktutan and Demirtaş, 2011). The changes in the current account are evaluated as a signal for the course of the economy and therefore play a decisive role in shaping economic decisions and expectations (Erdoğanand Bozkurt, 2009).

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The main aim of this paper is to test the twin deficit hypothesis by Granger Causality for Indian economy for the period 1988-2017. The remaining part of the paper is arranged as follows. In the first part, the theoretical structure of the relationship between budget deficits and current account deficits is given. In the second part, the literature review is given. In the third part, data set and empirical application are given. In the last part of the paper, the results are discussed.

2. THEORETICAL FRAMEWORK

The relationship between budget deficit and current account deficits is dealt with as the Traditional Keynesian Approach, the Ricardian Equivalence Approach, and the Neo-Classical Approach. While there is a positive relationship between budget deficit and current transactions in the Keynesian approach, there is no relation between budget deficit and current account deficit in the Ricardian Equivalence hypothesis. Monetarists argue that there is a positive relationship between budget deficits and current account deficits. The neo-classical approach defends the idea that long-term permanent budget deficits affect economic variables rather than temporary budget deficits.

Relations between budget deficits and current account deficits in open economies are shown to depend on national income equality. National income equality; (Krugman and Obstfeld, 2006: pp.285-291).

$$Y = C + I + G + (X - M) \quad (1)$$
$$Y - (C + I + G) = CAB \quad (2)$$

Y refers to national income, C refers to private consumption expenditure, G refers to government expenditure and also (C+I+G) represents total expenditure, X refers to export and M refers to import. Net exports (X-M) represent current account balance (CAB).

S represents savings in closed economy assumptions. Given that savings are equal to investments, S=I, it is obtained by subtracting national consumption expenditures from national income (Y - C = S).

In the open economy, (S), national saving is equal to the unconsumed part of the national income both of private consumption and government expenditure.

$$S = Y - C - G \quad (3)$$
$$I = Y - C - G \quad (4)$$

(S) National saving equation is:

$$S = I + CAB \quad (5)$$

Total savings is the sum of private sector savings (Sp) and government sector savings (Sg).

$$S = Sp + Sg \quad (6)$$

Private sector savings (Sp) refer to the part of the after-tax income that is not consumed.

$$Sp = Y - T - C \quad (7)$$

Government sector savings (Sg) show the difference between the net tax revenue generated by the government sector and government expenditures.

$$Sg = T - G \tag{8}$$

When the national saving function is regulated in the light of all these definitions,

$$S = Y - C - G = (Y - T - C) + (T - G) = Sp + Sg \tag{9}$$

For open economies,

$$S = I + CAB = Sp + Sg \tag{10}$$

$$Sp = I + CAB - Sg = I + CAB - (T - G) = I + CAB + (G - T) \tag{11}$$

$$CAB = Sp - I - (G - T) \tag{12}$$

$$CAB = (Sp - I) - (G - T) \tag{13}$$

CAB represents current account balance, $(Sp - I)$; it represents the difference between private savings and private investments.

If the gap between private investments and private savings is stable, any increase in budget deficits leads to an increase in current account deficits. This interaction leads to the twin deficit (Erdinç, 2008).

3. LITERATURE REVIEW

The relationship between budget deficit and current account deficit has been addressed in many scientific studies. Studies in the economic literature related to the effects of budget deficits have shown different results for different periods in different countries by different researchers using different models and methods. But it cannot be said that a common consensus has been reached in these studies. The studies that test the relation between budget deficit and current account deficit are considered chronologically in table 1.

Table1: Literature Review

Study	***Sample***	***Period***	***Methodology***	***Main Finding***
Darrat (1988)	U.S.	1960-1984	Granger Casuality	Bidirectional relation
Haug (1990)	U.S.	1929-1985	Granger Casuality	No relation
Zietz and Pemberton (1990).	U.S	1972-1987	OLS Regression	BD to CAB
Bachman (1992)	U.S.	1974-1988	Bivariate VARs.	The U.S. must reduce the Federal budget deficit to eliminate its current account deficit.
Winner (1993)	Australia	1983-1989	Regression analysis	The Ricardian Equivalence Theorem supports the movements in the economy

Vamyoukas (1999)	Greece	1948-1994	Error Correction Model and Granger Causality	Unidirectional relation, budget deficit to trade deficit.
Akbostancı and Tunç (2002)	Turkey	1987-2001	Error Correction Model	There is a long-run relationship between the two deficits.
Kaufmann et.al (2002)	Austria	1976-1988	VAR	Budget deficits do not affect current account deficits.
Kouassi et.al. (2004)	Twenty developed and developing countries	1950-1988	Granger Causality	Unidirectional or bi-directional relation. for developed countries are less persuasive
Pattichis (2004)	Lebanon	1982-1987	Error Correction Model	Unidirectional relation, budget deficit to trade deficit.
Baharumshah et.al. (2006)	ASEAN	1976-2000	Granger Causality	Bidirectional relation
Kim and Kim (2006)	Korea	1970-2003	Modified Wald Test	CAB to BD.
Ganchev et.al (2012)	CEE countries	1998-2009	OLS Panel Regression	Twin deficit rejected in the case of Bulgaria and Estonia.
Kalou and Paleologou (2012)	Greece	1960-2007	VECM	CAB to BD
Perera and Liyanage (2012).	Sri Lanka	1960-2009	Granger Casuality	Unidirectional relation
Chihi and Normandin (2013)	Selected developing countries	From 1960 onwards	Generalized Methods of Moments	the positive and statistically significant covariance between fiscal deficit and current account deficit
Trachanas and Katrakilidis (2013).	Five European economies	1971-2009	The asymmetric co-integration methodology	direct long-run connection between the two deficits
Xie and Chen (2014)	Eleven OECD countries	1980-2010	Panel Granger Causality	No relation for UK and France. BD to CAB for Norway and Switzerland. The current account targeting hypothesis valid for Ireland, Spain and Sweden Bidirectional causality for Belgium, Finland, Greece and Iceland.
Ravinthirakumaran, et.al.(2016).	Five SAARC countries	1980-2012	Granger Causality	BD to CAB in Pakistan and Sri Lanka CAB to BD in India and Nepal Short run causality CAB to BD in Bangladesh.

Bhat and Sharma (2018)	India	1970-2016	Non-linear ARDL	therefore refutes the Ricardian Equivalence proposition and validates the twin-deficit hypothesis
Helmy (2018)	Egypt	1975-2014	VAR-VECM	CAB to BD in short-term according to VAR results, refutes the twin deficit hypothesis in favor of the current account targeting hypothesis according to VECM
Mohanty (2018)	India	1970-2014	ARDL	The results support the validity of twin deficits hypothesis.
Turan and Karakaş (2018).	CEE Countries	1996-2016	NARDL	CAB to BD in Poland and Romania in the long-run and Croatia, Poland, Romania and Slovakia in the short-run BD to CAB in Czech Republic, Hungary, and Slovakia in the long-run and in Czech Republic, Hungary, Slovakia, and Romania in the short-run.

The results of the studies can be summarized as follows:

- There is a unidirectional relationship between current account deficit and budget deficit,
- There is a bidirectional relationship between current account deficit and budget deficit,
- There is no relationship between current account deficit and budget deficit.

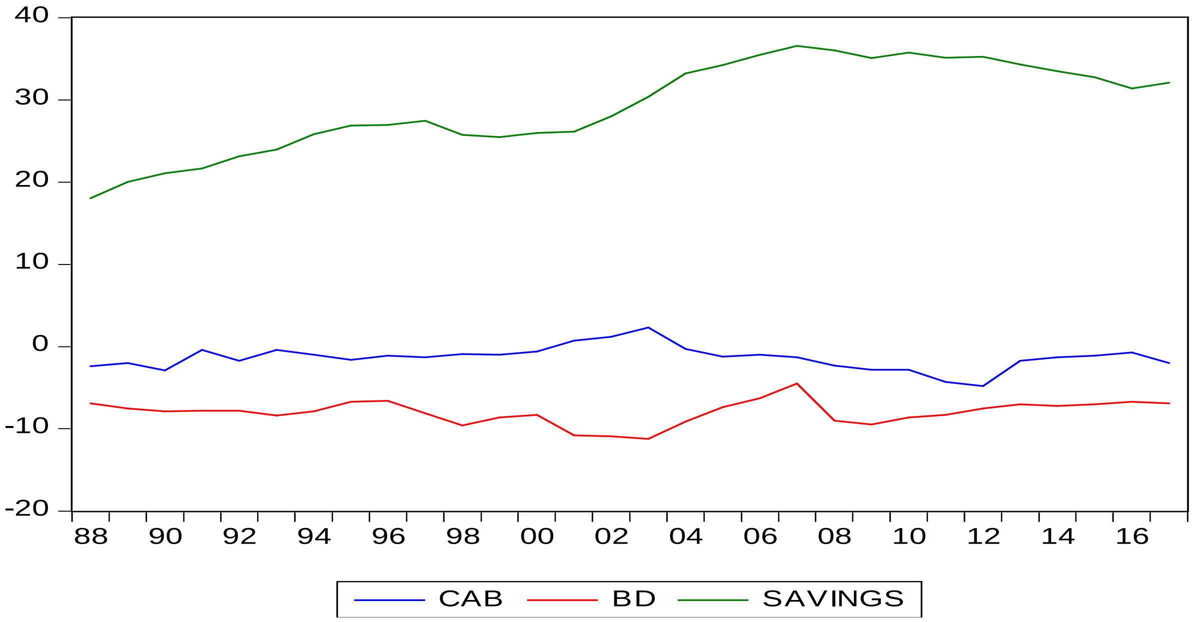
3. DATA AND METHODOLOGY

In the study, the twin deficits hypothesis was examined for the period 1988-2017 for Indian economy. The data set was taken from International Monetary Fund (IMF World Economic Outlook). The basic model equation is as follows:

$$CAB = \alpha 0 + \alpha 1 BD + \mu t \quad (14)$$

CAB refers to Current Account Balance, BD refers to Budget Deficit and μt is the error term. Figure 1 reflects the current account balance, budget deficit and savings of Indian economy. Despite the high savings rates, the twin deficits of the Indian economy are remarkable. The horizontal axis represents years and vertical axis represents rates of selected indicators.

Figure 1: Current Account Balance, Budget Deficit and Savings of Indian Economy



The time series approach is used as the econometric method in this study. Firstly, the stationary of the variables was tested using the ADF test. Secondly, the existence of co-integration is tested for variables. As a final step, the Granger causality test was used to determine the direction of the relation.

4. EMPRICAL FINDINGS AND DISCUSSION

The stationary is more important in the time series analysis. Augmented Dickey Fuller (ADF) test is the most commonly used unit root test. The Augmented Dickey Fuller (ADF) unit root test is used to determine whether the variables are stationary or not.

Table 2 reflects the results of unit root tests for current account balance (CAB, % of GDP) and budget deficit (BD, % of GDP).

Table 2. Unit Root Test Results (at Level)

	CAB	**BD**
t-statistic	-2.447004	-2.657566
Probability	0.3498	0.2599
Critical Values		
1%	-4.309824	-4.309824
5%	-3.574244	-3.574244
10%	-3.221728	-3.221728

H_0 = CAB has a unit root
H_2 = BD has a unit root.
* The H_0 and H_2 hypothesis are accepted because the probability value is bigger than 0.05, the series is not stationary.
Source: Calculated by Eviews

Table 2 shows that the current account balance and budget deficit series are not stationary at level. The first differences of these two series have been taken to stationary. Table 3 reflects the results of unit roots for current account balance and budget deficit series at first differences.

Table 3. Unit Root Test Results (at First Differences)

	CAB	**BD**
t-statistic	-5.913392	-4.810632
Probability	0.0002	0.0032
Critical Values		
1%	-4.323979	4.323979
5%	-3.580623	-3.580623
10%	-3.225334	-3.225334

H_0 = CAB has a unit root
H_2 = BD has a unit root
* The H_0 and H_2 hypothesis are rejected because the probability value is smaller than 0.05, the series is stationary.
Source: Calculated by Eviews

The Johansen co-integration test is useful for check existence of long run relationship between current account balance and budget deficit. The first step of the Johansen co-integration test is to determine the appropriate lag length. Critical values such as Akaike, Schwarz and Hannan-Quinn are used to determine the lag length. The lag length providing the smallest critical value is determined as the lag length of the model. The optimal lag length was determined as 5 based on AIC.

The results of Johansen co-integration test is shown in table 4. It is understood that there is co-integration relationship between current account balance budget deficits. Trace test indicates two co-integrating eqn(s) at the 0.05 level and maximum Eigen value test indicates two co-integrating eqn(s) at the 0.05 level.

Table 4: Johansen Co-integration Test Results

Hypothesized no. of CE(s)	Eigen value	Trace statistic	0.05 critical value	Prob.
Unrestricted co-integration rank test (trace)				
None	0.583137	28.18860	12.32090	0.0001
At most 1	0.295730	8.063655	4.129906	0.0054
Hypothesized no. of CE(s)	Eigen value	Max-Eigen statistic	0,05 critical value	Prob.
Unrestricted co-integration rank test (maximum Eigen value)				
None	0.583137	20.12494	11.22480	0.0011
At most 1	0.295730	8.063655	4.129906	0.0054

The Granger Causality test is based on testing the significance of the lagged values of the independent variable in the regression equation (Granger, 1969, pp.424-438). The Granger Causality test was used to determine the direction of causality between the budget deficits and the current account deficit. The variables have to be stationary in order to applying Granger causality test. As mentioned above, it is reached that stationary at first differences by using ADF test. In table 5, the results of Granger Causality test are shown. The direction of the relationship is budget deficit to current account balance. In other words budget deficit does cause current account deficits for Indian Economy

Table 5: Granger Causality Test Results

Dependent variable: CAB(-1)		
Excluded	**Chi-sq**	**Prob.**
BD(-1)	16.70660	0.0051
All	16.70660	0.0051

Dependent variable: BD(-1)		
Excluded	**Chi-sq**	**Prob.**
CAB(-1)	2.716582	0.7436
All	2.716582	0.7436

5. CONCLUSION

The budget deficit and current account deficit is observed in Indian economy for many years. The twin deficit hypothesis is investigated using co-integration analysis and Granger causality test for 1988-2017 period with annual data. The direction of causality between budget deficits and current account deficit was examined using Johansen co-integration analysis and Granger Causality test. It is concluded that there is a long-run relationship between budget deficit and current account deficit. This result is consistent with the traditional Keynesian twin deficit hypothesis. In addition, the direction of the relationship is budget deficit to current account balance. In other words budget deficit does cause current account deficits for Indian Economy.

Despite the high savings rates, the twin deficits are valid for the Indian economy. This finding is remarkable. The results of the analysis show that the main economic problem is budget deficits for Indian economy. Policy makers should develop policies to budget balance. This will also have positive effects on the current account balance.

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ESTIMATION OF PRICE AND INCOME ELASTICITY OF DEMAND FOR MILK IN SLOVAKIA

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Abstract: *Despite the fact that situation has changed significantly in recent years and the share of milk production in the total agriculture production tends to decline, milk still represents a significant part of the food products in Slovak households. The study presents the important data on dairy sector balances, focuses on prices and income elasticity. Using dataset from the Household Budget Survey of Slovakia, we estimated the price elasticity of demand for skimmed and whole milk. Due to the nature of data, we used the Cragg's double hurdle model for estimation, in the time period from 2006 to 2012. The results show that the demand for whole milk is elastic (1.42) and for skimmed milk is inelastic (0.53). The rise in prices of whole milk causes an increase in the consumption of skimmed milk by 0.30% and higher prices of skimmed milk leads to increasing of demand for whole milk by 0.37%, therefore they are substitutes. The influence of other dairy products such as a dried milk, yoghurt, cheese is mainly either insignificant (whole milk) or very low (skimmed milk). The income factor positively influences the consumption of milk and leads to a small increase in the consumption of skimmed milk what suggest that both type of milk are normal goods.*

Keywords: *demand for milk, price elasticity, income elasticity, double-hurdle model*

1. INTRODUCTION

Milk belongs to the staple food products and it is also a crucial commodity among the European Union states. It is produced in every single EU country and generally, the dairy sector contributes to 12.2% of the total agricultural output, right after vegetables and horticultural plants (13.2%). In Slovakia, the milk production represents just about 13.5% of total agriculture production (Eurostat, 2017). Despite the fact that this percentage share has been declining over the past years, dairy production has a significant position in the economy. The other words, it has an impact on the welfare of the economy as a whole and it affects both ends of the food supply chain, i.e. producers and consumers (households). The effect on consumers also depends on price volatility and the extent to which retail prices react to producer prices (Gilbert and Morgan, 2010). Garcia-German (2014) states that higher volatility in retail prices has a greater influence on the consumers who spend a larger scale of their income on food.

The agriculture economists have started to focus their attention on the analysis of the pricing market structure and consumption of households. Many recent studies also have concentrated on marketing activities influencing the demand for dairy products and paid attention to factors affecting demand and market prices. Socio-demographic effects, such as the age and gender of the consumers, household size, the composition of household members, level of monthly

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income, health problems effect, urbanization, ethnicity, the region of residence, seasonality etc. (Heien and Wessells 1988; Gould, 1996; Hatirli, et. al., 2004; Goktolga et. Al. 2006; De Alwis, et.al., 2011; Denver and Jensen, 2014) have been identified as household characteristics representing the important role in consumption and in the purchasing behavior. Dong et. al. (2004) examined fluid milk purchasing behavior with panel data from New York households, using a Double-hurdle model. From the empirical testing was found that the prices are inelastic and generic dairy advertising increases the probability of market participation and simultaneously purchase quantity and incidence. Davis et. al. (2009) examined demand elasticity for fluid milk products in the United States, using a censored translog demand system and the results showed that price and income are the main determinants of the demand for dairy products. Alviola and Capps (2010) used the probit model to find out the impact of the selected demographic variables connected with the purchase of organic fluid milk. They ascertained that factors like earnings and education have a significant position in the household choice of purchasing organic milk. Tiryaki and Akbay (2009) used the multinomial logit procedure to study selected socioeconomic and demographic aspects of consumers that determine households' fluid milk consumption. The results concluded that as the earnings grow then household tends more to consume processed milk rather than buying unprocessed milk. The effect of income was found as the highest on the probability of consuming processed milk. Bai et al. (2008) adopted a Tobit model to estimate the influences of socio-demographic characteristics of urban consumers on their fluid milk consumption in Qingdao in China. The major results showed that fluid milk consumption in urban Qingdao is much higher compared to China's national level and also income has the positive influence on milk consumption.

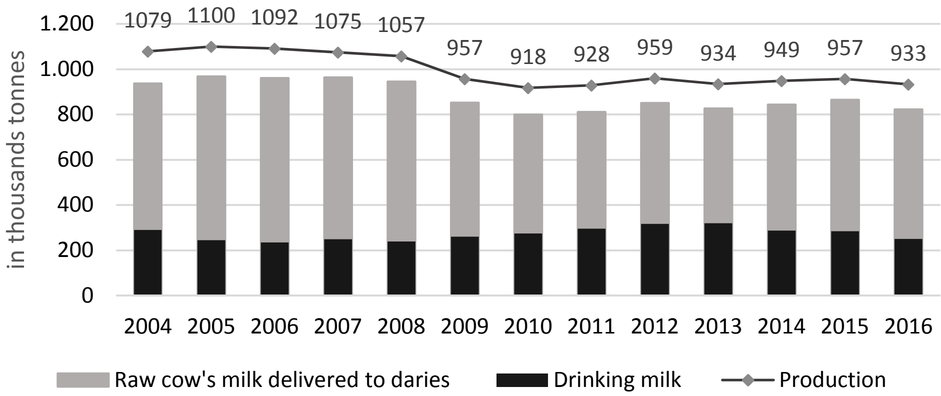
The objective of the paper is to estimate price elasticity of demand for skimmed and whole milk in Slovakia. Using the household dataset from the Household Budget Survey, we focus on the time period of 2006-2012. The paper is organized in the following parts - the next section describes the Slovak dairy sector, its current changes in the market structure, productivity, consumption and trade in Slovakia. The second part provides a description of the theoretical model used to test the elasticity of demand, and summaries the data and variables used in the econometric analyses. In the third part, the estimations of tests are presented and the final part summarizes the results and conclusions.

1.1. MARKET STRUCTURE OF DAIRY SECTOR IN SLOVAKIA

Slovak agriculture has differed strongly from the other European Union countries, largely within its farm structure (Swinnen, at al., 2006). Dairy sector has undergone rapid structural changes in the past decade and the number of farms plummeted by more than 35%, mainly due to the low purchase prices. It was one the reasons of the milk crisis in 2008-2009, 2012, and in 2015-16. Just during the last 3 years, the number has dropped from 483 registered dairy farms in 2015 to only 424 in the September 2018 (12% reduction).

In 2016, milk production of Slovakia reached 933.3 million kg which represents a decrease by 2.5% over the previous year and 163 million tones of cow's milk was produced within the EU. Compared to these countries, Slovakia is just a small dairy producer and the production accounted for just 0.5% share of EU milk deliveries. The majority of Slovak milk is produced on the farms. They are run as cooperatives or private enterprises (limited company or trading companies) and most of the milk is used for processing by buyers. During the observed period, delivery on production was on average about 89% (see Figure 1). Forty dairy companies and organizations operated with direct milk collection from the agricultural holdings and just 10 of them operated with own-milk processing.

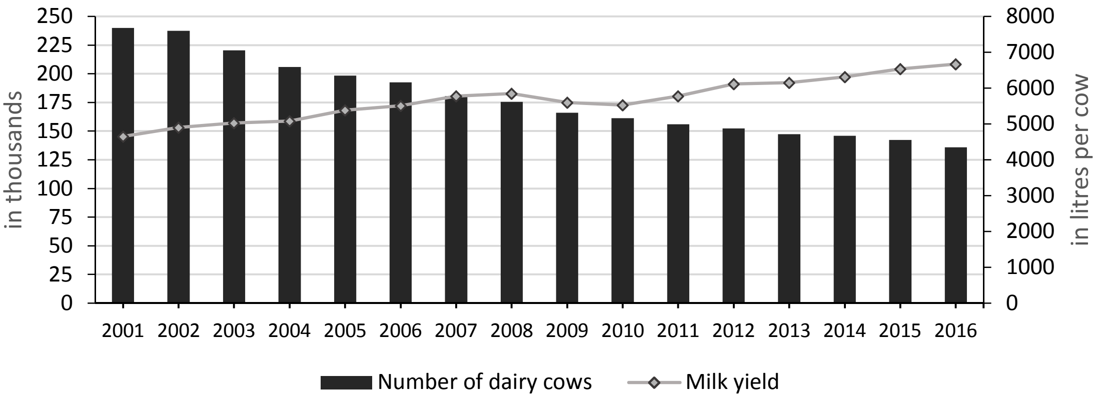
Figure 1 Cow's milk production, milk deliveries, drinking milk



Source: Eurostat

In 2016, 822.7 thousand tones of the cow's raw milk available in the dairy sector was processed into a lot of fresh and manufactured products. 30.5% of processed milk was used as drinking milk including raw milk, whole milk, semi-skimmed and skimmed milk without any additives and relates only to milk directly intended for consumption. The rest of the milk was used for the proceeding of other dairy products (Eurostat, 2018).

Figure 2 Number of dairy cows (left axis), milk yield (right axis)



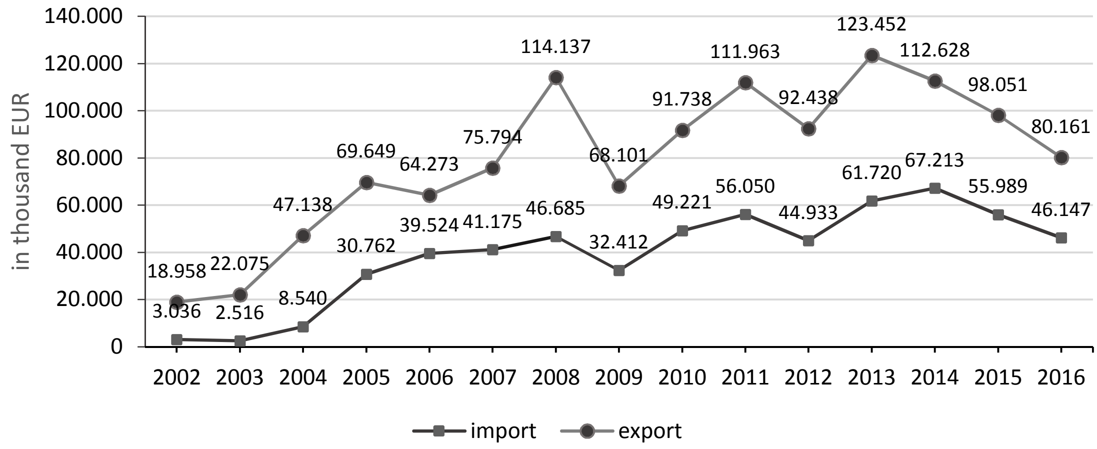
Source: Research Institute of Agriculture and Food Economics

Figure 2 shows the number of dairy cows and milk yields between the years 2001-2016. Since 2006, the average number of dairy cows in the farms decreased by almost 42% (from 192.5 thousand to 135.9 thousand) and compared to 2001, by more than three-quarters. Unlike the sharp decrease in dairy cows, average milk yields rose by 21% since 2006 and compared to the year 2001, by 43.3%.

A lot of consumers have been changing their purchasing habits in accordance with the nascent 'healthy trends'. This is also one of the factors affecting milk consumption. According to the dairy report of Euromonitor (2017), the main consequences of these trends are increased shares of product innovations based for instance on full-fat fresh milk and other milk alternatives such as soy drinks, goat milk, lactose-free drinking milk products or organic brands. In 2016 the annual consumption of cow's milk amounted to 173.6 kg per capita and compared to 2006 it increased by 15.5%. However, this amount still represents just nearly 80% of the recommended level (220 kg per year).

In 2017, Slovak export of milk and milk products accounted for just 0.7% of EU dairy export. The increase in exports and imports would stem from the entry of Slovakia into EU in 2004. Since then a substantially larger part of the raw milk and milk products has been bought directly by foreign companies. Dairy products, converted into milk equivalent, were exported abroad as a share 63.5% (the year 2017) and 58.1% (the year 2016) from the milk deliveries.

Figure 3 Foreign trade of milk



Source: Research Institute of Agriculture and Food Economics

In 2007, the export sales grew rapidly and reached more than 114 million EUR. In 2016, Slovakia exported milk and milk products amounting to 80.1 million EUR (Figure 3). Bulk and packed milk represented 187 thousand tones and 99% of this amount went to the other European Union countries (intra-trade). The main business partners for export of bulk milk were Germany and Italy, for packed milk Hungary and for other dairy products the Czech Republic (cheese, whey, cream) or Spain (yoghurt and buttermilk). In the same year, milk products were imported to Slovakia amounting to 46 million EUR, which constituted 234.3 thousand tones of dairy products. The main importers were the Czech Republic (packed and bulk milk, cream, yoghurt, buttermilk), Poland (cheese), Romania (whey) and Germany (butter, skimmed milk powder).

2. DATA AND METHODOLOGY

The aim of this paper is to estimate price elasticity of demand for skimmed and whole milk in Slovakia. We used data from the Household Budget Survey of Slovakia for period 2006 - 2012 and due to the nature of the dataset, the Cragg´s double hurdle model was applied to measure the elasticity.

The month consumption of whole/skimmed milk per household was used as the main dependent variable entering the model. To estimate the price elasticity was essential to determine prices of these products because the dataset did not contain this information. By following Sousa (2014), the prices were derived from expenditures and quantities of consumed milk and simultaneously showed differences of each household. For households with zero consumption, we calculated the average prices of 8 regions by years and quarters, and missing prices were substituted with new estimated prices which were also used as the main explanatory variables.

Besides the whole and skimmed milk prices, the prices of dried milk, yoghurt, cheese, and other dairy products were also included in the model.

Models contained variables representing household characteristics or time trend. Selection of variables was based on studies focus on the demand for dairy products, e. g. Heien and Wessells (1988); Dong et al. (2007); Bouamra-Mechemache, et al. (2008). Table 1 shows the list of all variables used in the model.

Table 1: Variables entering models

Dependent variables (Y_j)	***Definiton***
ln_c_milk_whole	log monthly consumption per household (l)
ln_c_milk_skim	log monthly consumption per household (l)
Instruments (Z_j)	***Definiton***
ln_income	log monthly income per household (EUR)
d_whole	dummy variable for consumption of whole milk, 1 – positive amount of consumption, otherwise 0
d_skim	dummy variable for consumption of skim milk, 1 – positive amount of consumption, otherwise 0
Explanatory variables (X_j)	***Definiton***
ln_p_milk_whole	log price of whole milk per l
ln_p_milk_skim	log price of skim milk per l
ln_p_milk_dried	log price of dry milk per l
ln_p_yogurt	log price of yogurt per 100 g
ln_p_cheese	log price of cheese per 100 g
ln_p_other_dairy	log price of other dairy products 100 per g
ln_p_coffee	log price of coffee per 100 g
ln_p_tea	log price of tea per 100 g
ln_p_cocoa	log price of coca per 100 g
ln_income	log monthly income per household
age_hh	age of head of household
male_hh	dummy variable, gender of head of household, 1 – man, 0 – woman
employed_hh	dummy variable for work status of head of household, 1 – employed, 0 – unemployed or economically inactive person
n_members	number of members of household
sp_household	dummy variable, 1 – single person household, otherwise 0
n_retirees	number of retirees in household
n_teenegers	number of teenagers in household (age 13 – 18)
n_children	number of children in household (age < 12)
region	dummy variables for 8 regions of Slovakia
year	time trend for period 2006 - 2012

Source: HBS, own processing

The problem of the censoring shows particularly in the studies using microeconomic data. The database used in this study contains a significant number of households with zero expenditure on milk. It might be caused by several reasons: the period of research is short; households never buy milk or households never buy milk at the given prices or income.

Estimation of demand by OLS at these circumstances would lead to biased and inconsistent results (Amemiya, 1984). Studies analyzing the demand for food, e.g. Gao et al. (1995), Burton et al. (1996), Yen and Jones (1997), Sharpe et al. (2001), Newman et al. (2003), Mabiso et al. (2005), Mutlu and Gracia (2006), Zhang et al. (2008), Wan and Hu (2012) Eakins, 2016 or Cupak et al. (2016), often use the Cragg´s double hurdle model (Cragg, 1971).

The double-hurdle model is appropriate to use if consumers make decisions in two steps – hurdles: *participation* and *consumption* decision. The first hurdle is estimated by Probit model and the second one with a truncated Tobit model. *The participation* step is described by equations

$$d_j^* = z_j\gamma_j + u_j \qquad u_j \sim N(0,1) \tag{1}$$

$$d_j = \begin{cases} 1 \; if \; d_j^* > 0 \\ 0 \; if \; d_j^* \leq 0 \end{cases} \tag{2}$$

where d_j^*represents unobserved latent variable and $d_j$is observed binary variable. The second step – how much household consume is described by equations

$$y_j^* = x_j\beta + v_j \qquad v_j \sim N(0,\sigma^2) \tag{3}$$

$$y_j = \begin{cases} y_j^* \; if \; d_j = 1 \; and \; y_j^* > 0 \\ \quad 0 \; else \end{cases} \tag{2}$$

where y_j^* is unobserved latent variable and $y_j$is actual expenditure on milk which is equal to y_j^* only in the case that this latent variable takes positive values and participation step is equal to 1. Explanatory variables that determine participation and expenditure hurdles are label as z_j andx_j. Estimation of coefficients is made by maximum likelihood function.

The means and standard deviations of regression variables for the full sample, for households with positive consumption of whole milk, and for households with positive skimmed milk consumption are presented in Table 2. Average Slovak household has 2.82 members from which 0.34 consists of retirees, 0.21 teenagers (13 - 18 years old) and 0.35 children younger than 13 years.
Average monthly income is 1 098 EUR for the full sample, for households consuming skimmed milk it is by 5 EUR more and for households consuming whole milk by almost 100 EUR more. Average consumption is 1.61 liters of whole milk with an average price of 0.70 EUR per liter and 11.92 liters of skimmed milk with an average price of 0.58 EUR per liter. Households with positive consumption of whole milk usually consume 9.69 liters of whole milk per month and 7.07 liters of skimmed milk. On the other hand, households with positive consumption of skimmed milk consume 13.26 liters per month of this kind of milk and 3.92 liters of whole milk. Average prices of other dairy products like yoghurt, cheese, and prices of tea, coffee, and cocoa are also displayed in Table 2.

Table 2: Summary statistics

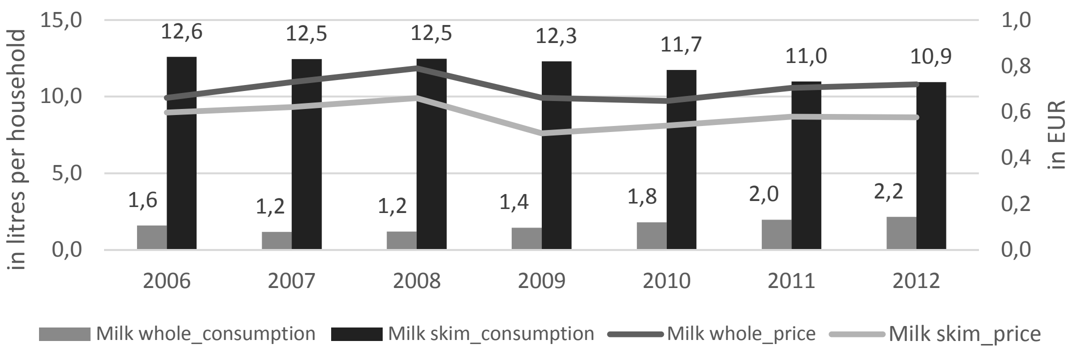
Variable	*Full sample*		*Sample with positive whole milk consumption*		*Sample with positive skim milk consumption*	
	Mean	*Std. Dev.*	*Mean*	*Std. Dev.*	*Mean*	*Std. Dev.*
c_milk_whole	1.61	5.62	9.69	10.54	0.90	3.92
c_milk_skim	11.92	11.93	7.04	9.33	13.26	10.78
income	1098	743	1192	719	1103	744
p_milk_whole	0.70	0.11	0.70	0.19	0.70	0.10
p_milk_skim	0.58	0.10	0.58	0.10	0.58	0.10
p_milk_dried	0.70	0.21	0.72	0.24	0.70	0.21
p_yogurt	0.26	1.45	0.26	0.07	0.26	1.53
p_cheese	0.57	0.12	0.58	0.12	0.57	0.12
p_other_dairy	0.26	1.39	0.25	0.10	0.25	1.46
p_coffee	1.49	9.27	1.47	0.94	1.49	9.77
p_tea	0.56	1.02	0.60	1.09	0.57	1.03
p_cocoa	0.61	0.15	0.62	0.16	0.60	0.15
age_hh	51.8	14.61	51.2	14.57	51.81	14.50
male_hh	0.68	0.47	0.72	0.45	0.68	0.47
employed_hh	0.64	0.48	0.67	0.47	0.65	0.48
n_members	2.82	1.43	3.02	1.45	2.86	1.42
sp_household	0.22	0.41	0.16	0.37	0.20	0.40
n_retirees	0.34	0.61	0.35	0.63	0.34	0.61
n_teenegers	0.21	0.51	0.22	0.53	0.22	0.51
n_children	0.35	0.69	0.42	0.74	0.35	0.69

Source: HBS, authors´ calculations

3. RESULTS

From 2006, consumption of skimmed milk had a declining trend (Figure 4). In 2006, the average consumption of skimmed milk per household constituted 12.6 liters and six years later it decreased by almost 2 liters. However, consumption of whole milk increased during the observed period by 37.6% and from 2007 had the stable rising trend. Consumer prices of both kinds of milk show a similar volatile pattern. After the reaching maximum in 2008, prices declined sharply and from 2009 increased gradually till 2012.

Figure 4: Price and consumption of whole and skim milk



Source: HBS, author's calculations

Table 3 represents the estimated double-hurdle model for whole and skimmed milk. Whole milk is own price elastic, 1 % increase in the price causes 1.4 % decrease in consumption, in comparison with skimmed milk (0.5 % decrease in consumption caused by 1 % increase in price) that is price inelastic. The cross-price elasticity indicates that whole and skimmed milk are substitutes. An increase in whole milk prices causes an increase in the consumption of skimmed milk by 0.30 % and in the case of the rising price of skimmed milk it is by 0.37 %. Influence of prices of dried milk, yogurt, cheese, and other dairy products is mainly either insignificant (whole milk) or very low (skimmed milk). The same applies to the prices of coffee, tea or cocoa.

The coefficient of income elasticity is significant for skimmed milk but not significant for whole milk. Its value 0.12 indicates that it is a normal good, therefore an increase of income leads to a very small increase in the consumption of skimmed milk. With the rising number of household members obviously rises consumption of milk. The grow of consumption is caused mainly by children, teenagers, and retirees.

Table 3: Estimation of DH model for whole and skim milk

Variable	***Milk whole***		***Milk skim***	
	Coef.	***Std. Err.***	***Coef.***	***Std. Err.***
ln_p_milk_skim	.3674***	.0965	-.5257***	.0291
ln_p_milk_whole	-1.415***	.0696	.3032***	.0376
ln_p_milk_dried	.0181	.0471	-.0496***	.0165
ln_p_yogurt	.1514**	.0704	.0588**	.0230
ln_p_cheese	.0210	.0736	-.0863***	.0239
ln_p_other_dairy	.0396	.0394	-.0181	.0133
ln_p_coffee	.0352	.0299	.0446***	.0096
ln_p_tea	-.0156	.0168	-.0207***	.0055
ln_p_cocoa	-.0026	.0654	-.1164***	.0225
ln_income	.0247	.0374	.1230***	.0123
age_hh	.0049***	.0016	.0036***	.0005
male_hh	.0703*	.0369	.0106	.0114
employed_hh	.0805*	.0447	-.0668***	.0145
n_members	.1191***	.0184	.1627***	.0063
sp_household	-.1247**	.0587	-.2049***	.0171
n_retirees	.0751**	.0297	.0299***	.0100
n_teenegers	.0047	.0315	.0422***	.0107
n_children	.1127***	.0263	.1111***	.0091
TT	.0419	.0682	.1456***	.0192
TN	.1518**	.0567	.0786***	.0187
NR	.0399	.0626	.1082***	.0187
ZA	.1003*	.0553	.0183	.0189
BB	.0560	.0612	.0627***	.0199
PO	.1935***	.0629	.0797***	.0202
KE	.0596	.0619	-.0274	.0190
year	-.0267***	.0085	-.0278***	.0027
_cons	54.60	17.19	56.39***	5.588
selection_ll				
ln_income	.2404***	.0170	.2065***	.0173
d_skim	-1.381***	.0272	-	-

d_whole	-	-	-1.196***	.0234
_cons	-1.539***	.1177	.0699	.1169

Source: HBS, author's calculations

*,**,*** denote significance at the 10%, 5% and 1% significance levels

The latest part of Table 3 contains the effect of income and dummy variables for skimmed and whole milk. All parameters are statistically highly significant. Income positively influences the decision to consume milk and dummy variable d_skim in the model for whole milk has negative value, which means the consumption of skimmed milk by the household has a negative effect on the decision to consume whole milk and vice versa.

CONCLUSION

The study employed the econometric techniques to analyze the price and income elasticity for whole and skimmed milk in Slovakia. The Household Budget Survey data were used in order to build the Cragg's double hurdle model for the time period from 2006 to 2012. To estimate the price elasticity, prices were derived from expenditures and quantities of consumed milk per household. The empirical results show that households are more likely to buy skimmed milk. Demand for skimmed milk was shown as inelastic and for whole milk as elastic. Findings also implied that the observed dairy products are substitutes because an increase of whole milk prices leads to the increase in the consumption of skimmed milk and vice versa. The number of household members, mainly children, teenagers and retirees, affects the consumption of milk and the income is considered as another factor that positively influences the amount of consumed milk.

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PRIVATIZATION EFFICACY FINANCIAL ANALYSIS AND THE CURRENT SITUATION OF THE PHARMACEUTICAL INDUSTRY IN SERBIA

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Abstract: *The pharmaceutical industry is an economic branch that is primarily concerned with the production of pharmaceutical preparations, medicines and other products, and at the same time it is one of the strategic branches of the economy of each state. Observing the problem, through systematic analysis, the focus in the paper was put on the time interval in the last ten years when the privatization procedures were intensively implemented over the largest Serbian pharmaceutical companies. Through the econometric indicators, the influence and consequences on the current state of the pharmaceutical industry in the Republic of Serbia have been also highlighted.*
In the course of the research, through financial analysis, the most successful companies from the pharmaceutical sector of the economy of the Republic of Serbia are pointed out through the financial indicators the liquidity and the performance of the business were analyzed. Also, by economic and financial approach, the share that the former holders of the pharmaceutical industry had in production in relation to the current situation, where the processing sector prevails, will be highlighted.

Keywords: *pharmaceutical industry, Republic of Serbia, analysis, finance, economy*

1. INTRODUCTION

The world pharmaceutical market has undergone rapid, unprecedented, tremendous and complex changes in the last few years. Nowadays, the pharmaceutical industry is still one of the most inventive, innovative and lucrative of the so-called "high-tech" industries; however, we can say that the pharmaceutical industry has been adapting itself more and more to the strategic trends and market demands. Further strategic development of the global pharmaceutical industry clearly shows its consolidation, concentration and strong market orientation. The pharmaceutical industry today, with no doubt, unites one of the biggest potentials of all humanity. Considering that a country like Serbia has recognized the advantages of having a business change, it realized that the biggest contribution to the competitiveness of the then key strategic carriers in the pharmaceutical industry will be the privatization process, which will enrich the capital of the company and the production process, given that many of them have been unprofitable for years, and through the sale of their participation and ownership, the state will acquire financial resources that will create the conditions for further development and research through investments and the formation of a sustainable development strategy. The development of a brand new drug is estimated to require an investment of more than $ 1.2

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billion and takes more than 12 years to bring it as a finished, legally registered and approved product to the marketplace [2]. This is a very complex, comprehensive and highly risky job with no final guarantee that the potential new product could succeed on the market and bring back revenues [1].

We may argue that competitiveness has been growing tremendously, thus there is an urgent need for pharmaceutical companies to behave in a good, sharp and fast manner (Kesič, 2009). We can forecast that, taking into account the described elements, realistic trends of further consolidation and concentration of the world pharmaceutical industry. We can expect the formation of even more pharmaceutical concerns in all three sectors of the pharmaceutical industry. In addition, further lack of new products is expected with high competitiveness and furious fight for market share and global customer loyalty [1]. The conducted analysis in the work focused on the effectiveness of the privatization carried out over the pharmaceutical companies, as well as the current situation in the pharmaceutical market of Serbia. Through financial and business analysis, a review of the companies after the global economic crisis was given, and what influenced their liquidity, and at the same time, from the economic point of view, could be implemented to improve the situation in Serbia.

2. FINANCIAL ANALYSIS

The pharmaceutical market is highly profitable, with an average annual growth rate of around 6% [5]. The United States stands out as a leader with a 45% share in the world market, with Pfizer, Merc & Co and Johnson & Johnson highlighting. The EU countries, with 29% of the shares, are also important players in the market. The major pharmaceutical companies GlaxoSmithKline, AstraZeneca and Novartis contributed the most to this, with realized revenues from sales of its product range.

The pharmaceutical market of Serbia is a generic market, which accounts for most of the consumption of medicines from domestic production. The share of generic drugs in total drug consumption is over 55-60%. The greatest video demand for medicines is provided from domestic production (55-60%), while import medicines account for 40-55% of the market. Of the total amount of cells, about 85% are prescription drugs, while about 15% of medicines can be bought without prescription at the OTC market (Over-the-Counter Drugs). Of this, about 220-230 million euro's are state-owned for financing medicines on positive lists, representing 33-38% of the total size of the pharmaceutical market. It can be noted that the growth of government expenditure on financing leaked by positive lists is lower than the growth of the pharmaceutical market, which indicates that the participation of medicines with compensation in the overall size of the market is increasing. The pharmaceutical market of Serbia is a complex market in which wholesale and distribution of medicines is significant. According to official statistics, wholesale and retail sales of medicines make almost the same turnover as in the "first sale of medicines", which is generated by domestic manufacturers and importers [3] - [4].

By the beginning of the global economic crisis in 2008, from the macroeconomic point of view, the turbulence was determined in the Serbian economy, whereby the pharmaceutical sector was hit, specifically considering the profitability analysis of 9 pharmaceutical companies, through 3 indicators - ROA, ROE I ROI, the trend is falling in most of the analyzed entities. Certain negative ones were also noticed, which should alert the relevant ministries and specific entities to react [5].

In order to increase profitability, it was necessary to reduce the costs associated with invested funds and increase the sales volume of producers and distribution channels with wholesalers. In this case, the pharmaceutical sector would be more attractive to potential investors, as the increase in net profit leads to a potential increase in profits per share of the company operating as a joint-stock company.

Table 1: Financial analysis of profitability of pharmaceutical companies in the Republic of Serbia in the period 2009-2011 business year

Pharmaceutical company		Hemofarm a.d.	Galenika a.d.	Zdravlje a.d. Leskovac	Jugoremedija a.d.	Velefarm	Vetfarm a.d.	Srbolek a.d.	Farmalogist d.o.o.	Unihemkom
No.		1	2	3	4	5	6	7	8	9
INDICATOR		ROA (Return on assets)								
Business year	2011	12.83%	-12.66%	1.18%	-4.67%	-2.93%	-11.04%	-2.76%	-0.41%	-4.06%
	2010	5.56%	-2.78%	10.11%	-1.46%	-2.00%	-3.74%	-2.52%	-1.99%	-2.13%
	2009	10.87%	5.06%	5.03%	-6.26%	1.21%	-2.94%	-3.56%	2.55%	0.06%
INDICATOR		ROE (Return on equity)								
Business year	2011	-38.34%	-325.90%	-10.17%	-61.10%	negative equity	negative equity	-409.83%	17.89%	negative equity
	2010	-4.23%	-6.65%	0.05%	-24.11%	negative equity	-441.75%	-129.08%	11.43%	negative equity
	2009	16.84%	3.67%	1.06%	-11.99%	-76.36%	-184.49%	-67.60%	9.68%	99.73%
INDICATOR		ROI (Return on investment)								
Business year	2011	17.46%	-16.76%	1.39%	-6.13%	-5.02%	-34.66%	-20.40%	-1.27%	18.21%
	2010	7.59%	-3.57%	12.38%	-1.61%	-2.60%	-8.37%	-12.36%	-6.06%	39.33%
	2009	15.31%	7.18%	5.70%	-6.92%	1.75%	-6.38%	-9.21%	7.20%	4.49%

By applying a systematic financial analysis of the operations of pharmaceutical companies, one can see the state of liquidity of the same, which also reflects the state of the pharmaceutical industry as a whole, especially in the period preceding the final privatization procedures over some of them, but at the same time, they look at the operations of the companies that were privatized. In principle, the business indicators of most of the companies that were doing business in the 2009-2011 business year, recorded a downward trend, which can be seen by looking at the values in the table 2. Revenue from sales, net gain or loss, net working capital showed an alarming situation that was on the market, under the influence of the global economic crisis, but also among the causes could include oversized wholesale and retail network, as well as the non-compliance of payment deadlines, but also the illiquidity of health institutions and the republican health insurance fund [3]. Taking into account the specific indicators, although some companies reported balanced profit, the EBDITA values recorded a significant downward trend, even the negative values. This was logically reflected in the variation in the employment rate, since by reducing it, it tried to influence the reduction of obligations and duties, and at the same time contributing, and reducing the passive, that is, personal expenditures.

Table 2: Business analysis of pharmaceutical companies in the Republic of Serbia in the period 2009-2011 business year

Pharmaceutical company		*Hemofarm AD*	*Galenika AD*	*Zdravlje AD Leskovac*	*Jugoremedija AD*	*Velefarm*	*Vetfarm AD*	*Srbolek AD*	*Farmalogist d.o.o.*	*Unihemkom*
No.		1	2	3	4	5	6	7	8	9
INDICATOR		Realized operating income								
Business year	2011	202,308.09 €	45,343.27 €	32,627.20 €	8,784.56 €	8,605.15 €	3,913.31 €	472.62 €	116,194.26 €	15,934.65 €
	2010	199,454.91 €	80,909.92 €	33,409.72 €	10,185.53 €	21,726.94 €	17,680.72 €	3,083.00 €	87,477.60 €	55,998.68 €
	2009	208,832.07 €	99,781.53 €	30,803.26 €	5,900.30 €	58,905.47 €	35,507.95 €	2,904.84 €	83,980.89 €	48,464.08 €
INDICATOR		EBDITA (Earnings Before Interest, Taxes, Depreciation and Amortization, in thousands)								
Business year	2011	49,566.79 €	-19,471.22 €	3,169.25 €	-626.33 €	-1,033.38 €	-2,546.08 €	-361.41 €	232.17 €	-538.80 €
	2010	29,337.27 €	-3,975.80 €	10,478.00 €	816.54 €	-1,083.97 €	-1,152.82 €	-205.34 €	-678.98 €	-541.20 €
	2009	52,825.81 €	17,196.64 €	6,352.85 €	-1,205.31 €	3,817.10 €	-969.17 €	-346.63 €	1,648.84 €	16.16 €
INDICATOR		Assets (in thousands)								
Business year	2011	334,822.02 €	195,712.49 €	56,568.13 €	29,689.44 €	99,033.71 €	27,932.83 €	16,457.69 €	64,422.98 €	16,101.54 €
	2010	395,869.28 €	286,731.22 €	78,547.15 €	30,064.29 €	132,489.28 €	39,441.29 €	17,511.83 €	55,446.88 €	27,849.03 €
	2009	407,263.44 €	283,003.95 €	71,565.77 €	35,087.70 €	173,270.36 €	45,550.23 €	17,342.07 €	48,388.78 €	17,649.86 €
INDICATOR		Number of employees								
Business year	2011	1741	2725	435	450	193	132	88	375	64
	2010	1950	2744	457	448	142	198	219	366	74
	2009	1989	2615	656	410	148	221	242	352	62

3. EFFICIENCY OF THE PRIVATIZATION PROCESS IN THE PHARMACEUTICAL INDUSTRY

Serbia, a country in transition, has opened its market to foreign pharmaceutical companies due to the economic crisis and low living standards. This has caused the weakening of domestic pharmaceutical companies on the market due to the emergence of foreign companies from more developed markets and higher financial resources available [4]. The privatization process, perhaps to a large extent, has caused the Serbian industry to return a lot of steps backwards. The privatization carried out did not, to a sufficient extent, contribute to raising the efficiency of the business of the industry or to new employment.

Table 3: SWOT analysis of the company Galenika a.d. Belgrade

Strengths	**Weakness**
Recognizable brand in Serbia and the former Yugoslav countries, traditional presence in the Eastern European markets, a wide variety of medicines, experience and expertise in manufacturing, quality products	Lack of GMP certification, drug prices are controlled by the state and are not aligned with the prices of inputs, outdated production program
Opportunities	**Threats**
Modern factory for production of solid pharmaceutical preparations, high capacity and ability of service production to other pharmaceutical companies, ensuring international GMP certification which will allow penetration into new markets, the development of pallets dental and medical devices	Illiquidity caused unavailability of products and the weakening position in the domestic and international markets where the company is traditionally present, high debt to payables, as well as to banks

There were problems of post-privatization restructuring, so in 2008 even 40% of privatized companies operated unprofitably, due to high indebtedness and cumulative losses [6]. New jobs were opened mainly in sectors whose products are not intended for export (financial intermediation, trade, real estate, renting and other services). It is important to point out that in the pharmaceutical industry in the last decade significantly decreased employment, and companies that were subjected to privatization did not improve the expected effectiveness of the business - which would be a logical consequence of the change in ownership structure, but certain new owners were not interested in intensifying the existing production [8],[9],[10].

Table 4: Review of most important privatization in the pharmaceutical sector of Serbia

Pharmaceutical company	**Zdravlje a.d. Leskovac**	**Zorka Pharm**	**Jugoremedija a.d.**	**Galenika a.d.**	**Hemofarm**
No.	1	2	3	4	5
City	Leskovac	Šabac	Zrenjanin	Belgrade	Vršac
Sale price (in €)	3500000	14666433.6	16800000	16000000	475000000
Number of sold shares	387258	1611696	-	-	-
Percentage of ownership	70%	70%	42%	93.73%	67%
Buyer	Pharmaco HF	Hemofarm Koncern a.d.	Many	Aelius S.A.R.L. Luxemburg	Stada Germany
Date of 1st privatization	20.12.2002.	09.11.2002.	31.12.2002.	02.11.2017.	20.07.2006.

4. THE CURRENT SITUATION OF THE PHARMACEUTICAL INDUSTRY IN SERBIA

It is significant that the current state of the pharmaceutical industry, and also the market, shows that certain structural balance changes have been made [6]. Thus, a certain acceptable liquidity rate was established, but not solvency, as indicated by the estimates. As can be seen in the following table 5, in the last four years, from 2014 to 2017 business year, the value on the market shows the trend of growth, as well as the number of packages of medicines that were in circulation.

Table 5: Structural analysis of the pharmaceutical market in period from 2014 to 2017 business year

	Business year	**Medicament**	**Medicament Rx**	**OTC**	**Non-medicament *(including MS)***	**TOTAL MARKET**
Number of packages	**2014**	251.000.000	207.000.000	44.000.000	92.000.000	**323.000.000**
	2015	234.000.000	188.000.000	46.000.000	93.000.000	**327.000.000**
	2016	239.000.000	193.000.000	46.000.000	95.000.000	**334.000.000**
	2017	246.000.000	200.000.000	46.000.000	95.000.000	**341.000.000**
Financial values (in €)	**Business year**	**Medicament**	**Medicament Rx**	**OTC**	**Non-medicament *(including MS)***	**TOTAL MARKET**
	2014	640.000.000	554.000.000	86.000.000	219.000.000	**859.000.000**
	2015	609.000.000	518.000.000	91.000.000	210.000.000	**819.000.000**
	2016	652.000.000	557.000.000	95.000.000	212.000.000	**857.000.000**
	2017	715.000.000	615.000.000	100.000.000	212.000.000	**927.000.000**

At the same time, total wholesale sales at wholesale prices (medicament & non-medicament) without discounts, refunds, etc., are included and VAT excluded, amounts to EUR 927 million for 2017 (growth of 8.2% compared to 2016). The market in boxes for the same period is 341 mil. packaging (growth of 2.10% compared to 2016). The turnover of many medicines in 2017 is 715 million euro's and 246 million packages with growth compared to 2016, financially from 9.7% and in volume by 2.9% [10]. The most significant increase, compared to 2016, was recorded in the prescription drug market, which is financially 10.4% and the quantity is 3.6%.

Table 6: Foreign trade with the analysis of countries from which medicaments are imported and to which they are exported

External trade	No.	Country	Quantity (in t)			Values (in thous. USD)		
			2015	2016	2017	2015	2016	2017
EXPORTS	1	*Germany*	2104	2132	2313	43934	45371	51965
	2	*Russia*	3359	3702	2910	28474	30913	45970
	3	*Montenegro*	497	314	333	14027	13653	16267
	4	*Belgium*	360	249	435	12253	10375	14121
	5	*Italy*	253	272	385	6171	6608	10133
	6	*Bosnia*	1890	1983	1833	8061	9092	8777
	7	*Other*	7097	7432	7827	46890	43874	58881
TOTAL (Σ)			15560	16084	16036	159810	159886	206114
IMPORTS	1	*Germany*	1514	2489	2563	86081	93934	108768
	2	*France*	1146	1062	1185	61259	76815	83233
	3	*Hungary*	257	295	268	58719	66785	72124
	4	*Switzerland*	82	89	101	57664	53473	63493
	5	*Slovenia*	405	430	502	33470	32432	39668
	6	*Austria*	316	246	374	20698	14479	31264
	7	*Belgium*	105	80	118	29107	21952	27161
	8	*Italy*	401	358	742	17595	19447	26545
	9	*Malta*	32	41	39	3711	4178	25679
	10	*UK*	95	138	182	13366	13988	19264
	11	*Other*	8143	7612	7513	144780	140671	154032
TOTAL (Σ)			12496	12840	13587	526450	538154	651231

It is important to note that in the previous three analyzed years, according to the calculation based on statistical data, the export of medicines registered a trend of growth, both in quantitative and in value terms, where Russia, and then Germany and Bosnia and Herzegovina are countries where Serbia mostly exports drugs [11]. However, it is important to note that the import of medicines also shows a growth trend of 20-25% less than it is exported, but it is worth to show that Serbia's financial expenditures are about three times higher for imports than they are realized annually through exports. Unlike other companies analyzed, Hemofarm became the leader in the pharmaceutical market of Serbia, under the leadership of Stada from Germany, with 17.3% of the value. By taking 79.1% of the total export of pharmaceutical products from the country, the Vrnjačka Company is also the largest Serbian exporter of medicines that produces more than four billion tablets and capsules per year. It operates on three continents and has a team of over 2,500 employees. Along with the fact that it is present in 38 markets of the world, Hemofarm is also one of the largest pharmaceutical manufacturers in the region.

Table 7: Comparative analysis of exports and imports of basic pharmaceutical products and preparations

Exports			share in total exports in %		Σ	
2017	2018	index	2017	2018	2017	2018
198.2	212.0	107.0	1.6	1.5	-361.1	-446.3
Imports			share in total imports in %			
2017	2018	index	2017	2018		
559.3	658.3	117.7	3.6	3.5		

5. CONCLUSION

According to the structural analysis of the pharmaceutical industry sector, it can be concluded that in relation to other sectors, in the last decades, it has shown significantly higher vitality [12]. However, in addition to stimulating research work in all areas of the pharmaceutical domain, it is also necessary to create conditions for meeting very strict requirements such as qualitative standards, thus creating a favorable and adequate business climate, restructuring and leading competitive advantages by looking at successfully implemented privatization processes and for companies like Hemofarm that have extremely profitable businesses. In the immediate realization of these goals, the state, its institutions and banks should be actively involved, which must support the production of each new industrial product, especially those that are estimated to be long-term profitable in export. It is only thus possible to create a favorable environment in which all innovators, producers and exporters, with maximum efforts to increase the competitiveness of their products, will develop on a healthy economic basis.

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LINKING DEMOGRAPHY TO THE PERCEPTION OF (UN)SUSTAINABILITY

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Abstract: *In recent years, the issues of sustainable development and how to achieve it are widely discussed in the scientific literature. At the same time, there is a lack of consensus at all levels of what sustainable development means and whose responsibility it is. If at the institutional level this issue seems to be well defined, the perception of the individual about the concept of sustainability and the associated roles is poorly explored. In this paper it is argued that people have different understanding of sustainability drivers and their importance which is combined with their individual perception of how effectively problems are solved forms a gap of unsustainability. This gap in citizens' assessments can be seen as a motivating factor for their sustainable behavior.*

Based on an empirical study this report aims at linking the demographic profile of respondents to their individual perception of unsustainability by analyzing the mismatch between the ideal view of sustainable development and its perceived current state. In order to measure this gap there is developed a measurement scale. The research builds on a survey with a sample of 200 participants from Bulgaria.

The data obtained are analyzed through descriptive statistical methods, correlation analysis and nonparametric tests. Characteristics such as gender, age, place of residence, social status, and forms of engagement with solving social and environmental problems are investigated. On the basis of the analysis there are defined specific areas where this gap is significant.

The results of the study can be used in profiling the segment of active people sensitive to the problems of sustainability. The constructed measurement scale can be used in further research of the role that the gap observed between the ideal view and the perceived reality might have as a trigger for sustainable behaviour.

Keywords: *sustainable development, perception of unsustainability, demographic profile, activism, sustainable behaviour, motivation*

1. INTRODUCTION

Since 1987 when the World Commission on Environment and Development (WCED) released its report „Our common future", there started a discussion on the necessity to develop in a way that meets the needs of the present without compromising the ability of future generations to meet their own needs[1]. As identified by the Commission there are three main pillars which should be kept in balance if a sustainable development is to be achieved: economic growth, environmental protection and social equality. About 30 years later following a vivid political and scientific discussion, in 2015 the world community has reaffirmed its commitment to sustainable development by endorsing Agenda 2030 and its 17 goals [2]. The understanding of this multi-faced concept adopted in the Agenda broadens its scope to

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encompass the 5 Ps of sustainable development: people, planet, prosperity, peace and partnership.

With this act the world community focuses not on the separate players of sustainable development – institutions, business and society – but emphasizes the need to build partnership between them. In this context the inclusion of the individual in the processes related to the fulfillment of the 17 goals is a must, because only humans can build and grow relationships. It is uncommon, however, to expect that everyone would recognize each of these sustainability goals as their own. On the contrary, it is much more realistic to try to identify a set of objectives that are relevant to a particular segment and motivate these individuals to act in that specific area.

To date, the research on the relation between sustainable behaviour and demographic characteristics of the individual such as gender, age, education, activism, donations, etc. is well covered in the scientific literature. A common problem of most studies, however, is that they consider only isolated parts of behavior, such as sustainable consumption [3] - [8], recycling [9] - [11], energy conservation [12], [13], etc. This makes reason to say then that the interest is mainly on separate types of behaviour analyzed in detail, without giving an idea of the whole picture of sustainable behaviour. Through this paper the focus is on the broader scope of sustainable behaviour.

In marketing literature the rationale behind sustainable behaviour is discussed mainly from a socio-psychological perspective with regard to the underlying internal and external factors such as values, beliefs, social pressure, abilities and constraints, etc. Among the theories used to conceptualize the antecedents of sustainable behaviour are the Norm Activation Theory of Altruism [14], the Theory of Planned Behaviour [15], the Value-Belief-Norm Theory of Environmentalism [16], and the Model of Sustainable Action [17] where a key construct is the gap between the ideal view of sustainable development and its perceived current state (GIVPR). Pointing on this key construct this paper speculates that the notion of sustainable development and respectively the assessment of whether it is achieved or not might differ across people. At the same time, examining the relationship between demographic characteristics and the importance that people pay to different sustainability factors, would allow for the profiling of user segments characterized by varying degrees of sensitivity to the different dimensions of sustainable development. Thus we aim at linking the demographic profile of respondents to their individual perception of the scale of unsustainability. It is argued that the gap between the ideal view of the world and its perceived current state is a key construct that can give a better understanding of the drivers of sustainable action. The research aim is achieved through an online survey among target audience to analyze the mismatch between the ideal view of sustainable development and its perceived current state and profiling of respondents regarding their perception of the unsustainability gap.

2. METHODOLOGY

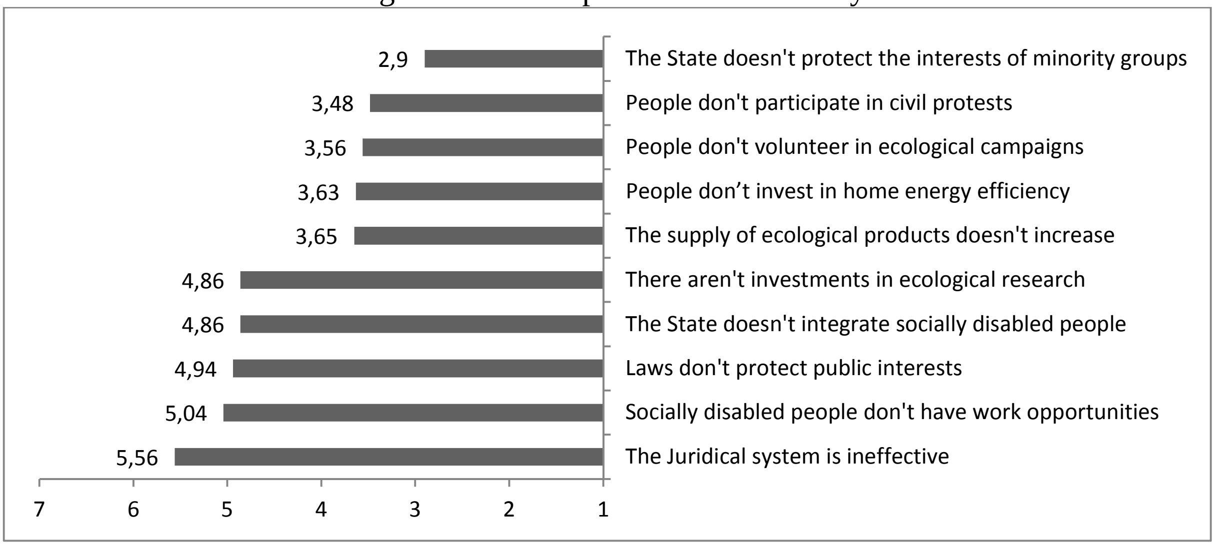
In this paper we regard the perception of unsustainability as the mismatch between the ideal view of sustainable development and its perceived current state. In order to measure the perception of unsustainability and link it to demography we use the GIVPR scale developed in [17]. The instrument used consists of three dual scales that focus on the intersections between the three dimensions of sustainable development: economic growth, environmental protection and social equality. This forms three zones of sustainability which are socio-economic equity, resources viability and bearable living conditions. Resonating the adopted in Agenda 2030 [2] broader understanding of the sustainability concept, the variables in these three zones encompass each of the 5 Ps of sustainable development: people, planet, prosperity, peace and partnership. The total number of items of the scale is 46 for measuring the ideal view of the world and another 46 reflecting the perceived reality. Analyzing the collected data we compute a set of 46 new variables which describe the gap between the ideal view of sustainable development and its perceived current state. In order to stress on the existing problems we transform their meaning to have a negative connotation. On this basis we test the relationships between demography and the perception of this gap. To select the demographic characteristics related to sustainable behaviour we use previous research [6], [9] – [11].

The data is collected in the period February-March 2018 using an online survey among Bulgarian population. The total sample of the survey is 200 respondents. Their profile includes 59% males and 41% females. The share of respondents bellow 25 years of age is 39% and those above 56 are 8%. Only 28% of them have children. There is a nearly equal distribution of educational groups - 31,7% have Secondary or lower education, 31,6 % have Bachelor degree and 36,7% - Master or higher. The majority of respondents live in cities (94,5%, 12% of them reside in the capital city of Bulgaria). Regarding active citizenship 35% declare to have made at least one donation in the last three years, 54,5% to have volunteered and 21,5% to have participated in a form of protest during the same period.

3. RESULTS AND DISCUSSION

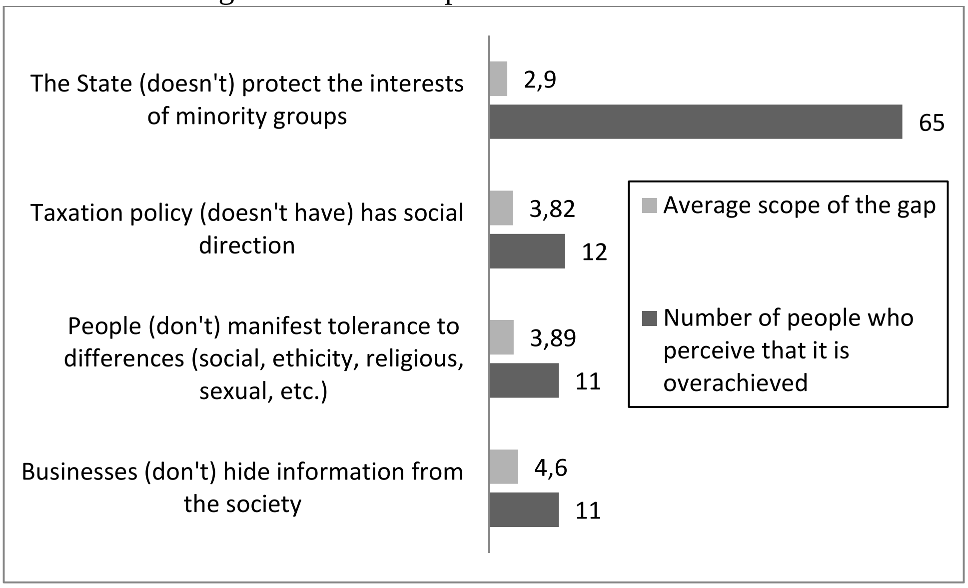
The computed variables describing the gap between the ideal view of sustainable development and its perceived current state show the most problematic areas. According to respondents these are the inefficiency of the Juridical system, the unproductive actions in support of socially disadvantaged groups and the insufficient investments for environmental protection and its monitoring. Figure 1 gives an inside of the scope that the gap between the ideal view and its perceived current state have reached for the five less and for the five most problematic areas. A gap of 5.56 which is computed for the ineffectiveness of the Juridical system, for example, means that for most people it is extremely important for this system to be effective (which is rated with an average of 6,46 out of 7), but their perception is that currently it is not achieved at all (which is rated with an average of only 2,12 out of 7).

Figure 1: The Scope of Unsustainability



On the other side of the continuum we find the statement that the State does/doesn't protect the interests of minority groups where the gap seems to be only 2,9 out ot 7. It is worth mentioning though that according to more than 32% of respondents this gap is even negative, i.e. they think that the State is overprotecting minorities and it can't be part of the sustainable development idea. For the rest of the statements the negative gap varies to up to 6% of respondents and proves to be more significant regarding the social direction of taxation policy, the manifestation of tolerance among people and the transparency of businesses (Figure 2).

Figure 2: The Perception of Overachievement



This discrepancy can be interpreted as directly related to the specifics of the integration policies (formal and informal) of minority groups in Bulgaria and the ways in which they are understood. In Bulgaria there exist strongly rooted racial and religious stereotypes, which explain the significant spatial, labor and educational distances maintained towards a large part of ethnic minorities and potential immigrant communities [18]. According to the last census in 2011 minority groups in Bulgaria constitute about 14,4% of the population, where the biggest groups are the Turks (8,5%) and Roma (4,9%) [19]. Although many actions for minority integration are undertaken, it is difficult to find any significant results. The level of education and inclusion in social life of minorities is low and their access to the labor market is limited. The minority on focus is the Roma group. Statistics show that only 23% of its members are employed and about 65% of young Roma aged 16-24 are neither in employment nor in education and training [20]. Many members of these groups live in closed areas in major cities, mostly relying on social assistance, and the level of domestic crime is high. This gives rise to public intolerance, often expressed in support of extreme ideas, mostly related to the desire for segregation. In this sense, the notion that the state is doing more than the necessary can be interpreted as a manifestation of a negative attitude towards the idea of how realistic the integration of minority groups in Bulgaria is. It can also be argued that it influences the emergence of a "negative" gap regarding the social direction of taxation policy and the manifestation of (in)tolerance to social, ethnic, etc. differences.

Specifics related to the social and cultural situation in Bulgaria can also be found for the rest 4 "less problematic" areas (Figure 1). In recent years, more and more citizens, mostly from large cities and the capital, have been involved in protests against the government or against changes in laws that are suspected of protecting the interest of private companies. On the other hand, Bulgaria ranks on the unenviable 111 place in the World Press Freedom Index, and many national media always occupy a pro-governmental position. As a result of the spread of distorted information about protest actions through the media, society is divided into two opposing positions, because people living in small settlements have no access to objective information. It is likely that this fact explains the small gap on the statement “People don’t participate in civil protests”.

In interpreting the assessments of respondents' opinions on the role of investments in domestic energy efficiency, there should be mentioned the propensity of Bulgarian households, mostly from small settlements, to use solid fuel for heating due to the constrained access to alternative energy sources. In this sense, the assessments here may be dependent on the lack of opportunity for investment in energy efficiency of households.

In order to test the relationship between demographic characteristics and the perception of unsustainability a correlation analysis is performed. Each of the ten demographic characteristics is crossed with all of the variables describing the gap between the ideal view and the perception of reality. These variables are grouped in three zones of sustainability as defined in [17]: socio-economic equity, resources viability and bearable living conditions. The analysis shows that there are a total of 85 statistically significant relations between the demographic characteristics and the perception of unsustainability (Table 1).

Table 1: Linking Demography to the Perception of Unsustainability

Demography / Zones of sustainability	Number of statistically significant relations found			
	Socio-economic equity (out of 15 variables)	Resources viability (out of 15 variables)	Bearable living conditions (out of 16 variables)	Total (out of 46 variables)
Gender	2	5	14	21
Education	1	1	0	2
Place of residence	2	1	1	4
Age	4	3	4	11
Parentship	7	2	3	12
Volunteering experience	6	7	3	16
Participation in protests	1	1	1	3
Donations to NGOs	0	0	1	1
Satisfaction with personal income	8	1	6	15
Sensitivity to social problems	0	0	0	0
Total	31	21	33	85

Within the first zone the characteristics that influence the most the perception of socio-economic equity are parentship, volunteering experience and satisfaction with personal income. Gender and volunteering experience determine the assessment of resources viability. Within the third zone most influential turn to be again gender and the satisfaction with personal income. Based on this analysis there can be defined 5 demographic characteristics that correlate with the perception of unsustainability more often than others and these are: gender, age, parentship, volunteering experience and satisfaction with personal income. The empirical data also proves that the sensitivity to social problems has no influence on the perceived gap between the ideal view and the perception of reality. For the rest of the demographic variables there are found from 1 to 4 correlations.

These results prove for the link between demography and the perception of unsustainability and can be used in profiling the segment of active people sensitive to these problems. In further research it must be taken into account, however, that the demographic profile of Bulgarians might differ from other nations in terms of income and social activism. The interpretation of the results shown in Table 1 suggest that due to the specificity of its cultural, social, media and political environment, Bulgarian society is divided in terms of interpretation of several key topics. These include minority policies, participation in civil protests and environmental initiatives. This does not mean that these three variables need to be removed from the research tool in later studies for not being related to the perception of unsustainability. However, a recommendation may be made in future studies to take into account the specificities of external influences that directly affect these perceptions.

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HGES ACCESS TO FINANCE AND THEIR FINANCIAL PERFORMANCE FROM THE ACHIEVED HIGH-GROWTH FREQUENCY PERSPECTIVE

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Abstract: *Even though past theory has highlighted high-growth enterprises (HGEs) as important determinant enhancing national economy development, research of enterprise growth remains heterogeneous and deficient in its nature. The most recognizable feature of HGEs is for sure their outstanding growth rate encouraged with different growth factors, one of them being financial resources, as one of the most important elements of development and growth process of all enterprises. Achieving outstanding growth rates can largely increase enterprise risk, as uncontrolled growth can drastically change financial structure of a particular enterprise. Past theory suggests that events enabling high-growth rates are very likely a consequence of short-term changes. Nevertheless, significant proportion of enterprises is listed among HGEs in several time periods. Thus, the main objective of our research is to find out if companies listed as HGEs several times during the analyzed six-years period, statistically significantly differs from HGEs, that were listed among HGEs only once; we were analyzing differences regarding the perceived accessibility to different financial resources, and differences regarding their financial performance. Research is based on the random sample of N = 150 HGEs from Slovenia, which have been at least once, among 2011 and 2016, listed as HGE in the population of HGEs, defined by Agency of the Republic of Slovenia for Public Legal Records and Related Services (AJPES). CATI (Computer-assisted telephone) and CAWI (Computer-assisted web) interviewing was used to obtain the sample data. The survey was conducted in spring 2018. Our results suggest that enterprises that were listed as HGEs several times during analyzed time period, statistically significantly perceive better accessibility to different financial resources (i.e. financial resources from venture capitalists; financial resources from banks; government subsidies; and financial resources from EU funds). From the financial performance view-point these HGEs are also more profitable and have higher added value per employee. Our results are supporting past theory emphasizing that the definition of HGE is broad and that it is group of HGEs which is not homogenous. Results indicate that enterprises that were listed several times as HGEs are on average financially more successful as compared to companies that were among HGEs only once. Policy measures should be aimed at supporting HGEs tendencies to overcome their financial constraints and we also present some suggestions for policy makers.*

Keywords: *High-growth enterprises, financial resources, financial performance, growth frequency*

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1. INTRODUCTION AND LITERATURE REVIEW

HGEs research dates back to the late 1970s in which Birch presented for that time quite controversial lessons about importance of small, HGEs, for economy and job creation process [15]. Although his work was encountered with numerous criticisms, he has sparked small business research, which is now a vigorous research field with a wide coverage, encompassing issues such as the importance of entrepreneurship and firm dynamics for job creation and economic growth [12]. This viewpoint of HGEs is strongly argued by various research experts and scientists. Thus, Shane [20] strongly defends an opinion that more attention should be focused to HGEs since thinking that many small, non-growing enterprises will improve economic conditions, innovativeness and job creation, is wrong. Our paper is based on this idea, although we are aware that criticism of other scientists [9], [10] that argue more in favor of small or non-growing enterprises, exists.

The most recognizable feature of HGEs is for sure their outstanding growth rate encouraged with different growth factors. The main focus is especially on enterprises' financial resources. For HGEs previous research findings have shown that these enterprises are usually younger [10], more prone to risk [9] and to higher innovation levels [20]. Therefore, financing of HGEs will considerably differ from financing of non-growing enterprises, not only in terms of different types of financial resources needed, but also in terms of their amount [21]. Financial resources and their access are for sure one of the most important elements of development and growth process of small and medium sized enterprises (SMEs) [13], as insufficient or inadequate financial resources can lead to the inability of proper functioning and could reduce the enterprises ability to grow [2]. Adequate financial resources are thus one of the most important factors that enable HGEs to achieve outstanding growth rates.

Past theory suggest that events enabling high-growth rates aren't present for longer time periods [6], and are more likely a consequence of short-term changes. Nevertheless, significant proportion of enterprises is listed between HGEs several times[156]. High-growth rates are usually associated with higher risk levels [9] and with higher enterprise level of innovativeness [20]. Due to this, enterprise growth-rate could drastically affect their access to different financial resources. Past theory has connected risk-taking with decisions made by different financial resources providers, like banks, venture capitalist and business angles, where banks are usually more risk-averse [7]. In contrast, investors like venture capitalists and business angels are more prone to risk taking, as higher risk levels can create opportunities for greater returns/profits [17]. Similar can be said for enterprise level of innovativeness, as past theory indicate on the possibility that more innovative enterprises will be faced with greater financial constraints [19]. There is also no debut about the importance of growth in several time periods, for enterprises, as when viewed longer time periods, enterprises display puzzling arrays of new businesses and innovations in their entrepreneurial attempts to achieve lasting growth [3]. HGEs thus can tend to create high-growth rates in longer time periods, nevertheless the main question that remains, is if created growth in several time periods can enable better access to different financial resources. As growth can be perceived as primary measure of success [18], different financial resources investors could be prone to invest into HGEs which have achieved high-growth rate several times.

Based on the above presented theory, we have formed following hypotheses:

[156] For additional information about HGEs population in Slovenia see Table 1.

H1a: HGEs which have achieved high-growth rate several times, statistically significantly perceive better access to different providers of financial resources, than HGEs which have achieved high-growth rate only once.

H1b: There is a positive, statistically significant, correlation between achieved enterprise high-growth frequency and total perceived financial resources accessibility.

But are HGEs which have archived high-growth rate several times, really more successful as HGEs which high-growth rate was present only once? Taken into account that growth can be perceived as primary measure of success [18], this should be the case. Cronin [8] argues in favor of these theses, as different growth strategies could be connected with enterprise financial performance.

Based on the above presented view-points, we have formed following hypothesis:
H2: HGEs which have achieved high-growth rate several times are statistically significantly more financially successful, than HGEs which have achieved high-growth rate only once.

2. SAMPLE, METHODOLOGY AND VARIABLES

Research is based on the population of HGEs, defined by defined by Agency of the Republic of Slovenia for Public Legal Records and Related Services (AJPES). From the total population of 13,287 HGEs that have been at least once, among 2011 and 2016, listed as HGE[157], thus fulfilling several predetermined criteria; 8,194 had available contact information. Next, 2,788 HGEs were randomly selected for CATI (Computer-assisted telephone) and CAWI (Computer-assisted web) interviewing, resulting in the random sample of n = 150 Slovenian HGEs (CATI n=110; CAWI n = 40).The research was conducted in spring 2018. Key respondents were enterprises top managers.

Table 1: Duration (frequency) of high-growth rate

Times (years) listed as HGE	*Sample (number)*	*Sample (%)*	*Slovenian HGEs population (%)*
1	55	36.7	44.4
2	47	31.3	24.8
3	22	14.7	15.1
4	10	6.7	8.1
5	9	6.0	4.6
6	7	4.7	2.9

(Source: [1] and own calculations)

In Table 1 duration (frequency) of high-growth rate is presented. Analyzed time period is between years 2011 and 2016, representing six (6) possible years in which companies could have been listed as HGEs. Second column presents data from final sample (n = 150). In the third column the structure of the population of Slovenian HGEs, regarding the number of years in which they were listed as HGEs, is presented.

To test research hypotheses H1a, we have divided HGEs into two groups:

[157] List of HGEs is prepared by AJPES, separately for each year.

- HGEs which have achieved high-growth rate several times, are defined as HGEs which have been listed as HGE two or more times (meaning they were listed as HGE according to methodology used by AJPES, at least in two different years) (sample: 95 HGEs, representing 55.6 %), and
- HGEs which have achieved high-growth rate only once, are defined as HGEs which have been listed as HGE only once in analyzed time period (years between 2011 and 2016) (sample: 55 HGEs, representing 36.7 %).

Hypotheses were then tested using IBM SPSS statistic 24 analytical software and Mann-Whitney U test[158], whereby we have examined whether statistically significant differences between two independent groups of HGEs, exist.

To measure perceived accessibility of financial resources from different providers (dependent variables, H1a), we have adopted Brown's [4] measurement scale, asking HGEs top managers if they believe their enterprise could obtain financial resources from different financial resources providers (7-point Likert scale, separate for each provider). Analyzed financial resources providers were: financial resources from Business angel's investors (fr1),Venture capitalists (fr2), Banks (fr3), Government findings' subsidies (fr4) and European Union funds (fr5); covering most common formal types of financial resources.

To measure total perceived accessibility to financial resources (H1b) new variable was created (sum of: fr1, fr2…, fr5).

To measure financial performance (dependent variable, H2) real data[159] were used. Selected indicators to measure financial performance were HGEs profits and added value. In order to prevent the influence of enterprise size, we have divided HGEs profits and added value, with the number of employees. Independent variable in both cases was HGE, divided into two groups (dichotomous variable with value 0 – enterprises which have achieved high growth rate only once in analyzed time period, and value 1 – enterprises which have achieved high-growth rate several times in analyzed time period).

3. RESULTS

Results in Table 2 showed that statistically significant differences between HGEs which have achieved high-growth rates several times, and those which have achieved high-growth rate only once, exist, when analyzing financial resources from Venture capitalist (fr2), financial resources from Banks (fr3), financial resources from government subsidies (fr4) and financial resources from EU fund (fr5) ($p < 0.05$).

[158]Based on Kolmogorov-Smirnov and Shapiro-Wilk Tests of Normality, analysed variables aren't normally distributed ($p < 0.05$).

[159]Provided from AJPES, for the last year in which particular enterprise was listed as HGE.

Table 2: Results of Mann-Whitney U test (hypothesis H1a) (Source: own).

Dependent variable: financial resources	*HGEs group*[160]	*Mean Rank*	*Average perceived accessibility*	*Asymp. Sig (2-tailed)*
Fr1: business angels	0 1	69.26 79.11	2.18 2.52	0.153
Fr2: venture capitalist	0 1	62.23 83.18	1.60 2.41	0.002
Fr3: banks	0 1	57.22 86.08	3.62 4.99	0.000
Fr4: government subsidies	0 1	65.95 81.03	2.76 3.51	0.036
Fr5: EU funds	0 1	65.15 81.49	2.27 3.01	0.020

The third column of Table 2 presents the mean rank, which in our case indicates that HGEs which have achieved high-growth rate several times are more likely to perceive better access to financial resources. More ever, only for financial resources from Business angles (fr1) difference, between HGEs which have achieved high-growth rate several times and those which have achieved high-growth rate only once, isn't large enough to be statistically significant. For additional insights, in the fourth column of Table 2, we have added results for average perceived accessibility to particular financial resources (based on 7-point Likert scale).

Based on the above presented results, hypothesis H1a: HGEs which have achieved high-growth rate several times, statistically significantly perceive better access to different providers of financial resources, than HGEs which have achieved high-growth rate only once; *can be partly accepted*.

A Pearson's correlation coefficient was additionally computed to assess the relationship between achieved HGEs high-growth frequency, and total perceived financial resources accessibility (sum of fr1, fr2…, fr5). There was a positive, statistically significant, correlation between the two variables ($r = 0.163$, $p = 0.047$). However, correlation between two variables is relatively weak.

Based on the above presented results, hypothesis H1b: There is a positive, statistically significant, correlation between achieved enterprise high-growth frequency and total perceived financial resources accessibility; *can be accepted*.

Table 3: Results of Mann-Whitney U test (hypothesis H2) (Source: own).

Dependent variable: financial performance	*HGEs group*	*Mean Rank*	*Average (real data, in EUR)*	*Asymp. Sig (2-tailed)*
Profit per employee	0 1	59.69 84.65	10,677.52 10,848.92	0.001
Added value per employee	0 1	61.51 83.60	43,526.33 47,969.46	0.003

[160] 0 stands for HGEs which have achieved high-growth rate only once, and 1 for HGEs which have achieved high-growth rate several times.

Results in Table 3 showed, that significant differences among companies that were listed as HGEs only once and those listed several times, exist, regarding both analyzed financial performance indicators, i.e. when analyzing created year profit per employee and added value per employee ($p < 0.05$). Mean rank indicates that HGEs which have achieved high-growth rate several times, are financially more successful, as HGEs which have achieved high-growth rate only once. Averages based on real data are additionally presented.

Based on the above presented results hypothesis H2: HGEs which have achieved high-growth rate several times, are statistically significantly more financially successful, than HGEs which have achieved high-growth rate only once; *can be accepted*.

4. DISCUSSION AND CONCLUDING REMARKS

Results indicate that HGEs which have achieved high-growth rate several times perceive higher accessibility to almost all financial resources (except financial resources from business angels). Positive (statistically significant) correlation between achieved high-growth frequency and perceived overall financial resources availability, also exists, even though the strength of correlation between two variables is weak ($r = 0.163$). Presented results are important, as venture capital and business angels investments are becoming more and more important for enterprises - between years 2007 and 2016 the share of venture capital investments in enterprises employing less than 20 employees[161] have increased from 30% to 40 % in Europe[16]. Additionally, financial resources from banks are still the most relevant source of financial resources for all enterprises [11]. As it seems, achieving high-growth rate several times, could be seen as an important indicator of success [18] in investors' eyes, enabling companies a better access to financial resources. This could be important indicator for policy makers aimed to support HGEs, as achieving high-growth rate in several time periods could reduce financial constraints faced by many HGEs. But as results also show, HGEs which have achieved high-growth rate several times are also financially more successful than companies listed as HGE only once: it means that perceived accessibility to financial resources and the financial performance are associated.

Although the results unambiguously show, that significant differences among companies that were listed as HGEs only once and those listed several times, regarding their perceived accessibility to financial resources and their financial performance, exist, reasons for these differences are unclear, and thus represent possibility for future research. Additionally, important insights for policy makers are shown in fourth column of Table 2. As shown, in Slovenia, HGEs perceive financial resources from Business angels, Venture capitalists and EU funds, as slightly inaccessible, indicating, that improving the accessibility to these financial resources could be an important area for the future policy design.

There are also some significant limitations that apply to our research. The first limitation that needs to be highlighted, is the limited time aspect of the selected research time period (years 2011 to 2016); by changing the time horizon of the research, results may change as well. Second important limitation is associated with the identification of the companies that have been listed among HGEs several years; in case of our research, this is not necessary in consequent years. If the continuous growth in consequent years is considered, the groups may be formed differently, leading to different results.

[161] In our case, 87.3 % of HGEs included into research, employ twenty or fewer employees.

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FIRST EVIDENCE ON DIFFERENCES IN MAJOR CHARACTERISTICS OF SUCCESSFULLY CROWDFUNDED EUROPEAN PROJECTS VIA STARTNEXT AND KICKSTARTER PLATFORMS

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Abstract: *This study provides an overview of major characteristics of over 14,000 European projects successfully funded by crowds on the platforms Startnext and Kickstarter. Results suggest that the number of crowd supporters and in direct consequence funding significantly differ for most project categories when comparing these donation and reward based platforms. In particular, projects from the categories food, journalism, music and video projects differ significantly in every dimension. Design, games and technology related projects launched on Startnext and Kickstarter have a comparable funding goal, but reach in significantly shorter campaign duration significantly higher number of supporters on Kickstarter. Comics and photography projects showed similar funding goals and funding amounts, while project founders in the categories art and theater reach higher funding on Startnext. Overall, the comparison of successfully funded European projects from two important platforms reveals relevant differences, thus, understanding them is key for regionally and internationally acting investors, SMEs, founders and their advisors.*

Keywords: *Crowdfunding, crowdsourcing, Startnext, Kickstarter, success*

1. Introduction

The provision of financing for ideas and entrepreneurial projects is often the biggest challenge for individuals, startups and small and medium-sized enterprises (SMEs). Crowdfunding offers a new financing solution in which a group of investors – the crowd – provides project financing by giving small amounts of money. Founders of European projects, however, often do not know which platform to choose for their projects to succeed.

The goal of this study is to analyze and compare key characteristics of successfully crowdfunded European projects from Startnext and Kickstarter platforms. In particular, the aim of this research is to describe the size of projects' funding goals and numbers of crowd supporters in different industries spanning from arts to technology. On Startnext and Kickstarter platforms which are considered to be general, i.e. unspecialized. Finally, the comparison of project properties based on large samples of successfully funded projects might reveal relevant differences between these important platforms – the world's biggest crowdfunding platform Kickstarter and Startnext – the largest crowdfunding platform in Germany/Austria.

For the purposes of this study, a sample of 17,293 successfully funded European projects (hand-collected) is used. In particular, the information on the following variables is collected: project category (i.e. Art, Technology etc.), initial funding goal (almost all successful projects obtain at least a funding as high as the funding goal, however, seldom they only reach a pre-specified

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lower funding threshold), funding period start and end (funding period length for money collection), number of backers and comments.

The results of this study provide guidance for founders on which platform to choose for their projects to reach the right crowds. In contrast, funders can also decide where to invest their money in order to be part of the most successful projects. In fact, Kickstarter and Startnext act as the most important crowdfunding platforms for European projects, thus, understanding the differences between relevant project characteristics on both is important for investors, SMEs, founders and their advisors.

Overall, this study adds to the growing body of literature on success factors, e.g. Mollick (2014), Koch and Siering (2015), Zvilichovsky at al. (2015), Forbes and Schaefer (2017), and Galkiewicz and Galkiewicz (2018), but addresses the topic with a more general approach by emphasizing the differences between general and industry specific characteristics of European projects crowdfunded on Kickstarter and Startnext platforms using large data samples.

The rest of the paper proceeds as follows. Section 2 presents a brief background on the topic of crowdfunding, while data are presented in section 3. Section 4 shows the results of the analyzes of European projects' key characteristics with the associated implications for project founders. Section 5 concludes the paper.

2. Background on Crowdfunding and Related Literature

In general, Agrawal et al. 2014 argues that compared to other more traditional ways of financing, crowdfunding is a possibility to get funds cheaper. This is due to the fact that founders are able to address a vast public and, therefore, find backers with highest interest in the product/reward/equity. These authors also add that many creators are interested in direct feedback from customers on their products allowing for optimal product development early on. Moreover, founders are enhanced to link their project with their social media accounts which will provide them with feedback from a larger audience. Courtney, Dutta, and Li (2017) support the theory and add that certain signals, such as the quality of the project, decrease the information asymmetry and increase the participation of the crowd.

The basic idea of crowdfunding is not new. This form of financing was already used hundreds of years ago. The first uses of the crowdfunding model can be found in the subscription model of the 17th and 18th centuries. Back then, it was mainly used to finance the production of books. The "reward" for the investors, for example, was that they were named in the book (Dömötör (2015). Only six years later, the first crowdfunding platform was launched under the name ArtistShare for creative artists in the music business which tries to bypass record companies, middlemen and complicated deal structures and connect artists directly with their fans. Even though the basic idea behind crowdfunding is not new, its modern version is a relatively young form of financing since much of its development has happened between 2006 and 2009. Technological innovations which were the basis for new website architectures such as Web 2.0 technologies laid the foundation for crowdfunding platforms. Increasingly restrictive bank lending, which was caused by the 2007-2009 financial crisis, made borrowers dependent on new forms of funding. Falling interest rates, on the other hand, made investors look for alternative forms of financing offering a potentially higher yield (Delivorias 2017).

There are several types of crowdfunding campaigns that differ in their purpose. Some campaigns raise funds for non-profit, while others collect money for for-profit projects or organizations. One of the most commonly used classifications was developed by the consulting agency Massolution. It distinguishes between four categories of campaigns (Crowdexpert, 2016):

- Donation-based: Funders do not receive any reward for their contributions. There might be the chance for funders to be entitled to tax reductions, depending on the project and jurisdiction.
- Reward-based: Funders receive goods or services in exchange for their contributions.
- Lending-based: Funders receive an attractive interest payment in exchange for financing a project.
- Equity-based: Funders receive shares in the financed venture in exchange for their contributions (Delivorias 2017).

At the moment, there are about 2,000 crowdfunding platforms online worldwide. All those platforms have the same motivation, namely to provide contracts, advice and support for the implementation of crowdfunding projects with the help of technology and standardized processes (Galkiewicz and Galkiewicz (2018)). Nevertheless, they are aligned to different topics and categories and differ in their geographical reach. For this study, we used projects from the platforms Kickstarter and Startnext. Kickstarter is operating worldwide with a total pledged amount of $3,979,750,84, 153,091 successful projects and over 15,400,000 supporters. Startnext is focused on German speaking countries with a total pledged amount of €59,084,179 over 6,500 successful projects and more then 1,000,000 supporters.

3. Data and Methodology

This study focuses on key project characteristics of over 17,293 European projects successfully funded by crowds on the platforms Startnext and Kickstarter in the time between 2013 and 2018. The hand-collected sample from Startnext contains 4,186 records divided into 23 categories, while the dataset from Kickstarter contains 13,107 records belonging to 15 categories. For funding goals and funding amounts of projects from Kickstarter platform are translated into Euro amounts by applying the respective average exchange rate in a year.

Table 1: Startnext and Kickstarter projects – a general overview of the sample

	N	Mean	Median	SD	MIN	MAX	WRS [Prob>|z|]
Startnext							
Funding Goal (in €)	4 186	12 139	5 000	50 234	50	2 000 000	
Funding (in €)	4 186	9 809	5 244	22 168	105	801 250	
Duration (days)	4 186	47	42	21	1	181	
Backers (No.)	4 186	130	71	232	1	5 504	
Comments (No.)	4 186	18	8	61	0	2 651	
Kickstarter							
Funding Goal (in €)	13 107	9 121	2 889	21 349	0	744 306	
Funding (in €)	13 107	24 470	4 319	126 117	1	6 619 333	
Duration (days)	13 107	31	30	10	1	82	
Backers (No.)	13 107	351	75	1 888	1	73 206	
Comments (No.)	13 107	110	4	1 046	0	80 032	
Total							
Funding Goal (in €)	17 293	9 852	3 466	30 949	0	2 000 000	0.0000
Funding (in €)	17 293	20 921	4 732	110 515	1	6 619 333	0.0000
Duration (days)	17 293	35	30	15	1	181	0.0000
Backers (No.)	17 293	297	73	1 651	1	73 206	0.0003
Comments (No.)	17 293	88	5	912	0	80 032	0.0000

For comparison purposes, 14,005 records from the following common 12 categories were used: Art, Comics, Design, Fashion, Food, Games, Journalism, Music, Photography, Technology, Theater and Video. For the following Wilcoxson-rank-sum-test we chose five independent characteristics common for projects stemming from both platforms: funding goal (in €), funding (in €), campaign duration (in days), number of backers (supporters) and number of comments. Table 1 shows a general overview of the data. Results from Wilcoxon-rank-sum tests suggest that the number of crowd supporters and in direct consequence funding significantly differ for most project categories when comparing these two donation- and reward-based platforms. In particular, projects seem to significantly differ in terms of funding goals, funding amounts, number of backers, length of campaign duration and amount of comments across the categories.

Results

Industry Categories without Similarities. In the categories food, journalism, music and video, projects significantly differ regarding every characteristic. In these categories, projects on the Startnext platform have higher (mostly twice as high) funding goals and funding amounts provided (and commented on) by more backers. As shown in Table 2, in these four categories in total 4,729 projects are compared. The smallest number of 329 projects is observable for the journalism category, while the largest number of projects 2,019 is visible for the music category. For the four categories, the funding amount of the median projects lies within the range of €3,341 to €10,202 with the lowest (highest) funding equal to €1 (€474,233).

Table 2: Categories without similarities: food (f), music (m), video (v) and journalism (j)

	N				Mean				Median				WRS [Prob > |z|]			
	f	*m*	*v*	*j*	*f*	*m*	*v*	*j*	*f*	*m*	*v*	*j*	*f*	*m*	*v*	*j*
Startnext																
Funding Goal (in €)	235	688	527	163	18 749	7 131	12 899	7 824	12 000	5 000	6 400	4 800				
Funding (in €)	235	688	527	163	14 548	8 423	11 750	7 754	10 465	5 453	6 710	5 016				
Duration (days)	235	688	527	163	46	51	51	42	42	46	46	38				
Backers (No.)	235	688	527	163	207	125	146	165	137	85	79	94				
Comments (No.)	235	688	527	163	20	20	26	15	9	12	13	7				
Kickstarter																
Funding Goal (in €)	181	1331	1 438	166	12 484	4 994	6 736	7 394	6 500	2 200	2 441	2 187				
Funding (in €)	181	1331	1 438	166	18 594	6 485	8 862	9 673	8 312	2 710	2 851	2 731				
Duration (days)	181	1331	1 438	166	31	34	31	30	30	30	30	30				
Backers (No.)	181	1331	1 438	166	196	109	135	173	100	53	41	53				
Comments (No.)	181	1331	1 438	166	16	9	8	5	4	1	1	1				
Total																
Funding Goal (in €)	416	2019	1 965	329	16 023	5 722	8 389	7 607	10 000	3 051	3 466	3 000	0.0000	0.0000	0.0000	0.0000
Funding (in €)	416	2019	1 965	329	16 308	7 145	9 636	8 722	10 202	3 760	3 988	3 341	0.0000	0.0000	0.0000	0.0022
Duration (days)	416	2019	1 965	329	39	40	36	36	35	32	30	30	0.0000	0.0000	0.0000	0.0000
Backers (No.)	416	2019	1 965	329	202	114	138	169	123	70	54	74	0.0003	0.0000	0.0000	0.0280
Comments (No.)	416	2019	1 965	329	18	13	13	10	6	2	1	3	0.0000	0.0000	0.0000	0.0000

	SD				MIN				MAX			
	f	*m*	*v*	*j*	*f*	*m*	*v*	*j*	*f*	*m*	*v*	*j*
Startnext												
Funding Goal (in €)	20 474	10 056	27 946	12 430	750	750	300	100	160 000	200 000	400 000	115 000
Funding (in €)	15 024	12 447	22 203	13 851	807	1 101	445	151	120 634	186 645	321 226	125 225
Duration (days)	18	21	23	20	5	7	2	6	135	120	144	105
Backers (No.)	198	130	269	206	6	11	5	4	1 205	1 780	3 003	1 159
Comments (No.)	48	43	121	23	0	0	0	0	676	843	2 651	168
Kickstarter												
Funding Goal (in €)	21 686	8 913	13 726	16 816	12	1	1	1	231 054	122 029	150 546	150 000
Funding (in €)	36 722	13 146	24 613	20 728	29	1	1	14	334 607	191 462	474 233	181 800
Duration (days)	10	12	11	13	1	2	3	5	60	61	74	61
Backers (No.)	322	227	647	307	1	1	1	4	2 763	4 124	17 713	1 701
Comments (No.)	36	51	59	20	0	0	0	0	300	930	1 433	239
Total												
Funding Goal (in €)	21 213	9 371	18 827	14 785	12	1	1	1	231 054	200 000	400 000	150 000
Funding (in €)	26 762	12 942	24 019	17 658	29	1	1	14	334 607	191 462	474 233	181 800
Duration (days)	17	18	18	17	1	2	2	5	135	120	144	105
Backers (No.)	259	200	570	262	1	1	1	4	2 763	4 124	17 713	1 701
Comments (No.)	43	49	81	22	0	0	0	0	676	930	2 651	239

Industry Categories with Similarities. For the categories comics and photography, projects show similar funding goals and funding amounts. However, these launched on Kickstarter reach in significantly shorter campaign duration a significantly higher number of supporters (in mean and median). As shown in Table 3, in the categories comics and photography, in total 1,176 project are compared. The photography category is the smaller one with 547 projects, while the comics category contains 629 projects. The funding amount of median projects lies within the range of €2,685 to €3,456 with the lowest (highest) funding equal to €15 (€836,937).

Table 3: Project characteristics in the categories photography (p) and comics (c)

	N		Mean		Median		SD		MIN		MAX		WRS [Prob>|z|]	
	p	*c*	*p*	*c*	*p*	*c*	*p*	*c*	*p*	*c*	*p*	*c*	*p*	*c*
Startnext														
Funding Goal (in €)	139	41	5 174	3 556	3 000	2 000	9 260	4 700	100	350	100 000	22 777		
Funding (in €)	139	41	5 625	4 797	3 180	2 140	11 164	9 555	230	653	122 714	59 623		
Duration (days)	139	41	48	45	41	34	24	24	10	16	160	92		
Backers (No.)	139	41	76	91	47	54	98	143	4	13	603	897		
Comments (No.)	139	41	11	9	7	7	14	7	0	0	83	22		
Kickstarter														
Funding Goal (in €)	408	588	6 924	4 240	2 755	1 469	9 979	12 522	1	12	96 440	244 057		
Funding (in €)	408	588	13 162	8 304	3 667	2 784	51 980	38 308	15	97	656 903	836 937		
Duration (days)	408	588	32	30	30	30	12	9	2	2	82	60		
Backers (No.)	408	588	150	178	62	100	381	312	1	5	4 791	3 737		
Comments (No.)	408	588	8	56	2	6	23	915	0	0	256	22 164		
Total														
Funding Goal (in €)	547	629	6 480	4 196	2 888	1 500	9 823	12 165	1	12	100 000	244 057	0.9087	0.1876
Funding (in €)	547	629	11 247	8 075	3 456	2 685	45 347	37 125	15	97	656 903	836 937	0.2275	0.4209
Duration (days)	547	629	36	31	30	30	17	11	2	2	160	92	0.0000	0.0004
Backers (No.)	547	629	132	173	56	94	335	305	1	5	4 791	3 737	0.0061	0.0002
Comments (No.)	547	629	9	53	3	6	21	885	0	0	256	22 164	0.0000	0.8060

Even though fashion projects have significantly higher funding goals on Startnext, similar funding amounts are significantly faster collected on Kickstarter from a comparable group of backers. Further as shown in Table 4, this category contains 1,017 projects. The funding amount of the median project equals to €7,210 with the lowest (highest) funding equal to €20 (€382,998).

Table 4: Fashion category project characteristics

	N	Mean	Median	SD	MIN	MAX	WRS [Prob>|z|]
Startnext							
Funding Goal (in €)	128	10 341	6 000	11 758	400	70 000	
Funding (in €)	128	9 440	5 961	11 401	411	73 819	
Duration (days)	128	43	39	17	10	90	
Backers (No.)	128	102	68	115	5	876	
Comments (No.)	128	22	11	44	0	402	
Kickstarter							
Funding Goal (in €)	889	8 702	5 000	11 069	6	100 000	
Funding (in €)	889	17 820	7 415	36 859	20	382 998	
Duration (days)	889	31	30	9	3	63	
Backers (No.)	889	174	69	483	1	9 086	
Comments (No.)	889	33	4	106	0	1 372	
Total							
Funding Goal (in €)	1 017	8 908	5 000	11 166	6	100 000	0.0053
Funding (in €)	1 017	16 766	7 210	34 806	20	382 998	0.5254
Duration (days)	1 017	33	30	11	3	90	0.0000
Backers (No.)	1 017	165	69	454	1	9 086	0.5525
Comments (No.)	1 017	32	5	100	0	1 372	0.0003

Industry Categories with Some Similarities and Differences. For the categories design, games and technology, projects launched on Startnext and Kickstarter have a comparable funding goal, but reach in significantly shorter campaign duration a significantly higher number of supporters on Kickstarter. This automatically translates into significantly higher funding amounts on Kickstarter. Additionally, the significantly higher number of comments for Kickstarter projects reveals higher interest of the Kickstarter crowd for this type of projects. As shown in Table 5, in these three categories in total 4,613 project are compared. The technology category contains 1,206 projects, design 1,522 and games 1,885 projects. The funding amount of median projects lies within the range of €10,487 to €21,003 with the lowest (highest) funding equal to €2 (€6,619,333).

Table 5: Categories with some similarities: design (d), games (g) and technology (t)

	N			Mean			Median			WRS [Prob > |z|]		
	d	*g*	*t*	*d*	*g*	*t*	*d*	*g*	*t*	*d*	*g*	*t*
Startnext												
Funding Goal (in €)	101	65	45	10 007	6 618	29 096	4 500	5 000	10 000			
Funding (in €)	101	65	45	12 879	8 678	21 296	4 881	6 084	9 502			
Duration (days)	101	65	45	43	48	61	38	42	56			
Backers (No.)	101	65	45	192	169	113	84	110	61			
Comments (No.)	101	65	45	22	55	71	12	28	19			
Kickstarter												
Funding Goal (in €)	1421	1820	1161	14 585	11 878	24 988	6 000	5 000	11 022			
Funding (in €)	1421	1820	1161	51 943	50 571	66 792	11 871	10 715	22 528			
Duration (days)	1421	1820	1161	32	29	33	30	30	30			
Backers (No.)	1421	1820	1161	416	1 210	552	123	243	198			
Comments (No.)	1421	1820	1161	93	515	204	24	88	39			
Total												
Funding Goal (in €)	1522	1885	1206	14 282	11 696	25 141	6 000	5 000	11 000	0.2732	0.9487	0.8248
Funding (in €)	1522	1885	1206	49 351	49 127	65 094	11 018	10 487	21 003	0.0000	0.0001	0.0036
Duration (days)	1522	1885	1206	33	29	34	30	30	30	0.0000	0.0000	0.0000
Backers (No.)	1522	1885	1206	401	1 175	536	116	236	189	0.0001	0.0000	0.0000
Comments (No.)	1522	1885	1206	88	499	199	23	83	37	0.0000	0.0000	0.0188

	SD			MIN			MAX		
	d	*g*	*t*	*d*	*g*	*t*	*d*	*g*	*t*
Startnext									
Funding Goal (in €)	18 002	5 665	75 984	500	100	250	150 000	26 000	500 000
Funding (in €)	26 173	10 245	31 849	500	130	257	190 232	58 150	164 484
Duration (days)	19	21	25	9	14	9	92	92	120
Backers (No.)	584	175	154	3	5	5	5 504	880	818
Comments (No.)	26	128	228	0	0	2	121	1 000	1 482
Kickstarter									
Funding Goal (in €)	29 419	26 094	40 887	1	1	1	463 709	500 000	744 306
Funding (in €)	197 756	247 063	158 911	13	3	2	4 809 548	6 619 333	3 217 126
Duration (days)	10	9	10	3	1	7	74	60	70
Backers (No.)	1 131	4 703	1 117	1	1	1	18 550	73 206	12 075
Comments (No.)	245	2 642	739	0	0	0	3 674	80 032	13 287
Total									
Funding Goal (in €)	28 820	25 679	42 670	1	1	1	463 709	500 000	744 306
Funding (in €)	191 443	242 891	156 273	13	3	2	4 809 548	6 619 333	3 217 126
Duration (days)	11	10	12	3	1	7	92	92	120
Backers (No.)	1 104	4 625	1 100	1	1	1	18 550	73 206	12 075
Comments (No.)	237	2 598	726	0	0	0	3 674	80 032	13 287

Remaining Industry Categories. Finally, projects in the categories art and theater rely on a similar number of backers, but projects from Startnext have significantly higher funding goals and funding amounts, (the latter are collected during longer periods). As shown in Table 6, in these two categories in total 2,470 project are compared. The theater category is the smaller one with 793 projects – the art category contains 1,677 projects. The funding amount of median projects lies within the range of €1,863 to €2,343 with the lowest (highest) funding equal to €2 (€442,934).

Table 6: Projects characteristics in the categories art (a) and theater (t)

	N		Mean		Median		SD		MIN		MAX		WRS [Prob>|z|]	
	a	*t*	*a*	*t*	*a*	*t*	*a*	*t*	*a*	*t*	*a*	*t*	*a*	*t*
Startnext														
Funding Goal (in €)	233	346	5 479	4 138	2 600	2 500	9 167	5 834	200	150	100 000	75 000		
Funding (in €)	233	346	4 893	4 428	2 654	2 848	5 869	9 534	205	200	51 726	165 947		
Duration (days)	233	346	41	44	36	39	19	20	4	6	92	130		
Backers (No.)	233	346	57	45	33	33	67	57	3	3	528	813		
Comments (No.)	233	346	8	8	4	6	13	9	0	0	128	48		
Kickstarter														
Funding Goal (in €)	1444	447	3 483	3 356	1 076	1 733	8 640	14 497	0	1	137 771	300 000		
Funding (in €)	1444	447	6 524	3 823	1 664	1 855	24 554	15 816	2	79	442 934	322 202		
Duration (days)	1444	447	29	31	30	30	11	12	2	7	60	60		
Backers (No.)	1444	447	104	53	38	31	439	84	1	3	9 665	1 049		
Comments (No.)	1444	447	9	1	1	0	46	5	0	0	1 062	90		
Total														
Funding Goal (in €)	1677	793	3 760	3 697	1 240	2 112	8 739	11 547	0	1	137 771	300 000	0.0000	0.0000
Funding (in €)	1677	793	6 298	4 087	1 863	2 343	22 894	13 437	2	79	442 934	322 202	0.0000	0.0000
Duration (days)	1677	793	31	36	30	30	13	17	2	6	92	130	0.0000	0.0000
Backers (No.)	1677	793	98	50	37	31	408	73	1	3	9 665	1 049	0.4519	0.8273
Comments (No.)	1677	793	9	4	1	1	43	7	0	0	1 062	90	0.0000	0.0000

Conclusion

This study provides a first comprehensive overview of the key project characteristics of over 14,000 European projects successfully funded by crowds on the platforms Startnext and Kickstarter in the time between 2013 and 2018. The aim of this research is to offer general and industry specific information together with clear recommendations for founders on which platform to choose for their projects to succeed by reaching the right funders. Results from Wilcoxon-rank-sum tests suggest that the number of crowd supporters and in direct consequence funding significantly differ for most project categories when comparing these two donation- and reward-based platforms.

In the categories food, journalism, music and video, projects launched on Startnext have almost twice as high funding goals and funding amounts as Kickstaretr's projects. In the categories design, games and technology projects launched on Startnext and Kickstarter have a comparable funding goal, but reach in significantly shorter campaign durations significantly larger crowds on Kickstarter. For the categories comics and photography, projects showed similar funding goals and funding amounts on both platforms. Fashion related projects reach funding amounts similar to Startnext's projects significantly faster on Kickstarter. Projects in the categories art and theater reach on Startnext significantly higher funding goals and funding during longer campaigns. Further research could take more crowdfunding platforms into account which would lead to a more detailed analysis of which platform to choose by founders or/and support by funders.

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CROWDFUNDING GETS CONQUERED BY VENTURE CAPITAL

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Abstract: *Initial Coin offerings represent an alternative method of fundraising for projects that do not require established reputation, working project, interaction with banks for raising capital, etc. It uses crowdfunding instead ICO's, that represents a financing model which enables everyone with internet and enough money to invest regardless of its country of residence or any other attribute. ICO essentially represents an invention that enables any startup company to fund itself without any equity obligation or commitment. These attributes allowed startup companies to gather necessary finding via crowdfunding from multiple sources around the globe. Since the funding process is usually built with blockchain network (ETH Blockchain is the predominant one) tracking of the smart contracts and contribution can allow a higher degree of insight into the funding process because it is completely transparent. Analyzing this data can provide insight into the number of participants and contributed amount. The goal of this research is to see are the ICO-s found by a large number of small investors by crowdfunding process or Venture Capital (VC) are predominant investors and what is the exact ratio of small investors compared to large capital institutions and investors. The primary data source is Etherscan (www.etherscan.io). The goal of this paper is to make an overview of ICO financing and starting point for further trend tracking. These results will aid the researchers and startups doing the ICO's to prepare the investment and marketing strategy for their projects in order to gather their funding in a more efficient manner.*

Keywords: *Crowdfunding, Venture capital, ICO, Blockchain, distribution*

1. INTRODUCTION

Anyone with Internet can be an investor into the ICO and investment can be made from any personal computer or smartphone without any legal or paper procedure. This lack of legal framework regarding the ICO process works both ways so participants do not go through demanding legal procedures and absence of financial market institutions such as brokers, custodians, registers etc; Startup companies that are making ICO's do not require any legal paperwork for gathering capital that is usually required in their domicile countries. Unlike standard investment process companies seeking funding via ICO do not require working product, good track record, good financial data, only an idea is required. This represents a double-edged sword – lack of due diligence and regulation caused loss for many investors both institutional and individual. Government regulators are creating legal and institutional frameworks to solve these problems and regulate ICO market so to call it. The main research area of this paper is to analyze a number of contributors and contribution amount and relative percentage in total raised money into the ICO's in order to separate small investors

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from large Venture Capital (VC) investments, in order to determine the real nature of Initial Coin Offerings (ICO's). Companies doing the ICO process usually rely on Ethereum blockchain to create ERC20 compatible tokens built upon Ethereum network. These tokens use decentralized network and ETH20 compatible wallets to circulate. There are no formal requirements for holding an ICO as stated - a company making an ICO decides what and how your token holders will get in exchange for their money. Therefore in the ICO process company determines and markets the token properties in order to attract the investors, unless stated and manifested explicitly tokens do not hold any equity value. Because of this, the research suggests that "the nature of ICO is a quick buy-sell process. So, most of the investors will look to sell the tokens for a quick profit and will drop your project if it's struggling with some issues without sentiments". When investing, investors send Ethereum – ETH to the predefined smart contract address, in order to get tokens in return for their investment. Since Blockchain provides full transparency, all transactions can be tracked and analyzed. Research used a web application called ETHERSCAN [1] to see the data of various ICO smart contracts addressed for the time of ICO phase to analyze the number of investors, invested amounts and to compare invested amounts to the total raised funds in order to gain insight into the nature of the ICO investment process.

2. **THEORETICAL FRAMEWORK OF THE RESEARCH**

2.1 **THEORETICAL DISTINCTION BETWEEN ICO AND VC**

In terms of financial market VC is a well-known funding source. When acquiring funding from venture capitalist, a company offers company equity in exchange for funding. A venture capitalist is willing to take the risk in exchange for the equity. In contrast to VC funding, ICO is a process of raising money worldwide from anyone having Internet and enough money to buy a token. "Token is a unit of value issued by a tech or crypto start-up, intended to be a piece in the ecosystem of their technology, platform or project. Tokens are supported by blockchains. They only physically exist in the form of registry entries in the said blockchain. Initially, most tokens were based on the ERC20 protocol by Ethereum" [2].

ICO is an invention allowing startups to fund themselves by using crowdfunding as a funding source without any legal or equity commitment. Another quality of is community engagement since ICO is a process of quick money rising with as many people involved as possible. These participants in the ICO later become token holders and they are interested in further development of the project because of the potential usage or token price increase. This creates a strong and engaged community for startup. Startups that require a lot of potential consumers and marketing reach should, therefore, favor the ICO instead of valuable individuals that they can reach with VC. The easiest way to distinguish the audiences between ICO and VC is to compare ICO to business to consumer sales and VC to business to business sales. VC investors are experienced businessmen with their own views and demands. They often require a formal review of the demo, white papers, smooth pitch, detailed roadmap, etc. VC requires far more preparations than in ICO case. On other hand, VC investors are much more reliable, they are willing to support your project for a long time and are not looking for a quick return on their investment. There are other tangible and intangible benefits that can be gained from VC additional to the funding. A venture capitalist can also provide startups with their network of connections to the industry influencers, business guidelines, proof of concept, consulting, easier access to resources, testing ground, etc.

ICO's can be distincted from VC based on requirements, geography and accessibility and public perception. VC requires strong staff, working product or demo, vision, well-prepared pitch, plan, documentation, etc. Also, once you have a deal, you need to share a part of your company equity. On the other hand, there are no formal requirements for holding an ICO. The company is free to decide what and how your token holders will get in exchange for their investment. In terms of geography, VC investors are solid and conservative. Usually, they strongly prefer companies in the same country. They want you to come to numerous meetings and sign numerous papers. ICO's are not limited by geography in any aspect. In terms of public perception, VC has a strong advantage. Rising money from VC gives you a strong credibility, credit, and PR since VC's are much more sophisticated and check the project comprehensively before investing. In the case of ICO – the company is going public for the first time.

Benefits of VC

- Investors Trustworthiness;
- Business advice and information support;
- Building valued contacts;
- PR recognition.

Benefits of ICO

- No equity required;
- No working product required;
- No geographic limitations;
- Rapidity – no bureaucracy or other legislation.

Table 1: Venture Capital and ICO

	Venture	ICO
Team	A mix of technology and business leaders	Track record in crypto currency community Highly technical
Market	Large $1B+ addressable market, potential pivots	Predefined large technical problem Proximity to infrastructure
Traction	MVP or initially committed customers	Prior technical projects publicly shared on Github
Competition	Structure of industry meaningful for the ability to monopolize position	Many blue-ocean opportunities need an only vague market strategy
Economics & Distribution	Business model exists and works on the margin	Vague indication tends to be sufficient
Legal Status	Well defined C-Corp or SAFE investments	A wide range of legality, from CoinList to frauds and scams
Presentation	PowerPoint, Demo Relationship drove	Tech whitepaper, video Highly social media

(Source: https://next.autonomous.com/)

2.1 SUSPECTED INFLUX OF VC INTO ICO'S

Despite the rising alarms coming from regulatory bodies over the ICOs, venture capitalists have revealed growing interest in these offerings. However, what they are more interested in is the equity stakes rather than the profits from coin trades. Statistics that the funding has increased vividly in the blockchain based firms and startups have managed to raise more than about $430 million in the first quarter of 2018. According to the statistics by TokenData, in 2017, 46 percent of the token startups either suffered from fiasco after the offering or could not complete funding. So far in 2018, a total of 50 startups have failed out of 340. It is very obvious why the failure rate is so high – ICO's were not planed property, many of the products they are offering are not even functional—the technology has not even been tested on a mass scale, etc. [3]. Investors are interested in the acquisition of security tokens with some kind of security attached in the form of equity or other to mitigate risk in case there is some kind of regulatory surprise in the future. With further regulation of ICO market and reducement of black chain market volatility (which is still highly volatile), VC interest in blockchain and ICO is generally rising. VC are increasing their investments in ICO's and hold large portions of issued tokens.

In order to examine the concentration of token holders this research used etherscan.io to see the related addresses for more than 20 examined ICO's in 2017.

Table 2: The statistics by TokenData

2017.	Top 10 addresses (more than) %	Following 90 addresses (more than) %	Remaining Addresses
January	50	22	28
February	53	20	27
March	55	10	35
April	43	17	40
May	49	23	28
Jun	45	14	41
July	44	24	32
August	41	17	42
September	51	20	29
October	49	22	29
November	44	12	44
December	39	17	44
AVG.	46.92	18.17	34.92

(Source: https://www.tokendata.io)

It is critical to take into consideration the following limitations to this type of research and gathering of the data [4], [5]:

- Columns represent ownership of the address band, first 10, following 90, then the rest.
- Actually, a number of holders may be even smaller because 1 holder can have multiple addresses.
- It is accepted a practice that company that is issuing tokens may hold a number of tokens for themselves or award the development team with a % or an absolute number of tokens for the development efforts. Because of this practice, concentration of tokens in the largest 10 holders is partially caused by the issuing company own stock or reserve so to call it and not necessarily held by VC investors.

- Not all data for all ICO’s is gathered due to the number of individual investments and nature of smart contract programming so data can be considered as preliminary data.

3. CONCLUSION AND FURTHER STUDY

Further study should attempt to discover the percentage of token held by a development company and take this data into consideration as well as completely acquire all blockchain transactions for each ICO’s in order to have complete data for analysis. The area of study of VC is highly interesting and may show a completely different market mechanic and marketing approach for this new and emerging market that may hold more than trillion dollars in the next decade.

The research may imply the hypothesis that ICO’S investment allocation shows Pareto distribution. In order to check this hypothesis, complete analysis of all ICO’S for some time period should be gathered and data should be analyzed with taking into consideration the token percentages supposedly held by issuing company. Furthermore – token addresses held by the company may also contain tokens owned by some hidden VC investors that have an off-blockchain agreement with the company so reserve has to be expressed.

Two additional phenomena may guide the conclusion that the VC is beginning to conquer and dominate ICO market which should, by its definition, be structured as a crowdfunding market. It is increased regulatory and government pressure and token type trend. Equity and security tokens are strongly replacing utility tokens in 2018, which may point to startup company realization of growing VC influx into ICO market as an attempt to improve their product marketing performance. A similar question can be drawn in parallel to the regular market: what is the product of a company- it’s stock or a product of its economic activity? In ICO market it is hard to differentiate is the end product a token or is it merely a vessel to fund or facilitate some other product?

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ACCESS TO QUALITY INFORMATION IN THE FINANCIAL STATEMENTS AS A BASIC FACTOR FOR BUSINESS OPERATIONS

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Abstract: *The permanent monitoring of the dynamics and condition of the assets, capital and liabilities, as well as the revenues and expenditures in practice is done through the preparation and presentation of the financial statements. It is also known that managers and other users on the one hand and business entities on the other, establish their communications by offering data and information in the form of balances and notes attached to them. The interest of the users, above all, is the perception of the financial and non-financial data, i.e. financial position and performance that are characteristic of a particular enterprise.*
Namely, the knowledge of accounting financial indicators and their practice leads to the achievement of a positive financial result, as well as improvement of the current and future operations. In the future, this would be an increase in capital and a higher profit.

Keywords: *balances, information, improvement, entity, success*

INTRODUCTION

The aspiration of every owner or manager is accomplishment of the planned goals and tasks of the company. Analyzed from an economic point of view, the main task is an increase in property and greater success in the work. To achieve this, it is necessary to achieve a rational organization and a modern accounting information system that will enable fast and accurate data and information on all economic and financial transactions.

Namely, the availability of complete financial information enables maximizing the profit and achieving greater efficiency and effectiveness in the operation. Also, the reasons for the correct and improper allocation of resources, implementation of an action for acceleration of a certain activity, greater control of the operation and other activities and tasks are perceived.

Accordingly, financial reporting in today's conditions of business represents a powerful factor for business communication between enterprises. This means easier realization of the set policies and planned activities.

This confirms the importance of the financial statements that contribute to the successful realization of the strategic goals of the business entities.

In fact, the 21st century is the century of information. In that sense, we can emphasize that through these on-balance sheet presentations and notes that contain certain financial and non-

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financial information, it is possible to determine market criteria without difficulty, to design future plans, to provide funds, etc.

Therefore, it is constantly pointing out the need for the preparation of relevant, objective and standardized financial reports. Ensuring quality financial reporting will enable evaluation and valorization of the overall achieved success in the operation.

Hence it follows that the utilization of resources and the achieved results by the employees in the company, expressed in the value indicators in the financial statements, help for more economical use of the funds and greater responsibility in managing the processes for achieving higher overall results.

"The temporal and spatial dimensions, i.e. the possibilities for comparability of the size of the used and spent means with the achieved results are essential strategic goals in the period of perception of the problems related to the realization of the principle of continuous operation and activity of the business entities on the market of production and capital market ", (Zdravkoski, 2007).

Accordingly, the procedures and objectives of the financial statements, analyzed from an economic and reproduction aspect, imply the comprehensiveness in the assessment processes and the measurement of the results inherent in each market economy.

1. NEW ACCESS TO THE OPERATIONS AND DIMENSION OF REPORTS

The safest source of data and information about the operations and the results of companies is certainly the accounting information system. Its main goal and role is the processing and presentation of transactions that create changes in assets, capital and liabilities, as well as changes in the entity's income and expenditures. The financial statements are a product that arises through the process of measurement and valuation of accounting positions.

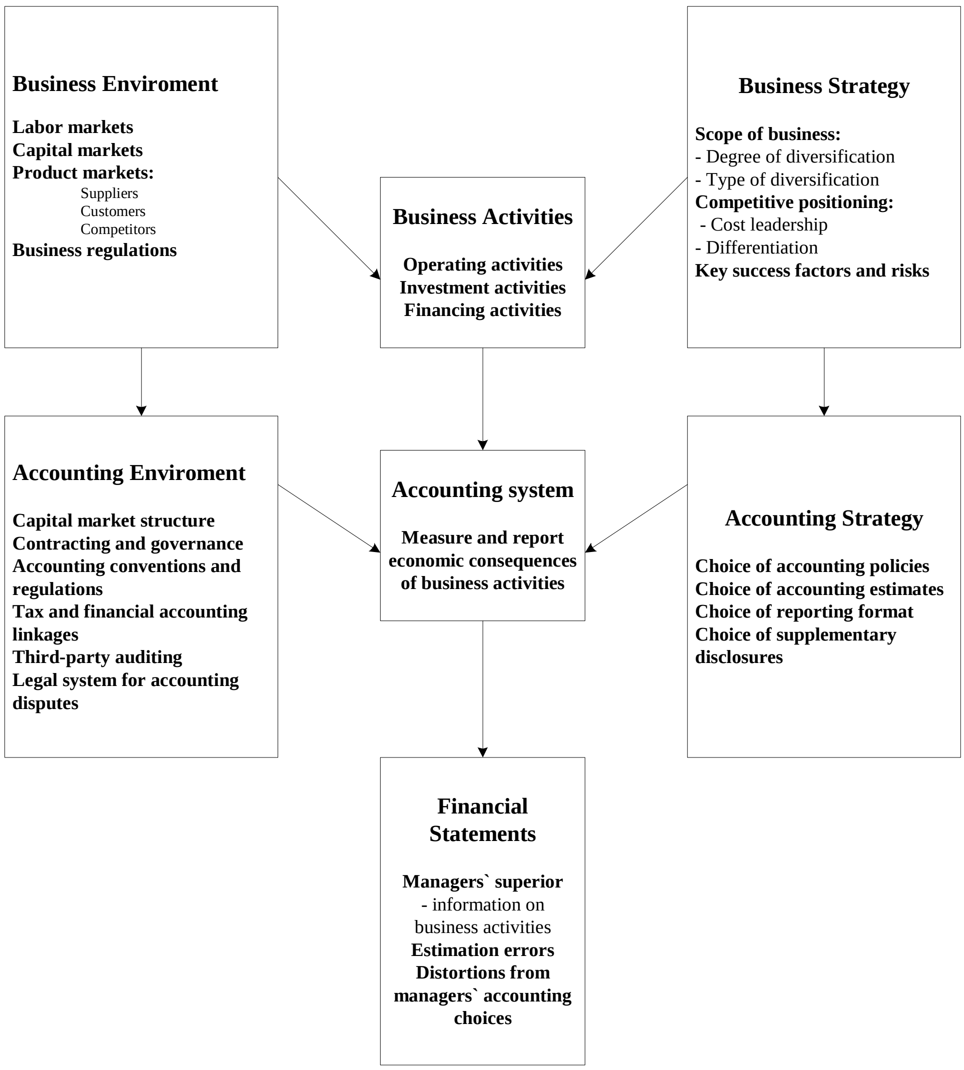
Namely, the set of financial statements besides informative, has a binding aspect.

Financial statements (balance sheet, the income statement, the cash flow statement, the statement of changes in equity and the statement of accounting policies), are the basis for a wide range of business analysis.

Here we can emphasize the subject and content coverage, as well as the dimension of the operation of the financial reviews. This means that the results of the operations that we read in the balance sheets are constantly influenced by various changes and trends (social, political, legal, sociological, economic, etc.).

Certainly, the impact is reflected in the environment of business, accounting theory and practice, defining individual positions and items, and so on. The application of this information about the operation is a rational indicator in the relations in the execution of the economic processes. All this leads to changes in the way of work. Change is in the existing mode of production with a more productive and more dynamic activity of the factors of production, greater insight and dynamics in the management, etc. There is a new way to successfully deal with the problems that arise, like additional education of qualified personnel and creation of top managers. Meeting the need for transparency and timeliness of data and information in the financial statements for the users is a basic factor for building a sound financial architecture and successful implementation of the accounting and financial policies of the business entities. "As shown in figure 1 a firm`s financial statements summarize the economic consequences of its business activities. The firm`s business activities in any time period are too numerous to be reported individually to outsiders. Further, some of the activities undertaken by the firm are proprietary in nature, and disclosing these activities in detail could be a detriment to the firm`s competitive position. The firm`s accounting system provides a mechanism through which business activities are selected, measured, and aggregated into financial statement data", (Palepu, Healy, & Bernard, 2004).

Figure 1. From Business Activities to Financial Statements



Source: (Palepu, Healy, & Bernard, 2004).

Also, in order to contribute to the realization of the performance of the financial statements, the accounting information system should be permanently upgraded, updated and maintain the principle of continuity. Data and information generated by AIS are the basis and integrated information base for financial reporting. "A capitalist economy relies on a competitive private sector capital market. Information is an important part of the capital market infrastructure. Good financial reporting is essential to create investor confidence in the fairness of the capital market so that savings will be channeled into productive investments. In addition, good information leads to better investments decisions and capital allocation, both of which are socially beneficial. The corollary is that bad financial reporting has the opposite effect. Advocates of regulation question if companies can really be trusted to report fully and accurately. In fact, the competitive nature of the capital market could even induce misleading reporting, at least by some companies during the short terms. Therefore, regulation of accounting is both necessary and in the public interest to prevent some companies from bad or misleading reporting. This is counterargument to the notion that a competitive capital market produces good voluntary reporting through signaling incentives", (Wolk, Tearney, & Dodd, 2001).

2. CONCEPTUAL FRAMEWORK AND OBJECTIVES OF THE FINANCIAL STATEMENTS

The requirements for quality financial reporting of certain organizations and individuals, as well as harmonization and standardization of the accounting system have caused the emergence of international accounting standards. The direct connection of enterprises from different parts of the world further emphasized the need for a unified financial reporting. Of course, many countries have their own national accounting standards with which they worked. This necessitates the harmonization of international standards with national standards.

According to international accounting standards, the financial statements form part of the financial reporting process. They are produced and presented to external users of many companies around the world. Although such financial statements may look similar in many countries, there are still some differences. The regulations in each country determine the manner and form of the preparation and presentation of the financial statements.

Therefore, the study and differentiation of the different forms and procedures of the financial statements is for their standardization and application through comparable and measurable data such as reports from companies from democratically developed countries. When a company prepares financial statements for its own internal use, it can do it in a variety of ways and with its most used models. But if the preparation of the financial statements is for external users, then the balance sheets need to be prepared according to the international accounting standards i.e. International Financial Reporting Standards.

"The purpose of the financial statements is to provide information on the financial position, the success and changes in the financial position, the success and changes in the financial standing of businesses to a wide range of users in making economic decisions (Frame, 12). Such decisions include for example: the decisions related to the acquisition, holding or sale of investments in the principal, the ability of enterprises to pay and give other preferences to their employees and the reliability of the amount borrowed by the enterprise", (Cairns, 1998).

The framework contains the objectives of the financial reporting, i.e. the financial statements, the principles, the qualitative characteristics from which the useful information is pulled.

“By design, the FASB’s Conceptual Framework is stated in broad terms and is not context-specific. Nonetheless, the Conceptual Framework, with context added in particular financial accounting standards, leads to tests of specific null and alternative hypotheses regarding relevance and reliability. Value relevance studies use various valuation models to structure their tests, and typically use equity market value as the valuation benchmark to assess how well particular accounting amounts reflect information used by investors”, (Bart, Beaver, & Landsman, 2001).

Namely, they are: factual events, comprehensibility, comparison, completeness, relevance, reliability, caution, continuity of work. The need for financial reporting stems from the objectives of this type of notice, which are reflected in the Objective of Business Report review. It is prepared by - the American Accounting Financial Association Standard Board - AAFASB, and the financial reporting framework is precisely defined in order to provide information that will be used to make decisions in business economics decision-making.

3. CHALLENGES OF USERS OF FINANCIAL INFORMATION

The owners of capital as significant users of financial information evaluate the results of the companies according to the amount of the realized profit, the amount of the dividend, bypassing the concern for one's own interest, the interest of the company and the need for sustainable development and continuity of the company. This only confirms the role and importance of financial statements when making decisions by management, shareholders and other users. Also, the balance sheets are subject to criticism from both internal and external users in order to improve financial reporting.

Accordingly, feedback is generated which increases the attention to which the financial statements are exposed. Any positive criticism is a direction for an improved form when reporting is either periodic or annual.

In this way, the use of financial information by users in management procedures, as well as in evaluating results for a certain period of time will be enhanced and improved. As users of these reports are current and potential investors, employees, suppliers, lenders, creditors, government and government institutions, the public and others. They use financial reports to meet their information needs.

Namely, many authors define the financial statements as reports that report on: the financial position, cash flows, assets, liabilities, principal, and the success of business entities.

Thus, investors or individuals who invest a certain capital are concerned with the risk that is inherent in such conditions of market and competition, as well as the return of those investments.

“Information required for many (perhaps most) investment and other decision include expectations about micro and macroeconomic changes, such as the supply and demand of alternative products and services, local and general economic activity, price level changes, and the effect of past, current, and expected political and social conditions on the enterprise`s inputs and outputs”, (Benston, Carmichael, Demski, Dharan, Jamal, Laux, Rajgopal, & Vrana, 2007).

“Investors and creditors usually find information about an entity’s past financial performance helpful in predicting the entity’s future returns on its resources, which will be its future financial performance”, (Lennard, 2007).

Certainly there are employees who require information about the stability of their employers, their profitability, the possibility of rewarding and improving the conditions in which they work. But, they are also interested in the safety of their retirement and their rights. Interested users of financial information are also lenders.

Their primary goal is whether the loans will be repaid in a timely manner and whether the interest arising from them will be paid. They use them in deciding whether to extend a loan to client and to determine the loan`s terms. This confirms their financial stability and the possibility of continued cooperation. Suppliers and creditors need periodic information. The interest among these users is perceived as being in the possibility whether the amounts owed will be paid in due time. On this basis, it will be known whether business communication can continue. Also, buyers are interested in information about continuing the operation of the company, especially if the cooperation is established in the long run and there is mutual dependence, while the government and government agencies are interested in allocating sources of funds, as well as for the activities of the enterprise.

At the same time, their interest consists in determining tax policies, the need for conceptualizing statistical calculations and national announcements. The influence of enterprises on individuals in the public can be very different. Businesses entities with the right way of acting can contribute to the development of the local economy.

In fact, they improve the environment of management in many ways, providing employment for the population. Through the data in the financial statements, the interested (public) information is provided on the trends of development, the prosperity of the same, the current and future activities of the economy, etc.

Here we emphasize that certain users are satisfied with the data contained in the financial statements. But there are users who need additional information (methods of calculations, segments in the activity, effects and consequences of inflationary movements etc.).

Therefore, many companies prepare special reviews (prospectuses) where they list additional information that is not contained in the balance sheets.

Namely, the management of the enterprise is obligated to inform the interested parties. This is observing the principle of publicity. But it is also a user of these accounting and financial reports. His interest is mostly perceived in the planning, decision-making and control.

In fact, after the publication of the financial statements, they become transparent and represent the main source of data and information for the business entities on a national and international level.

4. THE APPLICATIONS OF STATEMENTS TO DECISION CONTEXTS

The qualitative features of financial reporting can be seen through: understandability, relevance, reliability and comparability. Namely, the user's easy understanding is needed not only for users who have sufficient knowledge of accounting, financial and other business activities, but also for all other users. It is a priority for those who want to study the information in the financial statements. There are also complex issues where certain users have a problem with their comprehension, but that does not mean that they should be omitted when making economic decisions. The information needs to be relevant i.e. to have a quality of importance and to influence the economic decisions of the users.

“The order of importance assigned by the FASB between trustworthiness (faithful representation) and relevance is both revealing and very important.

It is revealing because the CF does not recognize that all numbers presented in financial statements are relevant for some purposes that are important to enterprise owners, among other users, particularly for stewardship. Financial statements provide evidence that the resources entrusted to managers have been accounted for and a useful (though not definitive) indication of how those resources were used. For example, although the original amount expended for a building less depreciation is not its economic value (value in use) or market value (value in exchange), it does account for resources expended to purchase the building and an estimate of the amount of that cost assigned to accounting periods over the building's useful economic life (a crude and at least not easily manipulated measure of economic user cost).

The usefulness to financial statement users of the numbers presented in financial statements can and should be improved. However, if the result is numbers that the users cannot trust, if they have reason to fear that the numbers were manipulated to mislead them, then those numbers are not relevant. Untrustworthy numbers are inherently irrelevant, at best. Worse yet, users might believe untrustworthy numbers to be trustworthy.

Numbers that are not grounded in actual market transactions that can be audited for veracity usually are not trustworthy.

Historical cost and liability numbers can be made more relevant by converting them to current values when those amounts are trustworthy and are more meaningful then the historical numbers. For example, marketable securities can be restated at their ask prices, since by holding those securities the enterprise is, in effect, selling and repurchasing them. Purchased inventories that will be replaced (and, by the time the statements are published, often were replaced) can be restated at their replacement costs. Differences between the initial purchase price and the current replacement costs would be reported as holding gains or losses.

Level 3 fair values rarely would qualify as trustworthy numbers, since these usually depend on estimates of net cash flows and discount rates that are readily subject to manipulation by opportunistic managers", (Benston, Carmichael, Demski, Dharan, Jamal, Laux, Rajgopal, & Vrana, 2007).

This qualitative feature allows users to assess past, current and future events, or to confirm or correct their past estimates. Of course, the information about the previously made success and the financial condition is the basis for the forecasting and the forecast of the future success. For example, forecasts of the value of the income statement are more secure if the extraordinary, unusual and sluggish income and expenditure items are published separately. In certain cases, the significance of information stems from their nature, and in another, it is not so. Notification of the entity's new part may have an impact on the risk assessment, regardless of the significance of the results achieved by the new section for the reporting period. In another case, the nature and significance of informing, for example, the quantity of stocks within each of their main species is also important. Significance also depends on the size of the item or the error of assessment. It represents a threshold or point of delimitation, while security of information gives another sense of usefulness.

If the information has no mistakes and reliably displays what they are listed then they have quality security. This is emphasized by the fact that certain information may be relevant, but at the same time unreliable in the presentation that would lead to wrong decisions. Therefore, in order to maintain security as an important quality, information must faithfully and accurately display transactions and events. In order to confirm the quality financial reporting, the information needs to reflect the essence and the economic reality, and not only to comply with the legal form and design. “But evidence from the practical use and evolution of financial reporting should not, perhaps, be simply discarded. Most preparers and users of financial statements do so for a purpose (and not merely to comply with regulation, important though the role of regulation is). It is possible that the shareholders who demand regular credible financial reports and the management who agree to provide them information are acting irrationally, but it is not plausible”, (Lennard, 2007). The quality of the financial statements is perceived and in the possibility for users to compare the indicators between one enterprise or multiple business entities. They should be able to recognize the differences between accounting policies for similar transactions, to compare periods of operation with one or more enterprises, etc. It is therefore confirmed that greater compliance of international accounting standards (international financial reporting standards) leads to greater comparability in financial reporting.

CONCLUSION

In the paper, I emphasize the importance of the financial statements as part of the financial reporting in the context of determining the real situation in the activities of the enterprises. In order not to manipulate the data and certain frauds in the financial reporting, we need to have a quality accounting financial system through which permanent control can be performed. To be sure, users in their decisions need to have a complete picture of the effects and results of business transactions on assets, capital, liabilities, and the dynamics of revenues and expenditures. Also, for losses from investors, creditors, etc. above all, we will emphasize the possibility of assessing the success of business entities, which is a major benefit for investment, management, planning and the future with enterprises. At the same time, there is an insight into the financial statements and an assessment of the timeliness and reliability of the effectuation of the work, as well as confirmation of the documentation of business economic transactions.

By the way, the reliability of the accounting information system is subject to constant re-examination in the direction of its improvement. Also, the balance sheets perceive whether the principles of liquidity, solvency and profitability, the principle of continuity and other principles are respected. Financial reporting should not neglect professional standards of conduct of themselves accountants - auditors - controllers.

Namely, the financial reporting provides conditions for greater accountability, both with the employees and managers. An attempt is being made to introduce novelties in the work, as well as eliminate suspicious transactions.

Practically, this determines the development path of each individual enterprise. Users have the opportunity to more easily assess the ability to create cash and cash equivalents. For the assessment of the quality of operations, it is necessary to know whether management has adequately applied the IFRS and GAAP. Have the production and sales improvements and other working phases that contribute to the increase in the financial result to the greatest extent?
From here, we can conclude that quality financial reporting is a motivating and encouraging factor for more successful operations and achieving better results in the interest of shareholders, owners and business entities. The economic and social well-being of all of us depends on credible and timely accounting information. Therefore, the improvement and creation of better financial reporting does not stop. There is always a need for upgrading and additional education, monitoring changes in the legislation, improving control of the work, building a higher awareness and conscience in carrying out the tasks set and creating trust between the parties.

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THE STATE OF GREEK BANKS WITHIN EUROSYSTEM

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Abstract: *This paper presents the profitability of the Greek banks for the years 2010-2015 and the way they are stated as a member of the Euro system. First of all, we examined the liquidity of Greek Banks and how they used the Euro system funding. Taking into consideration the bank assets and liabilities we examined how the Greek banking groups presented profits for the year 2016, after a series of loss-making years. The results of this paper may help us to understand better the factors that lead to a restoration of profitability, the stabilization of an economy and the re-establishment of confidence in the banking system.*

Keywords: *Profitability, Greek Banks, efficiency, Euro system*

1. Introduction

In the current financial environment is rendered necessary the existence of financial corporations, as their role in the configuration of money offer is decisive. The form of what is activated in an economy is related with the institutional frame, the degree of markets release and the degree of economy growth. Main representative of financial corporations are the credit institutions (banks). Nowadays, after some basic changes in the European and International financial and corporate world, banks have obtained multiple activities and they can activate in the offer of all products and services of financial world. In general, the banking world is characterized by a rapid change. The strategic priority has shifted away from growth and size alone towards a greater emphasis on profitability, performance and "value creation" within the banking corporation. Banks, traditionally, have a major role in an economy, as they act as intermediaries between depositors and borrowers (Serletis and Mishkin, 2010).

The difference between banks and the other financial corporations is that they provide deposit and loan products. Banks deal with liabilities' management and lend money, in order to create bank assets. Otherwise, it can be considered that banks are funded by deposits, or other liabilities. In the modern banking systems, there exists an enormous range of special banks, that is focused in specialized markets, and general banks, which offer a wide spectrum of banking and other financial products, differentiated as accounts of deposits, loans, services of real estates, Stock Exchange market and the Insurance (Heffernan Shelagh, 2006)

2. A brief literature review regarding the Greek Banking System

The credit institutions had be founded as one of the structural elements of each economy and through the operations that they carry out, participate actively, supporting the institutions of developmental process. The first credit institution that was founded and functioned in Greece was Ioniki Bank (1834) and followed the National Bank of Greece, which was founded in.

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The structural changes in the Greek banking system began in the early 1980s when the role of Bank of Greece, in the conduct almost independent monetary policy was strengthened (Law 1266/1982). Karatza's report in 1987 placed the ground for an extensive process of market deregulation, with the motive of the internationalization of competition and the institution financial services in a united European market. After this report, financial markets were operating their controls more loosely in the middle of decade 1990. Bryant, Garganas and Tavlas (2001) named the three factors that affected the reconstruction of the Greek banking sector. According to them, the convergence with European standards, the competition and privatization led the banking system to leave its bureaucratic character.

The most important changes had been done in the determination of interest rates, which it became more liberated, was the released movement of the short-term and long-term capital and the rule repression on the operations of the credit institutions. (Noulas, 1999). The Amplified cross-border competition had allowed banks from other EU countries to do business in Greece. As a result, the domestic banking system deals the competition both with markets and the other counterparts. The development of the financial markets in Europe (through bonds, derivatives, equities) permits corporate and private customers to select from a wide variety of alternative financial instruments (Eichengreen and Gibson, 2001).

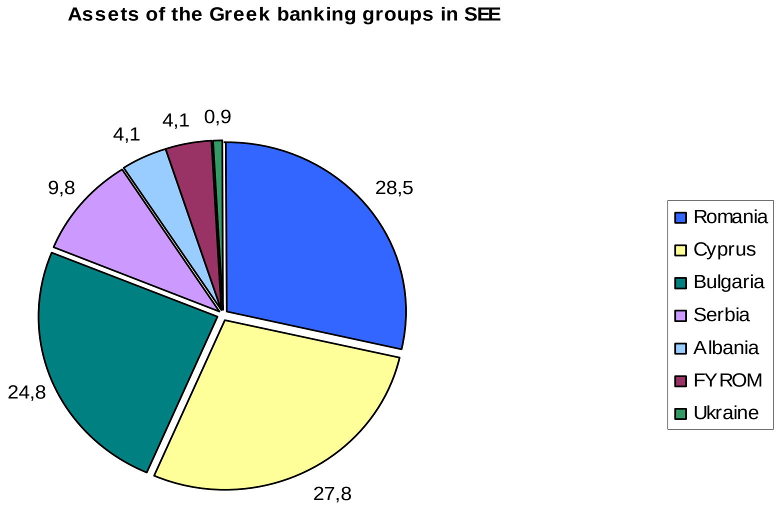
Since then, the credit institutions became from traders and editors of money to the most important collectors and distributors of financing information in the economic system. The institutional operational frame of banks is variable while the institutions are obliged to read just according to the institutional changes that the enterprising environment imposes. As a consequence, the banks function much more with private economic criteria having advanced progressively by their initial nature, shaping different profile relatively as much with their mission and their operation, as with the organizational structure and their strategy. It is characterized as universal banking. (Aggelopoulos P. 2008).

Nowadays, the basic frame of foundation and operation of Greek credit institutions is implemented according to the regulations of Basel Committee on Banking Supervision (Basel Accords II and III). Credit Institutions are legally defined as "an undertaking whose business is to receive deposits or other repayable funds from the public and to grant credits for its own account"» (Glykas M., Xirogiannis G., Staikouras C., 2006)

3. Greek Bank's activity in Southeastern Europe (SEE)

Greek banks in the SEE10 mainly activate in three countries, that is to say Romania, Cyprus and Bulgaria. The assets of Greek banking groups raised to 34.3 billion in June 2016, increased at 1,8% of December 2015 and represented the 11% of their assets. However, there are subsidiaries and branches in the following SEE countries: Albania, Bulgaria, Cyprus, FYROM, Romania, Serbia and Ukraine.

Figure 1. Assets of the Greek banking groups in SEE



(Source: Bank of Greece)

The first semester of 2016, the international enterprising activity of Greek banks had positive contribution in their results, with pre - taxes profits of a height of € 129 million (against damage at the first half of 2015) that emanates mainly from Bulgaria (43,4%), Cyprus (28,4%) and FYROM (17,2%). The enterprises in Albania and Ukraine were forfeiting. The profitability contributed an increase in proper funds compared to the first semester of 2015.

There are positive prospects for the profitability and the quality of asset in the activities of Greek banks, taking into account the improvement of developmental prospects of EU countries and the exit of Cyprus from the Program of Economic Adjustment. In this frame, Greek banks can investigate further the strategic occasions in South-eastern Europe, according to the directions given by the European Commission.

4. Liquidity over Euro system funding

During 2016, Greek banks improved their liquidity achieving a significant reduction in their dependence on the Euro system

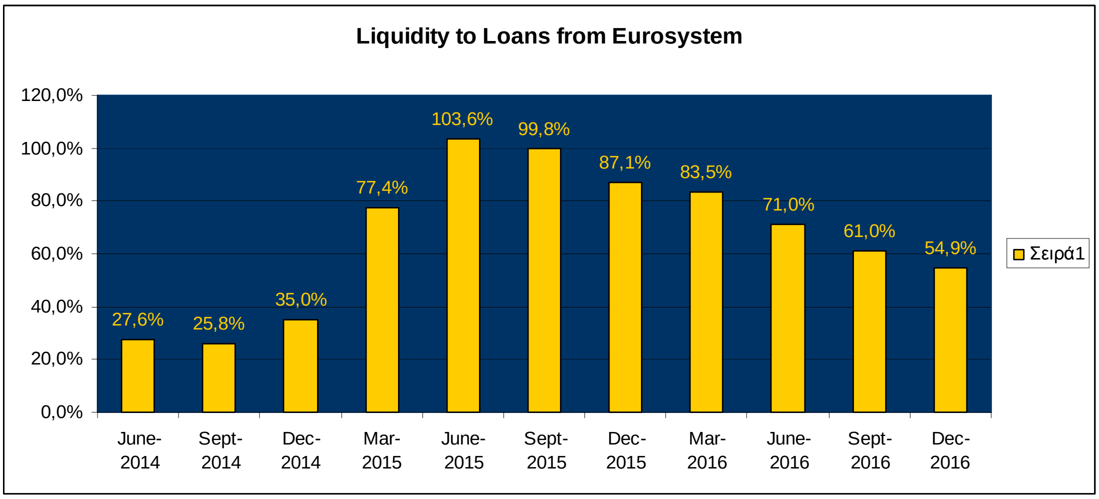
Specifically:

- The overall dependence of the Greek banking system on the Euro system declined in December 2016 to 66.6 billion euro's, down 47.3% compared to June 2015 (€ 126.6 billion) and 38% over December 2015 (€ 107.5 billion), and
- The use of ELA[4] has been limited in December 2016 to EUR 43.7 billion, down by 49% compared to the previous year, in June 2015 (EUR 86.8 billion) and by 37% in December 2015 (68.9 billion).

As it mentioned, developments led to important reduction of dependence of banks from the ELA (Emergency Liquidity Assistance), which amounted in € 46,3 billion in October 2016, from € 68,9 billion in the end of 2015. These developments were the result of the replacement of the liquidity from a refinancing through its monetary policy operations of Euro system, following the ECB's (European Central Bank) Governing Council Decision.

In December 2016, the liquidity of the Greek banking system by Euro system (ECB and ELA) amounted to 55% compared to the rest deposits of domestic households and businesses. In June 2014, the corresponding figure stood at 27.6% and in June 2015 to 103.6%.

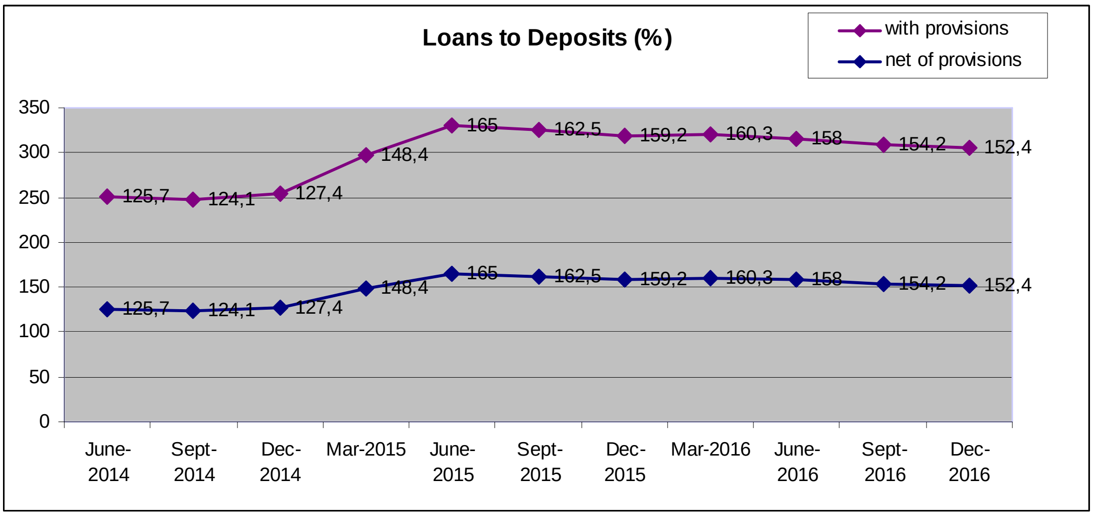
Figure 2. Liquidity to Loans from Euro system



(Source: Bank of Greece)

Despite the significant outflows of deposits in the first half of 2015, from June 2015, as a result of the stabilization of deposits and the deleveraging of banks' assets, the ratio of loans to deposits declined gradually by 13 percentage points and even more noticeably from 16 percentage points, taking into account the increased forecasts for that period.

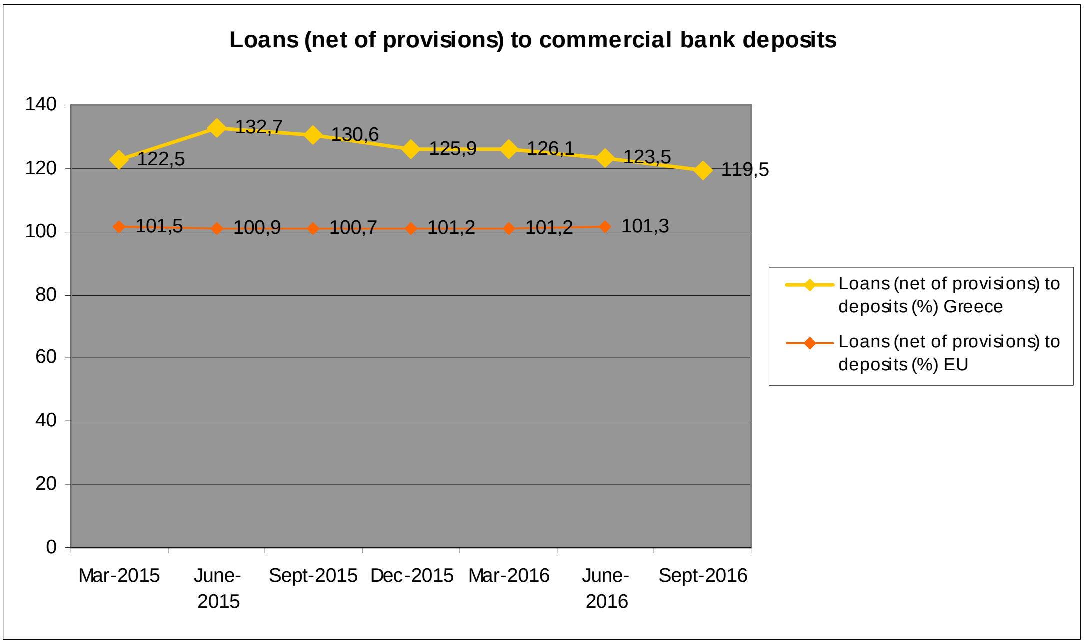
Figure 3. Loans to Deposits



(Source: Bank of Greece)

The following table shows the development of ratio of loans to deposits, that continues being enough higher than the average for the smaller banks. With regard to the interbank market, the access in the financing via interbank repos is increased from September 2015.

Figure 4. Loans to commercial bank deposits



(Source: Bank of Greece)

4. Structure of Assets and Liabilities

In the first semester of year 2016 the decrease of borrowing from the Euro system in combination to the sale of National Bank's subsidiary Finasbank caused the reduction of total asset of Greek banking groups at 33 billion of Euros (312 billion of Euros from 345 billion that were in the end 2015).

Table № 1. Structure of assets and liabilities of the Greek commercial banking groups

Structure of assets and liabilities of the Greek commercial banking groups					
(amounts in EUR millions)					
2015		**June- 2016**		**Change**	
Assets		%		%	
Loans	185,094	53.5	181,950	58.2	-3,144
Bonds& Equities	72,262	20.9	63,306	22.2	-2,955
Equity participations, Assets & Others	71,123	20.6	43,680	14.0	-27,443
Claims on credit institutions	7,830	2.3	8,432	2.7	602
Cash and reserves at the central bank	9,460	2.7	9,042	2.9	-418
Total	**345,769**	**100.0**	**312,411**	**100.0**	**-33,358**
2015		**June- 2016**		**Change**	
Liability		%		%	
Customer deposits	147,073	42.5	147,374	47.2	301
Liabilities to credit institutions	115,442	33.4	103,554	33.1	-11,889

Own funds	36,925	10.7	36,699	11.7	-226
Bank bonds	1,905	0.6	1,782	0.6	-123
Others	44,424	12.8	23,002	7.4	-21,421
Total	**345,769**	**100.0**	**312,411**	**100.0**	**-33,358**

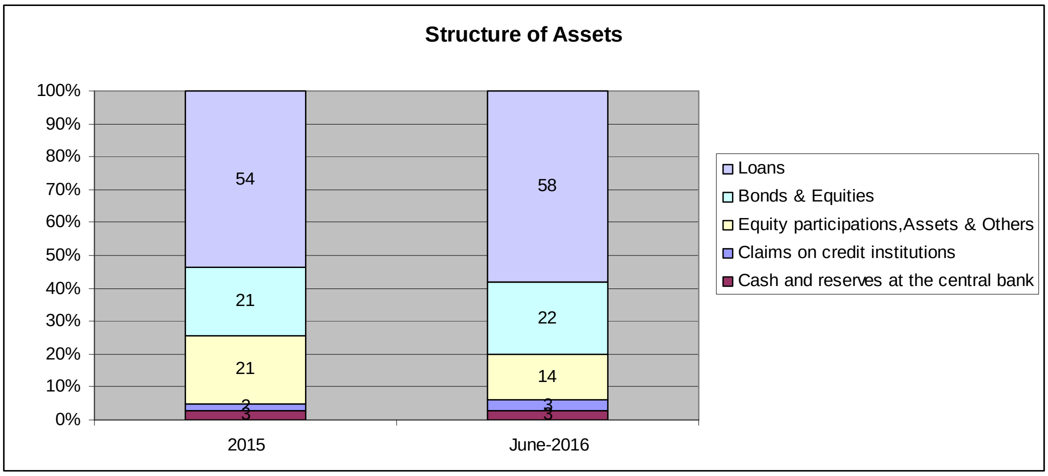
(Source: Bank of Greece)

The decisive factors which contributed in this reduction were:

a) The reduction of the net outstanding amount of loans at 3 billion of Euros,
b) The fall of the bond and equity valuation at 3 billion Euros, and
c) The reduction of other assets at 27 billion Euros because of the sale of foreign subsidiaries of Greek banks, mainly the sale of Finansbank from the National Bank.

At the examined period, the most important changes in the structure of asset were the increase of loans as percentage of total of assets in 58,2% on 30 June 2016, from 53,5% in December 2015, because the fall of total asset and other that failed as a percentage of total asset in 14% in 30 June 2016, from 20,6% in 31 December 2015.

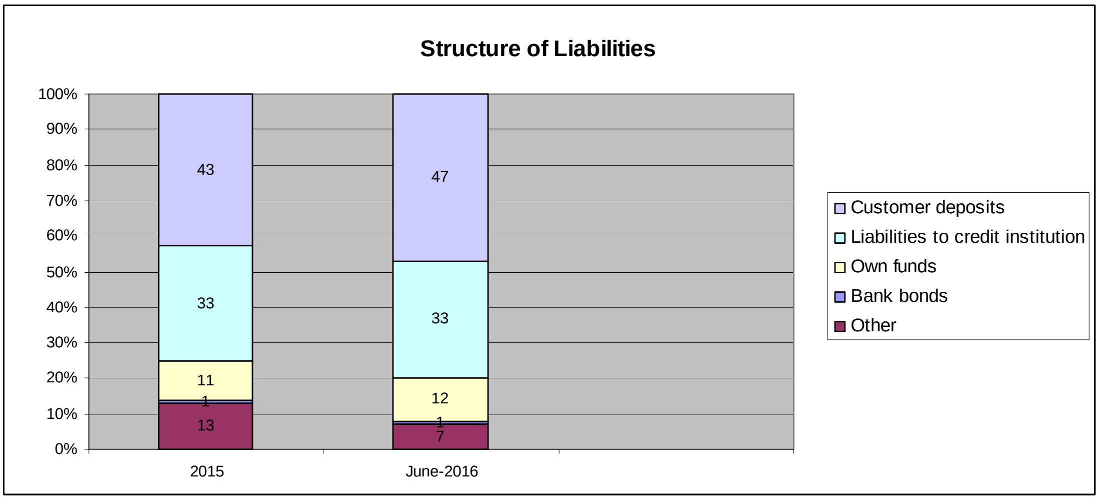
Figure 5. Structure of Assets



(Source: Bank of Greece)

About total liabilities, there is a remarkable growth. The change of liabilities in credit institutions at 12 billion Euros, as resulting of the reduction of lending by Euro system of 20 billion Euro at 6 billion Euro, and an increase of 8 billion in other liabilities to credit institutions. The further reduction of liabilities of 21 billion euro's was caused from the sale of Finansbank. There are noted some other structure changes such as the increase of the customers' settlement as a percentage of total obligations' reduction (47.2%) and the other liabilities as a percentage of total liabilities (7.4%).

Figure 6. Structure of Liabilities



(Source: Bank of Greece)

It is pointed that an improvement in banking system's profitability for the first semester of 2016, where the pre-tax profits were 90 million Euros for the second-half of 2016, while there were losses of 7.5 billion Euros for the second half of 2015, and while the other income and expenses hasn't been affected a lot.

6. Profitability

During the period 2010-2015 Greek banks recorded damage before taxes in a total sum of 70, 3 billion euro. At the same time haven't been distributed dividends in the shareholders of Greek banks, while in September 2016 the accumulated forecasts of Greek banks amounted in 52 billions of euro's in individual base and in 57,1 billions of euro's in unified base.
In 2016 the Greek banking groups presented profits pre-taxes, after a series of loss-making years. After some quarters, the net income was shaped in a marginal level higher than these forecasts for the credit risk.

The profits pre-taxes of Greek banking groups in a nine-month level amounted in the 249 millions of Euros. The restoration of profitability was an improvement in operating results and an important reduction of forecasts of loan-loss. This tendency was continued until September of 2016 according to the elements of four basic banks.

Table 2. Profitability of Greek Banks

Profitability of Greek Banks							
Million €	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**Sept. 2016**
Profits pre-taxes	-823.8	-3.142	-9.137	1.388	-7.278	-11277	249
Profits pre-taxes and forecasts	6.058	4.666	3.023	9.785	4.177	3.207	3.211

(Source: Hellenic Bank Association)

Specifically, net interest income grew by 1.7% in comparison with the first half of 2015 due to a considerable decrease in interest expenses, which offset a fall in interest income. This decline in interest expenses is attributable to a reduction in the cost of Euro system financing, a gradual fall in interest rates on new deposits and a shift in the deposit base to current and saving accounts. Interest income was mainly affected by the shrinking of the loan book. As a result, the net interest rate margin improved in the first half of 2016 year-on-year (Table 1.8.) remaining well above the net interest rate margin of medium-sized banking groups in the EU.

Concretely, net income was increased at 1,7% concerning the first semester of 2015 because of the important reduction of expenses of interest, which compensated the reduction of interest income. This reduction is owed in the reduction of Euro system's financial cost, in a progressive reduction of interest rates in the new deposits and the base of deposits in current accounts and accounts of saving.

Interest income was influenced mainly by the portfolio of loans. Consequently, the net interest-rate margin was improved at the first semester of 2016.

Table 3. Profitability indicators in Greece Banking Groups

Profitability indicators in Greece Banking Groups		
Percentage %		
	2015	**June-2016**
Net Interest margin	2,1	2,4
Operating costs/total assets	1,4	1,6
Cost to income ratio	55,1	52,5
Provisions for credit risk/total asset	2,6	0,6
Provisions for credit risk/operating income	213,1	41,7
Return of assets - ROA (after tax)	-3,3	0
Return on equity (after tax)	-44,7	0,3

(Source: Financial statements of Greek banking groups, ECB Statistical Data Warehouse (SDW))

Operating costs were increased in the first semester of 2016, after they were decreased sufficiently in the latest years. Although, this was compensated by even more rapid increase of operating income. Net income was improved at the first half of 2016, as the ratio of effectiveness of Greek banks continues to be high.

The long-term prospects of profitability are connected unbreakably with the stabilization of Greek economy and the re-establishment of confidence in the banking system. Despite that, existing important provocations continue, mainly because of the completion of second review of the Third Economic Adjustment Programme for Greece, the achievement of reciprocally satisfactory result for the conceivability of public debt and the incorporation of Greek bonds in the program of ESF.

6. Conclusions

The main focus of the study was to examine the state of the Greek Banking system in Euro system during a period of financial and economic crisis. We presented the profitability for the years 2010-2016 and concluded that after a series of loss-making for the years 2010-2015 years, in 2016 Greek Banks presented profits pre-taxes. The net income was shaped in a marginal level higher than these forecasts for the credit risk. The profitability has been restored and the forecasts of loan-loss have been decreased. The long-term prospects of profitability are connected unbreakably with the stabilization of Greek economy and the re-establishment of confidence in the banking system.

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SERVICE ORIENTED CUSTOMS ADMINISTRATION BASED ON THE PRINCIPLES OF LEAN MANUFACTURING

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Abstract: *Problems of choosing methods of management in the customs management system has been the subject of scientific research for several years. This problem becomes more urgent within the tendency of the Customs to reconfigure its performance according to the needs of business. Customs plays a strategic role in economic development of the country. It takes part in the regulation of international trade exchange between the participants of foreign economic activity, and carries out the fiscal function at the borders of the country. The customs service effectively replenishes the federal budget and thereby contributes to national economy. Customs needs to be brought to the business way of functioning in order to boost international trade and economy. Within the trend of running business and manufacturing using tools of digital economy, such as E-commerce and Single Window, the need to get value for money from governments at all levels is under the spotlight as never before. However, cost-cutting programs that seek savings of 1 to 3 percent a year will not be enough and in some cases may even weaken the quality of service. Many countries have achieved practically significant results in the study and application of management technologies, such as Japan, the USA and the UK. Their experience in the implementation of the Lean production principles in the management structure of the system allows analyzing preconditions of implementation, the possibility of practical application of Lean production and achievement of target results in governmental structures. Lean aims to optimize costs, quality, and customer service constantly. It does so by engaging and equipping employees to focus on creating and delivering value in the eyes of the customer and eliminating whatever does not contribute to this goal. Evaluation of this method of the customs services improvement by using management tools allows to highlight the importance of conceptual provisions. In the Russian Federation the fundamental conceptual documents of the Federal customs service are the development Strategy of the customs service of the Russian Federation until 2020 and the Comprehensive program of the development of customs authorities up to 2020. The target directions of the development of the Customs service are formulated in these documents, as well as the tasks to achieve them. The concept of Lean production taken from the business sphere is designed to reduce the 7 types of production costs of customs services through the use of specific tools. The authors come to the conclusion that it is possible with the use of analytical ways of information processing: the system of indicators that meet the requirements of the state policy and the WCO's recommendations in the field of Customs.*

Keywords: *lean-indicators, lean-manufacturing, Strategy of development of customs service of the Russian Federation till 2020, the Concept of service-oriented administration, government administration, government services*

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The strategy of developing the RF customs service until 2020 involves implementing the service-oriented customs administration [1] Concept, this determines eight key areas for developing the customs service content under modern conditions, including also improving customs regulation, implementation of the fiscal function, developing law enforcement, integration processes and international cooperation, improving the system of public services and control, and supervisory functions, improvement of customs infrastructure in compliance with transportation and logistics policy and law enforcement risks. The concept assumes an integrated approach to the incessant improvement of the entire managerial system in the EAEU structures, which is sufficiently in line with the concept of lean production [8], applicable to governmental bodies.

The lean state is associated not only with optimizing the processes of governmental and municipal authorities, but also with the increase of efficiency and crisis resistance of non-profit institutions in the areas of health, education, culture, as well as governmental enterprises. Lean manufacturing allows one to do more work without attracting additional labor, reduces the cost of public services, increases customer satisfaction (taxpayer), significantly reduces the time spent on rendering services. It is important that lean manufacturing requires less money for implementation and further use than the other approaches does not depend on expensive IT solutions. The relevance of this topic is to improve the activities of customs authorities in order to improve the quality and efficiency of their work, which can be achieved through the use of Lean production tools (lean manufacturing, lean production).

In 2001, initiatives using lean technologies in public administration first appeared in the UK. In 2006, on the initiative of the UK, the first EU conference on the introducing lean in the health sector was held.

In the UK, lean programs have been consistently implemented since 2006 in the National Health Service (NHS), the Department of income and fees, the court service, the Ministry of labor and pensions of the UK, the National Audit Office (NAO) — an organization close to the RF Accounting chamber. It should be noted that NAO and NHS have developed know-how that can become a basis for adapting the best practices of thrift in Russian governmental agencies.

Program UK Lean Aerospace Initiative (Lean Aerospace initiative Industry UK) is a national scientific research program, which includes the consortium of universities of Bath, Cranfield, Nottingham, Warwick and which works in close cooperation with the LAI at MTU, USA. This unique and broad program is funded by the EPSRC (Engineering and Physical Research Council) the Governmental Agency for Research and Education in the area of Engineering and Physical Sciences and 45 member companies of SBAC-Society of British Aerospace Companies - the Society of British Aerospace Companies (which comprises 2,600 member companies). For example, at the Bath University, the research program focuses on improving lean processes in the aerospace industry and deals, in particular, with such issues as:

1. Coordinating common indices and measurement parameters.
2. Developing requirements for lean-accounting and measurement of operational parameters.
3. New topic – "the practice of lean in the supply chain in the aerospace industry" and "value during the life cycle of the product".

To date, the Lean Enterprise Academy (LEA) operates in the UK – a company that has embarked on the path of building up efficient production systems aimed at developing the companies' ability to increase productivity, reduce production costs, TOD, costs and production losses.

LEA company has grown from a research group of MIT (Massachusetts Institute of Technology), which was responsible for studying and implementing lean manufacturing in a revolutionary system of manufacturing and management. Now the LEA objectives are developing and disseminating knowledge in lean-thinking and lean-practice.

The company cooperates with organizations to help them understand and apply lean manufacturing principles. They identify and eliminate "gaps" in the manufacturing system, improve productivity, develop the company's ability to optimize production to meet customer needs and maximize profits.

The lean manufacturing concept in US governmental agencies. Lean Government approach is distinguished by the following recommendation principles:

1) reviewing the existing system of public services, the cost whereof should be optimized, society as a whole and stakeholders;
2) motivate employees and external stakeholders to continuously improve and find solutions to problems;
3) implement the concept of incessant improvement of processes and organization of their activities;
4) strive to reduce process complexity and variability;
5) use performance metrics and visual control to provide quick feedback and improve real-time decision making;
6) carrying out activities involving systemic thinking.

One of the main goals in lean manufacturing offers reducing waste, and under public administration, waste is as follows:

1) material and technical resources: backlog (permits, approval of plans), redundant materials and information, outdated databases;
2) defects: data errors, missing information, errors in documents, confusing instructions or requirements, typos;
3) overproduction: unnecessary reports and copies, excessive E-mails, doing unrequested work;
4) complexity: unnecessary steps under way, too many levels of signing, unclear job descriptions (difficult to understand formal style);
5) waiting: time for approval, waiting for information or decisions, waiting for people in meetings;
6) excessive movement: poor printer and copier availability, unnecessary movement to find files or supplies, moving for meetings (meetings, staff conferences);
7) moving elements: routing reports, moving documents, and their storing.

Numerous governmental agencies, such as the U.S. environmental protection Agency and the States of Iowa, Minnesota, and Washington, use the lean concept to improve the quality, transparency, and speed of governmental processes. As in the industrial and service sectors, some governmental agencies are implementing lean practices together with Six Sigma process improvement approaches.

Six Sigma stands for a managerial approach that seeks to systematically apply statistical techniques to reduce variability and eliminate defects in service delivery.

The source monitoring all current government activities on the Federal, governmental, and city levels is the Lean Government Center.

List of structures that use this concept:
- U. S. Environmental Protection Agency,
- U.S. Department of Defence,
- U.S. Army,
- U.S. Department of Agriculture.
- U.S. Department of Housing and Urban Development.
- U. S. Nuclear Regulatory Commission.
- U.S: Department of state.

Examples of governmental organizations that actively use the Lean Government concept:
- Colorado Department of Transportation (CDOT),
- Connecticut Department of Environmental Protection,
- The Ministry of labor Connecticut,
- Iowa Office of Lean Enterprise,
- Minnesota Enterprise Lean,
- State of Ohio Lean,
- Washington State's Results,
- New Hampshire Department of Environmental Services,
- Wisconsin Department of Transportation (Wis DOT).

Examples of municipalities that implement the lean concept:
- Denver, Colorado (City and County of Denver, Colorado),
- Cape coral, Florida (City of Cape Coral, Florida),
- Cincinnati, Ohio (City of Cincinnati, Ohio),
- Fort Wayne, Indiana (City of Ft. Wayne, Indiana),
- Grand rapids, Michigan (City of Grand Rapids, Michigan),
- Irving, Texas (City of Irving, Texas),
- Jacksonville, Florida (Jacksonville, Florida).

International Association for managing cities and counties (International City/County Management Association (ICMA)) supports the program, in order to help authority to improve managerial processes using the concept of lean production.

It is interesting to refer to the evaluation of the existing experience, given by Western scientists. Thus, Z. Radnor and S. P. Osborne note that there are two main approaches to introducing lean technologies in public administrations. This is, first, the use of individual seminars or events held "concentrated" in a certain period of time. These activities are often referred to as quick improvement activities. In addition, secondly, the introduction of a comprehensive, programmatic approaches (a set of interrelated projects, to cover in the future all sectors of activities). Both approaches use the same tools, but the difference is in the depth, breadth and regularity of the tools. Kaizen: are short-and medium-term activities, and the program approach involves an appeal to incessant improvement.

With regard to the reform CO activities, advantage should be given to incessant improvement and systematic change in the practice of customs services, which implies the participation of all four parts of the customs system in implementing lean domestic policy.

The practice of introducing lean production technologies in the governmental structures in foreign countries allows adapting them to be used in EAEU. The Ural regional customs administration has been implementing the principles of lean production for several years. In 2015 the managing staff (Deputy Heads, heads of services, heads of customs) was trained in the basic principles of lean production on the basis of the Ural state University of Economics.

The concept of implementing lean production provides for a constant increase in satisfying traders (it correlates with the concept of "customs services"), improving the efficiency of working processes, easing organizational structure and providing rapid response to changes in the environment.

In this regard, we recommend the following sequence of steps to create lean production in the customs authorities:

1. To define a vision, that is, to shape what the customs authorities should look like, so that their employees are satisfied with the work, and their activities would be effective, customer - oriented.
2. All staff from managerial and up to junior positions should be committed into the process. Management should be prepared to provide the necessary resources for the project.
3. Measuring value and loss. Setting standards and monitoring the results.
4. Identifying the steps to achieve the desired results. Describing the current and future situations.
5. Encouraging changes, both within organizations and within individuals.
6. Constantly support changes in each unit, department and working process (it is lack of common efforts that is the major obstacle for implementing lean principles in public institutions, which is usually due to short periods of top managers staying in their positions). To adhere to a holistic vision of the process of providing customs services, to show determination.

These changes are characterized by the set of indicators presented in Table 1.

Table 3. LEAN-indicators taken into account in the of customs

<table>
<tr><th colspan="6">Indicators of success in implementing lean measures into CO.</th></tr>
<tr><th colspan="3">Implementation of lean manufacturing.</th><th colspan="3">Moral climate indicators.</th></tr>
<tr><td colspan="3">• Number of the held events.
• Number of participants in the events.
• Number of trainings.</td><td colspan="3">• Employees’ satisfaction.
• Employees’ turnover rates.</td></tr>
<tr><th colspan="6">Indicators of efficiency and effectiveness of processes in CO.</th></tr>
<tr><th colspan="2">Time wise indicators.</th><th colspan="2">Cost wise indicators.</th><th colspan="2">Quality indicators.</th></tr>
<tr><td colspan="2">• Full time of registering movement of goods (according to customs procedures).
• Time spent on value-creating activities.
• Time spent on activities that do not create value.
• Time spent on activities that do not create value BUT are NECESSARY.</td><td colspan="2">• Saving employees' labor.
• Cost savings.
• Cost per unit of customs services.</td><td colspan="2">• The number of processed data (by regions) + priority AREAS of economic activities.
• Number of arbitration cases won by traders.
• Review of posts with full or partial duplication of functions.</td></tr>
</table>

<table>
<tr><td>• Time spent on value-creating activities in the full time of customs service delivery.</td><td></td><td></td></tr>
<tr><th>Indicators of results.</th><th colspan="2">Indicators of the processes complexity.</th></tr>
<tr><td>• Scope of work (monthly usage of data (diesel fuel) by region).
• Accumulated and waiting for transfer to the next stage of work.
• Work in progress.</td><td colspan="2">• Number of stages of customs clearance which create value.
• The number of decisions made for the release of goods.
• "Number of work transfers" (documents).
• "Loops" - the number of times to repeat the work.
• "Black holes" - sources for constant problems.</td></tr>
<tr><th colspan="3">Indicators of success in implementing lean measures in CO.</th></tr>
<tr><th>Implementation of lean manufacturing.</th><th colspan="2">Moral climate indicators.</th></tr>
<tr><td>• Number of the held events.
• Number of participants in the events.
• Number of trainings.</td><td colspan="2">• Employees’ satisfaction.
• Employees’ turnover rates.</td></tr>
</table>

According to the Complex program for developing the FCS of Russia, the Customs Code of the EAEU will create a basis for simplifying customs procedures, will introduce the priority of automated electronic technologies over hard copy documents circulation, stimulate the use of "one step office" mechanisms, fundamentally change the approaches to the institution of the authorized economic operator, as well as allow the possibility of transferring the payment of customs remunerations to the stage after release of goods and instalments/deferral of payments.

The impact of the technological factor (namely, complex automation and informatization of all areas) has a positive effect on the activities of customs authorities, expressed in enhancing the efficiency and efficiency of all types of control.

The Program defines, as one of the main directions for developing - the "implementation of the best world practices of customs administration ("electronic customs", "one step office", etc.), tools and recommendations of the WCO in the area of risk management, organizing customs control after releasing goods, ensuring full, timely and lawful collection of customs payments" and "development of human resources and material and technical base of the FCS of Russia". The concept of Lean production allows implementing these areas, taking into account the goals and objectives set by the Program.

A set of measures aimed at improving customs administration has been carried out recently:

1. Mandatory preliminary informing of customs authorities on goods imported into the customs territory of the EAEU by road and rail has been introduced.
2. Conditions have been created for introducing mandatory preliminary information on goods transported by sea (pilot projects are being carried out).
3. Taking into account the positive experience in introducing preliminary informing in the automotive and railway crossings it is important to have it compulsory in respect of goods transported via sea and air checkpoints across the state border of the Russian Federation.
4. Mandatory electronic customs declaring of goods has been introduced. The requirement to submit more than 20 documents submitted during the customs Declaration of goods has been abolished.
5. The possibility of remote releasing the goods has been provided.

6. The know-how of automatic registration of the customs declaration filed in the form of an electronic document and automatic release of goods have been introduced.
7. The technology for simplifying customs operations with goods that are exported to international post offices has been developed.
8. The system of applied technologies of control of calculation, payment and transfer of customs payments was modernized, allowing reducing the time for releasing goods. The possibility for paying customs duties in real time regime has been granted.

The comprehensive program for developing the FCS of Russia until 2020 has developed a system of indicators characterizing the implementation of the goals and objectives. These indicators can be compared with the efficiency indicators of the Lean production concept (see table. 2).

Table 4. Comparison of the efficiency indicators system for implementing goals and objectives of the FCS of Russia and indicators of efficiency of the concept of Lean production.

Efficiency and effectiveness indicators of processes in CO.		
Time wise indicators.	**Cost wise indicators.**	**Quality indicators.**
Modernization and the content of the service "Hard currency exchange control" "Private office of the participant of foreign economic activity" based on the needs of the business community: 2016-> 70% 2017-80% 2018-90% 2019-95% **2020-100%.**	The share of electronic declarations for goods registered in the centers of electronic declaring,%: 2016-16% 2017-20% 2018-30% 2019-60% **2020-90% .**	The level of satisfaction of citizens with the quality of public information and consulting services: 2016 — 2017- not less than 80% 2018- not less than 85% 2019- not less than 90% **2020- not less than 95%.**
	Share of automatically registered electronic declarations for exported goods: 2016-35,7% 2017-50% 2018-60% 2019-70% **2020-99%.**	The share of FEA participants who satisfactorily assess the quality of public services provided by customs authorities in the total number of FEA participants using public services: 2016- 60% 2017- 65% 2018- 70% 2019- 75% **2020- 80%**
	Maintaining the personnel potential and ensuring the staffing of customs authorities with sufficient personnel to fulfil the tasks assigned to them: 2016- 91.6% **2017-2020 - 92%**	

To achieve these goals, an action plan for implementing the Program has also been developed. Such measures can be effectively implemented by lean production tools. The most significant activities to which Lean production tools are applicable are presented in Table 3.

Table 5. Lean production tools applicable for implementing the program.

Programs.	**Lean production tools**.
Automatic registration of declarations for goods submitted in the form of an electronic document (2017).	Flow alignment (Continuous Flow) - building production flows without stops and buffer accumulation.
The concentration of declaring goods at customs (e-Declaration) (2017-2020).	Time tact (Takt time) - answers the question of what performance should each cell or each section of the target services work to meet customer demand.
Implementing measures to create a system of traceability of the movement of goods of the EAEU goods movement traceability in terms of implementing the tasks set at the national level (2017-2019).	Heijunka (heijunka) - a tool for levelling the actions performed; the movement of goods is divided into small segments, arranged in a special order, allowing to reduce risks and to carry out various operations with the goods within a short period.
Automating customs control processes after releasing the goods (2017-2020).	VSM: value stream Mapping (Value Stream Mapping) - helps to see valuable operations and those that do not add value.
Improving mechanisms of crime prevention in the customs area (2017-2020).	Incessant improving (Kaizen) - the overall synergistic effect, the joint efforts of all employees help to quickly and thoroughly identify violations.
Ensuring automation of risk identification processes at the level of at least 90% (2020).	Poka-Yoke, (error protection) - developing methods to prevent errors directly under way. The ideal goal is defect-free; it is cheaper than inspection, inspection and verification.
Implementing and using the software products risk management process with the possibility of data mining (2017-2020).	KPI, Key indicators (system of metrics for reviewing the governmental bodies critical activities).
Providing public services in electronic form (2020; tool).	"Quick changeover "(SMED — Single-Minute Exchange of Die): the breakdown of the performed operations, the implementation of operations "one-touch" + Bottle neck analysis (in the search of the bottle neck) the Definition of the" bottleneck " in the chain, which does not allow to work more efficiently.
Shifting to electronic document management in the customs administration and other payments, the collection whereof is the responsibility of the customs authorities (until 2020).	"Quick changeover "(SMED — Single-Minute Exchange of Die): the breakdown of the performed operations, the implementation of operations "one-touch" + Bottle neck analysis.
Increase of the areas relating to Federal property for placing RF customs authorities officials and ensuring legal activities of customs authorities at the expense of new construction (acquisition) (according to the allocated budgetary appropriations).	Gemba ("place of battle") – this approach reveals that the most important things do not take place in the main offices, but also on the spots; involving management, reducing the feedback time to problems solving, strengthening discipline, obtaining "first hand" information without distortion.

Updating the list of positions of the Federal state civil service for which the rotation of Federal governmental civil servants of the RF customs authorities is provided by amending the order of the Federal customs service of November 14, 2012 № 2315.	Bottleneck analysis (bottle neck search). The definition of the "bottleneck" in the chain, which does not allow working more efficiently. Improving this weak link brings about improved staff productivity and service rendering.
Improving the efficiency of divisions activities on counteraction to corruption for the identifying, preventing and suppressing corruption crimes committed by customs authorities officials.	Kaizen, comprising moral improvement, personal discipline and initiative.

The main directions of development specified in the Program are also closely correlated with the main ideas of the production concept, namely:

1) incessant satisfying participants of foreign economic activities;
2) improving the efficiency of work processes;
3) the simplicity of the organizational structure and rapid response to changes in the environment.

Thus, it can be concluded that implementing Comprehensive development program can be effectively put into life based on methods and principles of lean production. We have developed an appropriate program of action, presented in Table. 4.

The comprehensive development program clearly defines what the customs authority should be like, and lists all the tasks that need to be solved to implement this program. In addition, the program clearly identifies all indicators to which the CO activities should aim.

In order to implement the Lean production concept in the activities of the FCS of Russia, it is necessary first to implement a comprehensive development program, what will result in availability of a ready base for using Lean production.

Table 6. The program of implementing the concept of the Federal customs service developing based on introducing the Lean production.

Status.	**Features.**	**The body responsible for the implementation.**
1. Management.	Reducing the number of customs administrations to the optimum minimum for implementing customs formalities. Delegating one-time authority, in order to avoid "loops" in implementing customs operations, formalities and checks of documents accompanying the movement of goods.	RF FCS
2. Foreign policy.	Support at the governmental level in the area of international scientific cooperation and international standardization. Entering into strategically important contracts and implementing activities on their basis (for example, within the SNP framework).	ECE, FCS, MINISTRY OF FOREIGN AFFAIRS OF THE RUSSIAN FEDERATION.
3. Innovations.	Shift to providing public services in electronic form, applying the one-step office system. Applying mathematical and statistical methods in assessing the success of the implementation and	RF FCS, RF Administration

	operation of the BP in the customs authorities at all 4 levels.	
4. Integration.	To create the EEC goods flow movement traceability system. Unification of tax policies in the EEC countries (in particular, achieving mutual understanding with Kazakhstan).	ECE, tax administrations of the EEC member States.
5. Economics.	Identification of goods flows directions priority within the framework of: - sanctions policy; -import substitution; -SNP; -digital economy; -developing domestic market.	RF FCS, Ministry of Finance, RF Administration
6. Social parameters.	Formation of public servants' personal responsibility for performing their duties, the vision of the business process as a whole.	RF FCS, RCD, customs sites
7. Infrastructure.	Expanding territories related to Federal property to accommodate officials, as well as to ensure customs authorities' law enforcement activities through new construction or acquisition of new areas.	RF FCS
8. Human resources.	Update the list of positions of the Federal public civil service whereon the customs authorities' rotation of employees is provided. Make changes to the order of FCS of Russia of November 14, 2012 № 2315. To increase the efficiency of anti-corruption units, detection and suppression of corruption-related crimes on the customs officials.	RF FCS
9. Info.	Implement data mining software products into the risk management process. UAIS Between/among employees.	RF FCS
10. Know-how.	Implement automatic registration of E-declarations for goods. Shift goods declaring to the centers of E-Declaration at customs sites. Automate the process of customs control after the release of goods. To ensure automation of risk identification processes at the level of at least 90%, to improve the RMS work. Shift to E- document management in the administration of customs and other payments.	RF FCS, Technical support services on 4 levels of customs authorities

In conclusion, this is to note that the developing the RF Strategy of the customs service until 2020 includes the following target areas for the implementation of the service-oriented administration Concept: improvement of customs regulation, improvement of the system of public services, improvement of customs infrastructure, improvement of information and technical support, strengthening human resources and strengthening anti-corruption activities and improvement of organizational and management activities. In this article, the following stages of improving the customs system in the framework of lean production were considered: forming a holistic view of the optimized system of customs authorities, establishing standardized indicators and achievement thereof, promoting changes on all levels of the customs system, the incessant work to achieve a previously defined result. Carrying out these activities will make it possible to reduce the cost and time costs of customs services, improve the information automation of the system and improve customs administration by optimizing the administrative procedures and management structure of customs authorities.

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CUSTOMS PROTECTION OF THE RIGHTS FOR INTELLECTUAL PROPERTY ITEMS - IMPROVEMENT IN THE EURASIAN ECONOMIC UNION

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Abstract: *The article deals with one of the inseparable parts of each state's economic activity that is customs protection of the intellectual property objects. In industrial and post-industrial society, the importance of intellectual property does not only increase but also becomes an essential element for the formation of a high-tech and innovative economy. As far as the global requirements for the protection of intellectual property items (IPI) have been set forth in the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS), nowadays they are mandatory for every WTO member country. Nevertheless, in connection with the existing system of intellectual property Customs Protection in the Eurasian Economic Union the problems the customs authorities face when dealing with the Intellectual Property rights arise. The types of IP rights infringements are described, as well as the ways of IP rights protection. The article lists the issues related to the customs protection of intellectual property rights through the economic integration. The distinctive features of rendering the state services within the integration consolidation are distinguished. The existing instrument for the IPR objects protection, which is the EEU common customs intellectual property registry (CCIPR) and the national customs intellectual property registry (CIPR) is described. The shortages of this instrument that make it impossible to provide a sufficient level of customs protection of intellectual property rights and the schemes of "gray good" importation are characterized. The ways of their elimination are given. The need of centralization and harmonization of the process of State customs service's rendering is proved and the options of this purpose achievement are given.*

Keywords: *Customs protection, intellectual property objects, innovative economy, infringements, import, state services, registry, state instruments*

INTRODUCTION

The rapid processes of modern integration put on the agenda issues related to the cross-border movement of goods containing objects of intellectual property (IP). In the world, the share of goods containing the intellectual component is steadily increasing. The value of intellectual property not only increases, but also becomes a necessary element for the formation of a high-tech, innovative economy. In modern conditions of transition to an innovative economy and import substitution, issues of the intellectual property rights (IPR) protection are of particular importance because intellectual property (IP) becomes not only a strategic resource of the state, but also a full-fledged independent category of tradable goods.

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This problem has been recognized as global and requires solving not only at the national, but also at the international level.

Currently, research on the issues related to certain aspects related to intellectual property, namely, legal protection and protection of intellectual property rights, regulation and use of intellectual property, declaration of goods containing intellectual property objects (IPO), customs control of goods containing IPOs, is becoming more and more relevant.

It is necessary to maintain a high level of intellectual rights protection; otherwise the results of intellectual activity will not be sold, but stolen, copied and illegally used. "Business and the author in their interaction with each other do not always find common points of contact. These contradictions should be resolved in legal terms based on legal and regulatory principles protecting intellectual rights." [1].

THE CUSTOMS CODE OF THE EURASIAN ECONOMIC UNION (EAEU) AS THE LEGAL INSTRUMENT FOR THE IPR PROTECTION

A special role in the IPR protection is assigned to the customs authorities. From the point of view of economic theory, customs protection of intellectual property rights (IPO) should be viewed from the position of services. Customs protection of intellectual property rights is a service provided by the state. [2].

The Customs Code of the Eurasian Economic Union (EAEU CC) among the functions performed by the customs authorities provides the protection of intellectual property rights in the customs territory of the Union. [3].

Considering the customs protection of rights to the Intellectual Property Objects (IPOs) as a state function, we can conclude that its goal is to counteract the movement of counterfeit goods across the customs border. Customs protection of rights to the IPOs as a state service is the activity of the customs authorities in the implementation of state functions in order to protect the rights of copyright holders to the IPOs in the cross-border movement of goods. [4].

The purpose of the customs control carried out by the customs officials, in the terms of intellectual property, is to identify the IPR violations in cross-border movement of goods as the basic condition for the provision of the public services for the IPR customs protection. There should be noted a distinctive feature that is the object of public services and the rights to intellectual property objects of the right holder, while the object of the state function and the object of customs control, through which the service itself is provided, are the goods containing IPOs transported by the declarant. [5].

SHORTAGES OF THE LEGAL BASIS FOR THE IPR PROTECTION

The legal basis for the IPR protection by customs authorities is constituted by the legal acts of various levels, regulating the procedure and conditions for the movement of goods containing intellectual property objects across the customs border.

The entry into force on January 1, 2018 of the Customs Union of the EAEU has entailed significant changes that affect many areas of customs and foreign economic activity (FEA). The legal and regulatory framework that existed within the framework of the customs legislation of the Customs Union member states, which regulated legal relations in the field of intellectual property protection, was not sufficiently developed. The scope of customs protection of the rights to the IPOs in the member states of the Customs Union was regulated in different ways and has led to various misunderstandings and infringements.

PROBLEMS OF THE IPR PROTECTION IN THE EAEU TERRITORY

Unfortunately, even after the entry into force of the EAEU Customs Code (EAEU CC), little has changed. Currently, the EAEU member states have different principles for the exhaustion of exclusive rights. Not all the countries apply the procedure “ex officio”. Like the Customs Code of the Customs Union, the possibility for customs authorities to take measures to protect the rights to IPOs in relation to the goods containing them were not included in the IPOs customs registers (CCIPR) at the level of the national legislation of the EAEU member states.

The content of the national customs registers of intellectual property varies greatly depending on the national legislation of the member state. For example, at the end of 2017 in the Customs Register of Intellectual Property Objects (CIPR) of the Federal Customs Service of Russia, the total number of intellectual property objects registered in the Customs Register was 4.617 objects, then in the CIPR of the Republic of Kazakhstan there were 550 objects, in Belarus - 301 objects, in the Kyrgyz Republic - 253 objects and in the Republic of Armenia - 163 objects.

The existing differences determine the existence of legal, from the position of customs legislation, schemes for the import of counterfeit goods into the territory of the EAEU. Due to the fact that in Kazakhstan and Armenia there is an international principle of the exclusive rights exhaustion, there is a scheme for “gray goods” importing into the EAEU through a section of the customs border owned by Kazakhstan or Armenia, where such goods are not considered counterfeit.

Fewer IPOs entered into the CIPR of Belarus (approximately 18 times less than in the CIPR of the Russian Federation), and the non-use by the Belarus officials ex officio leads to the possibility of unimpeded importation of counterfeit goods into the EAEU through this country. Once imported goods move further freely between the EAEU member states, because there are no customs borders between them.

The conditions for the right holders on the inclusion of the IPOs to the CIPR and the Unified Customs Register of the EAEU (CCIPR) countries differ. This situation does not ensure the effectiveness of the IPOs rights protection and does not prevent the movement of counterfeit goods across the customs border of the EAEU. The existing procedure for the customs declaration does not always allow to uniquely identify the IPO contained in the declared goods. This leads to a low probability of the counterfeit goods detection in the framework of the public services provision.

The amount of the holder's obligation to compensate the property damage in member countries depends on foreign currency. The fluctuations in exchange rates observed in recent years do not comply with the requirement of the Art.53 of the Agreement on Trade-Related Aspects of the Intellectual Property Rights “On the Pledge or Equivalent Guarantee”.

CHANGES MADE AFTER THE NEW EAEU CC ACCEPTANCE

With the entry into force of the Customs Code of the EAEU, certain changes have occurred in the field of the IPOs rights customs protection. If earlier the CIPR was conducted by the Federal

Customs Service of Russia, then at present the administration of the CCIPR is the prerogative of the Eurasian Economic Commission.

One of the mandatory conditions for the IPOs inclusion in the CCIPR was previously provided by the need to conclude the liability insurance contract for the property damage in connection with the suspension of the goods' release before making a decision on the inclusion of the IPOs into CCIPR. In spite of the fact that inclusion into the CCIPR is free, the right holder had to provide an insurance policy that is not free.

Moreover, the right holder had to cover the costs even if he did not actually receive services (no counterfeit goods were found with his IPO belonging to him). The EAEU Customs Code provides the opportunity to submit at the time of application only the written commitment certified by the copyright holder - the form of the obligation is set out in the Annex 4 to the Decision of the Board of the Eurasian Economic Commission No. 35 dated March 6, 2014. "On maintaining a single customs register of intellectual property objects of the member states of the Eurasian Economic Union" and the actual presentation of the insurance contract will be required only in the event of a positive decision on the inclusion of the IPO in the CCIPR.

Thus, the potential unjustified costs of the right holder associated with the submission of a liability insurance contract when submitting an application for the inclusion of the IPO in the CCIPR are excluded. This change should simplify the inclusion of the IPOs in the CCIPR, in which, for the entire period of its existence, not a single IPO has been included.
Unfortunately, at present time, even with the current changes, CCIPR is not able to contribute to solving the main problem that is the provision of equivalent protection throughout the entire EAEU customs territory.

The procedure for suspending the release of goods containing the intellectual property and the resumption of the release date for such goods has not changed. Thus, the entry into force of the EAEU CC did not introduce significant changes in the scope of customs protection of the IPOs rights.

A slight decrease in administrative and financial barriers in this sphere does not solve a number of existing problems in this area. Further legislative activities at the level of each state will be carried out within the framework defined by the EAEU CC, which does not allow solving the existing problems at the national level.

SITUATION WITHE COUNTERFEITING IN THE RF TERRITORY

In the Russian Federation in 2017, the customs authorities identified about 10.1 million units of counterfeit products, prevented damage that could be caused to the copyright holders of the intellectual property objects, worth more than 4.5 billion rubles. Subjects of offenses most often were: food bags, souvenirs, confectionery, tobacco and alcohol products, pocket lighters, soft drinks, capping agents, cans, goods for the holidays, children's toys and sports goods.

CONCLUSION

In order to improve the quality of state services in maintaining the Customs Register of the IPOs, as well as the transparency provision of the administration, the Federal Customs Service of Russia has launched an experimental information service "Personal account of a participant in foreign economic activity". It is purposed to the inclusion of trademarks in the Customs

Register of the Intellectual Property. This initiative was purposed to the software improvement that is used by the customs authorities when performing the customs operations related to the customs declaration. This work will allow quickly responding and taking measures to protect the rights of the rights holders.

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ARE REVENUES COMPARABLE? THE CASE OF EUROPEAN GAMBLING COMPANIES

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Abstract: *Gambling industry has its features, especially from accounting perspectives. The different regulations by countries may influence the accounting practices and so the form and content of the presented financial statements, shadowing the clearness of information used by decision-makers. Our study aims to provide an update report about the characteristics of the European industry using the financial statements of gambling companies and examine whether the variations in the recognition and measurement of revenue and gambling tax might have a significant impact on comparability and understandability of financial statements. As for European IFRS statements, empirical results show differences in the accounting of gaming revenue and gambling tax, depending on the country where the company was registered. If specific accounting guidance for the gambling sector existed, it would enhance the transparency of financial statements.*

Keywords: *gambling companies, IFRS, revenue recognition, gambling tax*

1. INTRODUCTION

Studies on European gaming industry mainly focused on social and health implications (i.e. **Error! Reference source not found.**, [2], [3], [4]), on the role and effectiveness of gambling taxes (i.e. [5], [6]), meanwhile other researchers analyzed the financial performance of European casinos compared with casinos in the USA or Macau (i.e. [7], [8], [9]).

While corporate model became the normative organizational form of North America particularly in Las Vegas, the European casinos are operated under strict state control in the form of monopolies. [10]. At the end of the 20th century they were mainly government-owned, and force table games at the low rate of promotion and advertisement. Gambling taxes were sometimes so high, that state can be regarded as primary owner channeling the winning from the real and private ones. [7]

Gambling is regulated worldwide. The gambling operation requires concessions and a variety of licenses. Of course, a company may operate in different countries, and the regulations of these countries are generally different from each other. Thus, companies are also required to provide disclosures by geographical segment, and according to local regulations.

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In today's world, dominated by the Internet, mobile applications and online games play an ever more significant role in the gaming sector, thereby helping to satisfy basic human needs [2]. Online gambling is legal in many countries and extends far across national borders. Some countries regulate the spread of online activity through very high taxes and the restriction of services. [11]

Our study aims to provide an updated report about the characteristics of the European industry using the financial statements of gambling companies and examine whether the variations in the recognition and measurement of revenue and gambling tax might have a significant impact on comparability and understandability of financial statements. Our research focuses on revenues of companies in the same industry but with different accounting treatment.

The direct and indirect presence of IFRS is very high in Europe. Despite the widespread use of IFRS, national traditions and practices, the language difficulties [12] and the differences between stakeholder groups and between countries [13] hamper and slow down the voluntary implementation or convergence of national regulations with IFRS.

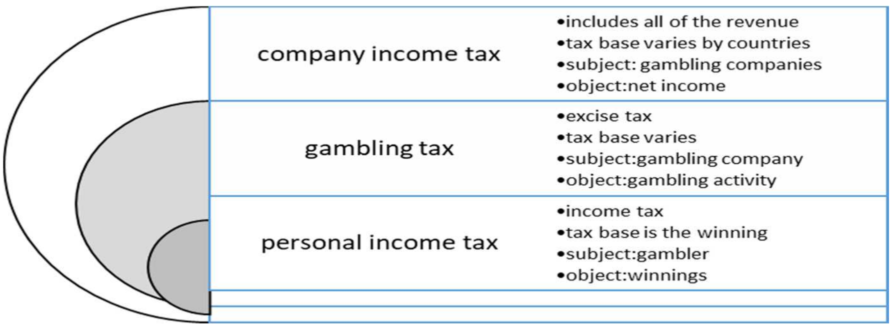
Ahmed, Neel, and Wang [14] mentioned the revenue recognition as an area where the lack of implementation guidance may result in different interpretations and implementations. Revenue provides information about the realized gross earnings from companies' business activities, the size of a company; it is the basis for a large number of financial ratios in profitability analysis and the performance evaluation of the management of companies. [15]

The specific features in the gaming and gaming related activities enable that revenues can be recognized and presented in the financial statements of gambling entities differently. It can be presented theoretically in three levels. The sales revenue can include the gross wager (the total amount of bets) and the revenues from gaming-related activities. The gross gaming revenue is the difference between the amounts received and the amounts paid back to the players as gaming wins. In the case of net gaming revenue the gross gaming revenue is adjusted by incentives, changes in accrued jackpot liabilities or gaming tax.

The presentation of gambling revenue depends on the accounting practice applied by the entity, and the accounting practice may differ not only on the country level but even on company level because of lacking uniform guidance.

There is a close relationship between the accounting for gaming revenues and gambling tax. Gambling markets are typically taxed differently than the other part of the economy and alter by countries. [16] In the gaming industry, three categories of tax levies exist: the company income tax, the gambling tax – as an excise tax–, and personal income tax on winnings.

Figure 1: Categories of tax levies on gambling



The accounting treatment of gambling tax differs even by IFRS companies. When gambling tax is considered a sales tax, it should be eliminated, deducted from revenue. According to the definition under IAS 12, however, a gaming tax may qualify as income tax. If gaming tax does not qualify as sales tax nor an income tax, companies account it as an expense.

2. METHODOLOGY AND DATA

Our research aims at investigating gambling companies in Europe for which non-consolidated financial accounts of entities were extracted from the Amadeus database, covering a period from 2004 to 2013. Our search request brought more than 19,000 results for companies operating in the gambling business in 41 European countries. This sample is believed to cover the essence of the European gambling market. Amadeus provided appropriate data for all 19,000 companies regarding their size and region. We excluded more than 8,400 companies for which data on operating revenue was not available in the period examined. Therefore the scope of the analyses has been restricted to the dataset of 10,590 companies. Our data collection cannot be considered randomly, so statistically, the available sample cannot be representative either. Regarding its proportion and size, the sample itself is significant, which indicates that our assessments and conclusions can be considered well-founded.

In our research, we classified the companies into four categories: small, medium, large and very large according to the values of operating revenues and total assets, and the number of employees.

Based on the database retrieved from Amadeus, we assigned the companies to their countries, and then we classified the countries into the following six groups of geographical regions: Northern Europe, Western Europe, Central Europe, Eastern Europe, Southeast Europe, and Southern Europe. We examined the relations based on the p-value, and if we found any relation, the power of the association we evaluated by the Cramer coefficient.

When analyzing the companies' income, instead of sales values we used the operating revenue values, because this data was available for many more companies. For those companies where both sales and operating revenue values were available, we examined the difference between the two values, and we found no material difference.

To justify the concentration of the operating revenue, we have done concentration analysis, and we illustrated the results with Lorenz curve, and we measured the extent of the concentration with Gini-index.

During our analysis, we filtered those companies from the pattern, of whom the operating revenue for the year 2004 and 2013 was not higher than ten thousand euro's. After the filtration have remained 2908 companies. These companies have been clustered based on their accounting system: whether they prepare the financial statements on IFRS or national accounting basis.

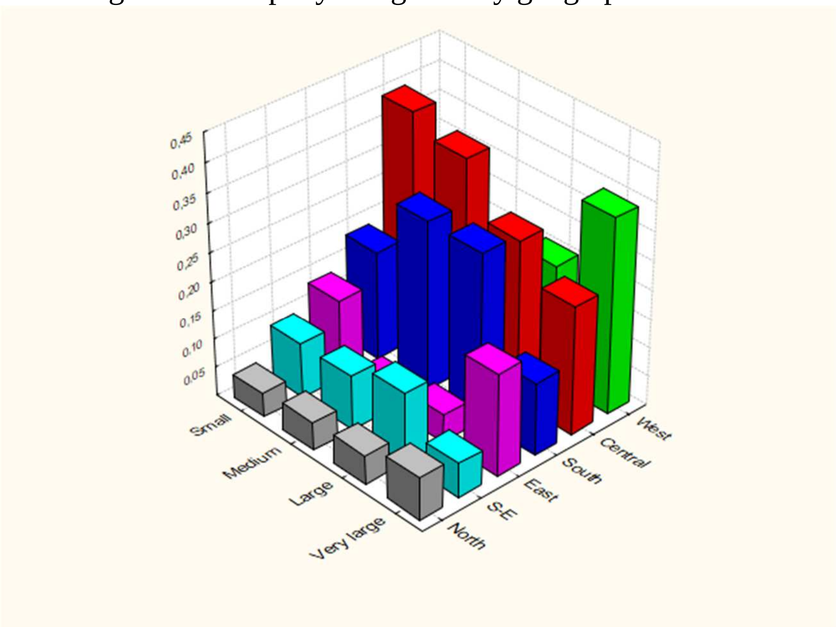
In order to assess the impact of different accounting treatments, we examined some income statements and notes of top 10 country's large and very large companies, to reveal form and content of disclosures of revenue and gambling tax.

3. GAMBLING INDUSTRY IN EUROPE

Examining the companies by countries, we noticed that at least half of the gambling companies are small companies, and there are countries where we found no small or medium-sized companies at all. In Monaco and Montenegro, we found one large company, in Belarus we found two gambling companies classified into the large category. In Greece, there is a notable lack of small companies representing only 9% of gambling companies. Nearly one-third of companies in the very large category are registered in the United Kingdom (27%), while 17% are run in the Russian Federation, then in Germany, the Czech Republic, Italy, and Malta. Combining the large and very large categories, we can declare that most large companies operated in the United Kingdom, in Spain, and Italy. Among the Central European countries, Romania with 51 and the Czech Republic with 40 large companies are also in the top 10.

Regarding company sizes by regional distribution, we found significant differences between the regions, but at the same time, the associative relationship was weak. The result of the Chi-squared test was $\chi 2 = 557.3$, $p=0.000$, but Cramér's V was 0.1, which indicates a relatively weak relationship between the two factors.

Figure 2: Company categories by geographical areas

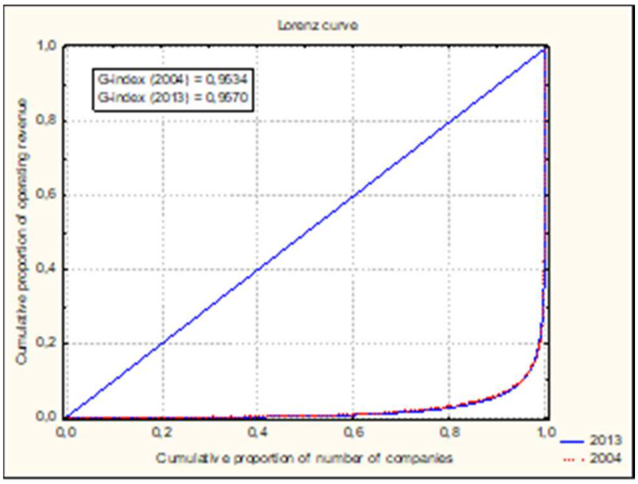


Overall, we can declare that in the Western and Northern regions the large and very large company categories are more typical; in Central and Eastern Europe, we find mainly mid-sized and small companies; and in Southern Europe, there are more mid-sized and large companies. More than half of the online companies examined are located in the Southern region, while in the Western region two-thirds of the companies are large and very large companies.

Regarding company size, the majority (79%) of companies are small, while only 5% of companies belong to the categories of large and very large companies. At the same time, examining the data on operating revenue, we perceive an inverse relationship. Small companies represent less than 5% of the annual operating revenue, while the fair proportion of the large and very large companies is approximately 90%. These ratios suggest that the gambling market is highly concentrated.

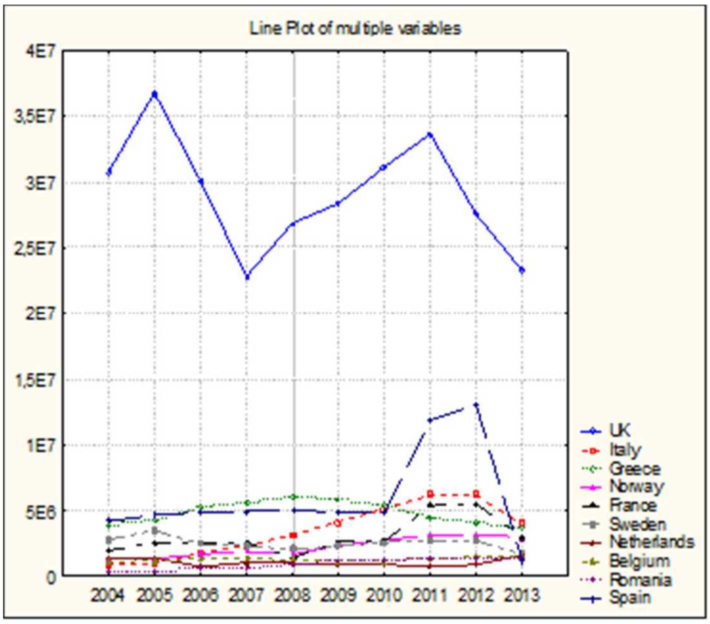
Illustrating the data in 2004 and 2013 on a Lorenz curve, we can see that the curve is almost the same in the two years: both of them show a very high concentration. Gini indexes exceed the value of 0.95, which indicates exceptionally high concentration. In this context, nothing has changed over the ten years: concentration has been the same year by year.

Figure 3: Lorenz curve 2013 and 2004



The highest operating revenue through the analyzed period is generated in Western Europe, followed by the Northern region, and finally in the Central region. According to activity, analyzing the data in 2013, we found that 44% of the total revenue was represented by only 13 companies of mixed type; which is almost as much as the revenue of 129 land-based companies. Filtered by country, the highest operating revenue is generated in the United Kingdom, exceeding all other countries in the period examined. Almost 50% of the total revenue in 2013 was earned by those British companies that rank first; including a mixed company, whose revenue represents 80% of British revenues.

Figure 4: Top 10 countries based on operating revenue between 2004 and 2013 (in EUR)



4. RECOGNITION OF GAMBLING REVENUE AND TAX

Concerning revenue and gaming tax recognition, empirical results show notable differences in the European domestic and IFRS statements.
In Europe, gaming taxes are generally levied progressively by ranges based on gross gaming revenue expressed by percentage, except Hungary and Poland, here we can find a fixed percentage. [17]. We found countries such as Lithuania and the Republic of Estonia where there are fixed taxes. Generally, for online activities, the tax rate is lower, compared to the tax rate of land-based activities. [17]

Some of the companies recognize gambling tax as an expense, while other companies deduct it from their revenue. For the countries examined, recognition of the gambling tax as a sales tax—thus the deduction of it from their revenue—is applied in Italy and France. Recognition of the revenue is on a net basis; thus bonuses, allowances, benefits, and tax should be deducted from the amount of the revenue from the products and goods sold and services provided. In other countries, gambling tax, similar to other operating taxes, is recognized as an expense.

Our empirical results show that recognition of the gambling tax as an expense is applied in UK, Spain, Switzerland, the Republic of Estonia and Hungary, although the ways of recognition are not uniform: in UK and Switzerland gambling tax is part of the cost of sales, in the Republic of Estonia, Spain and Hungary it is recognized as a separate operating expense.

According to the domestic regulations on accounting and the IFRS standards, the contents of the revenues differ, as where gambling tax is recognized as an expense, the revenue is higher by the amount of the gambling tax in the financial statement.

5. DISCUSSION

For the users of financial statements, revenues of a company are indicators of the financial performance and position or prospects of an entity. The different accounting methods are essential not only for the determination of the market share but for comparison with other countries' companies as well. High gambling tax in the indicators may cause a massive distortion, and it may affect users significantly in their rational decision-making. In the European gambling industry, in order to reach comparable results for the revenue-based key indicators, it may be necessary to correct the amount of revenue.

Comparability of financial statements plays a prominent role in the decision-making of current and potential investors, creditors and other users. For those users of financial statements, the revenues of a company are the main indicators of the entity's financial performance, position or future prospects. Information included in the financial statements is crucial to the stakeholders' decisions.

This study calls attention to this special service sector and the impact of applying different accounting treatments when preparing financial statements on the different underlying specifications. Not only the presented forms, but the contents differ from each other, shadowing the clearness of information used by decision-makers. If specific accounting guidance or interpretation for the gambling sector existed, it would enhance the transparency of financial statements.

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APPENDIX

Table 1: Tax rate and base in casino industry (data sources: [17], [18], [19])

	Casino nominal tax rate	Casino tax base	Company nominal tax rate	Company tax base
Germany	up to 70% 30% of the profit	net revenue profit	15% normal rate (15.825%, Including the solidarity surcharge). 14% - 17% municipal trade tax	accounting profit
Denmark	60% o	net revenue	23.5%	accounting profit
Austria	57,5	net revenue	25%	accounting profit
France	57,2 %	net revenue	33,3% standard rate	gross operating profit
Luxembourg	45%	net revenue	15(reduced rate)/19%(standard rate)	accounting profit
Poland	45%	net revenue	19% (standard rate)/15% (reduced rate)	accounting profit
Latvia	at least EUR 533.000	license fee	15%	accounting profit
Malta	29%	net revenue	35%	Taxable income includes inter alia, gains or profits derived from a trade or business;
Spain	40,5%	net revenue	25% general rate special rates for banks 35%	accounting profit
Portugal	40%	net revenue	21% standard corporate tax rate. 17% reduced rate to small and medium -sized enterprises.	accounting profit
Estonia	18%	net revenue	20% of the gross amount of the profit distribution	Corporate income tax applied to company's distributed profits (in lieu of an annual Corporate tax).
Belgium	17,6%	net revenue	33%general rate reduced rate for small and medium -sized companies at certain circumstances	accounting profit
Greece	33%	net revenue plus different types of other tax rates and concession fees	29%	accounting profit
Hungary	21,66%	net revenue on average	9%	accounting profit
United Kingdom	21%	net revenue	19% regular rate 25% for artificial arrangements of profit to avoid the UK 28% at capital gains	Corporation tax is imposed on trading income, several baskets of non-trading income and capital gains.
Slovakia	fixed fee per annum	fixed fee	22% and 21% for tax periods 35% for taxable dividends received from a non -contracting state;	Accounting profit nondeductible and nontaxable items.
Czech Republic	13% of the profit	profit	19% regular rate 5% to basic investment funds 0% to pension funds	accounting profit

IN THE QUEST FOR COMPETITIVENESS: THE INFLUENCE BETWEEN FINANCIAL INDICATORS AND THE RATE OF COMMERCIAL PROFITABILITY (RCP) IN THE ROMANIAN RETAIL MARKET

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Abstract: *A major direction in Romanian retailing is the increasingly varied retail format available for the real consumer. Due to the new retail methods which developed in Romania in the last 3 years, the competition among the biggest retailers on the market is in a full growth, with still big development potential. The article focuses on how the financial indicators influence the rate of commercial profitability (RCP) in the Romanian retail market. Also, this paper provides a lot of tangible effects of the actual indicators on the RCP. To achieve these results, we used a series of correlations and a multiple linear regression in order to predict the effects of the financial indicators on RCP. Therefore, we have formulated a series of characteristic features of the retail companies in Romania through the RCP indicator and we have found that we have an extensive interaction between the financial indicators and the RCP of the studied companies.*

Keywords: *competitiveness, financial indicators, rate of commercial profitability, retail market*

1. INTRODUCTION

The FMCG industry (Fast Moving Consumer Goods Industry) has developed a lot in the last period of time, especially in the last 5 years, worldwide. This industry has had a big impact on global economy, especially in less developed countries from Europe, South Africa and Asia. Here, the development potential has reached a high level due to a great desire for development in every economic sector. As a conclusion to this affirmation, today, in almost every state, all over the world, there is a lot of "new markets system" which allows you to serve yourself, go through the shelves and select what you want to purchase.

Lately, we can see a new trend regarding retail store locations. They are located in big or small cities, near customer's houses, with easy walking distance, easy to access for everyone, stretched all over the city place. Regarding this trend, we could discover a series of determined factors, which lead to this big increase in Romanian markets in this sector, especially when we identified that in last 8 years, it was an equal weight between modern and traditional trade in our country. (Deac et al., 2016). Due to increasing purchasing power, the changes in people's

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consumption comportment and the development of modern trade, the Romanian retail market is on the rise and could be the best East-European retail market in the future. (Retail-FMCG.ro, 2017)

2. PROBLEM DESCRIPTION

Retail industry, in Romania economy, is being considered one of the most developed and largest sectors, registering the highest increase of the retail volume from the entire Europe in 2018, until now. After a careful analysis at the beginning of 2018, we've found out that the value of Romanian retail market is over € 20 billion. The last official statements indicate that in 2017, FMCG sector contributed 6,9% to the GDP of Romania, which represent an amount over € 17 billion. The profits of international retailers in Romania is at the same time directly proportional with the volume of sales and also the price of the product itself, knowing that the most common practice in retail world is the lowest price technique. (Ryu, J., Pistikopoulos, E.N., 2007)

Being a profitable industry, with an efficient distribution network, with a big presence of a multinational corporations and a lot of good competitors, FMCG is and will be one of the main engines of the global economy.

The quantitative indicators such as fixed assets, current assets, number of employees, stocks, fiscal value, have a big influence to those qualitative indicators presented above and all of them have an important influence to our principal indicator, RCP (rate of commercial profitability). A laborious enquiry can explain that all the quantitative indicators presented above will directly influence our main indicator, especially the profit manifestation, because the companies need to maintain their capital in order to maximize their value on retail market, in Romania. (Pîrjol and Radomir, 2017). The objective of this study is to find out how the rate of commercial profitability will be influenced by all the financial indicators in retail companies in Romania. This study will focus on how financial indicators will influence the operational performance of Romanian retail companies, and how these indicators can contribute to obtain a better rate of commercial profitability in Romanian companies. This research will analyze the presented variables using the multiple linear regression model and through it will estimate the profit of every company at industry level.

3. METHODS

3.1 Data selection and research methodology

The elementary model was selected and tested by the variables that we've selected, which presents numerous companies that are existing on Romanian retail market. The data on the theoretical variables were selected from Romanian companies' reports that they send to the Romanian Finance Ministry over a period of three years, from 2015 to 2017. The selection segment was that the profit over five million EUROS and the turnover for these companies are over one billion Euros. After the applied criterion, it resulted that was selected 10 strong companies from Romanian retail market.

3.2 Selected Variables

In our research, the dependent variable was RCP (Rate of Commercial Profitability) because it's the strongest financial indicator with an immediate impact on selected indicators such as: turnovers, profit, total expenses, number of employees, liabilities, stocks etc.

3.3 Samples technique

The study highlight the influence of some indicators selected on the evolution of the Rate of Commercial Profitability (RCP) linked with Romanian retail marketers. For this, we've studied the following financial indicators that directly influence the RCP and how these indicators will develop the RCP in Romanian retail companies.

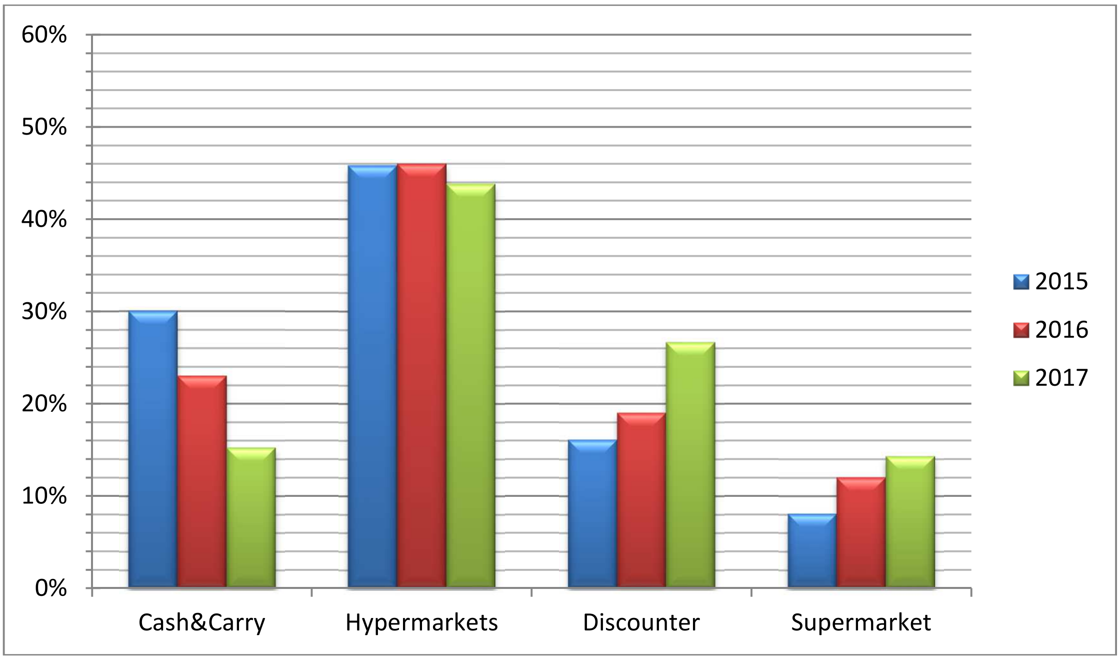
4. TYPE OF ANALYSES AND INTERPRETATION

First of all, we want to present the evolution of FMCG market in Romania during last 3 years of activities, and also the importance of the performance of Romanian retail marketers and their role in our community. FMCG market was divided in different strategic groups with specific characteristics, for every section. It was identified four types of strategic groups as follows: Hypermarket Group, Cash & Carry Group, Supermarket Group and Discounter Group. (Kahn et al., 1997)

Companies in *Hypermarket* Group, developed a trend that involves a large mass of consumers for which they can sell a different range of products, food and non-food goods, offering a varied and mixed range of products, in order to satisfy a huge diversity of desires. This generic group, included companies like: Kaufland, Auchan, Carrefour and also Cora, where number of employees is between 50 and 500 depending on the size and the location of the store. Companies from *Cash & Carry* Strategic Group, developed a trend that involves a business to business strategy, that support local shops and other small Romanian companies, shops that have exact sectors of professional development. Likewise, this type of companies has at least a number between 70 and 120 employees, depending on the size of the store. This strategic group included just 2 companies in Romania – Metro and Selgros.

The third category of companies, are the *Discounter*. They developed a trend that is characterized by a system of low prices accessible to all types of consumers, in order to meet their needs. Regarding the employees number, being a small store, placed in strategic position of every city, we can find a number between 10 and 20 employees. This strategic group included 3 important companies: Profi, Lidl and Penny. The last category of companies, are the *Supermarket.* They developed a trend that is characterized by a combination between simplicity, profitability and quality. In last 3 years, this type of companies, are more and more common, with a successful strategic position, with a lot of benefits for the final consumer. In Romania, in this category, we just have Mega Image, which is a new business model developed over the last 4 years, in all the big cities in Romania.

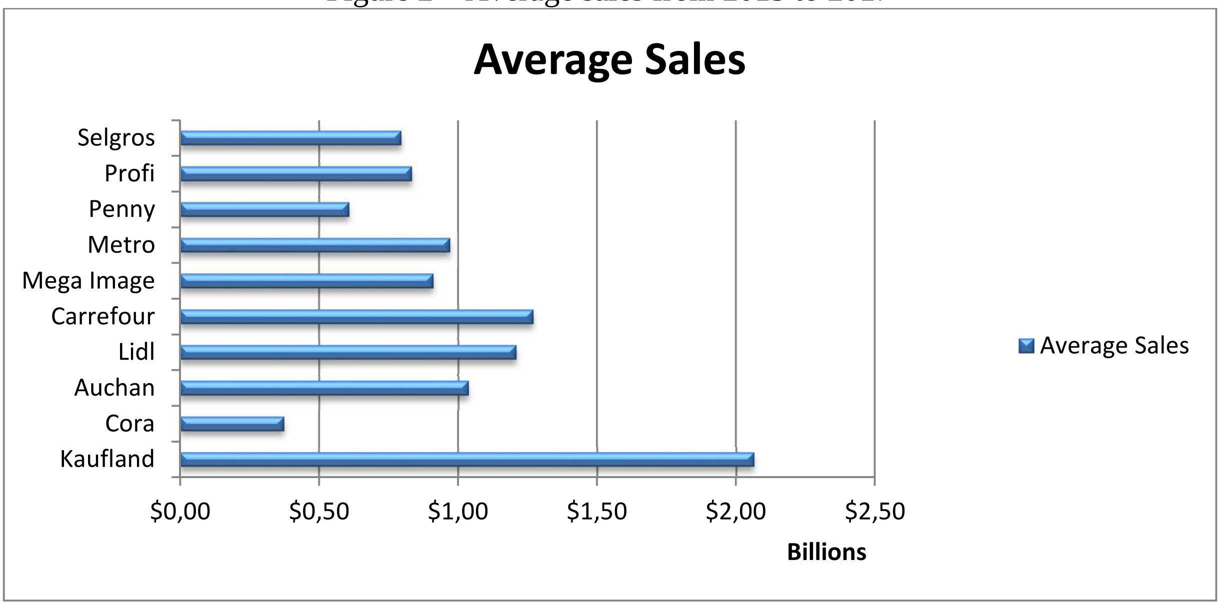
Figure 1 –How companies evolved through last 3 years depending on market share in Romania



Source: based on official statements from the Ministry of Public Finances

After a short review of the above figure, the strategic group named Hypermarket is the leader of this market, with an average score below 50% over the past three years analyzed. The Cash & Carry strategic group has shown a decline in the last 3 years, due to a small interest of the Romanian small businesses of this concept. On the other hand, we can see a big increase of the share market for the Discounter, due to big expansions that they have on small cities from Romania. Last but not least, it's the Supermarket strategic group, with a big increase in last year due to Mega Image expansion all over the Romanian territory.

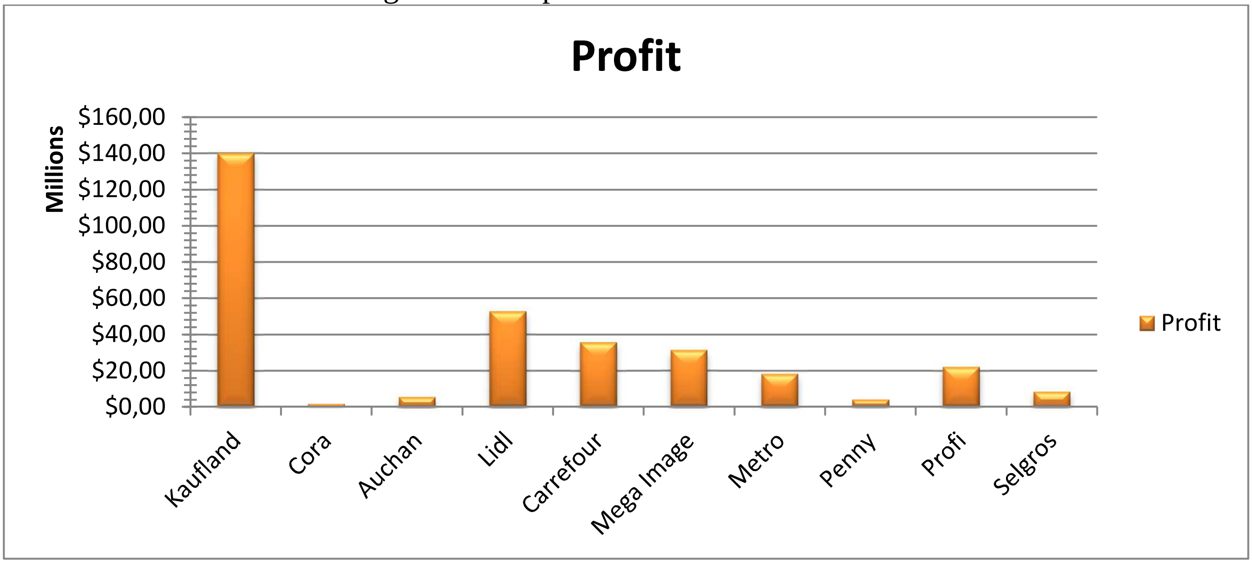
Figure 2 – Average sales from 2015 to 2017



Source: based on official statements from the Ministry of Public Finances

One of the most important and influential financial indicators is the overall performance of all the companies from Romanian retail market, through last 3 years. Figure 2 shows us, that the average sales of every company, from every strategic group. As we can see, it's a big gap between the first place, Kaufland, and the second one, Carrefour. Also, the highest level of average sales is held by Hypermarket strategic category. (Retail-FMCG.ro, 2018).

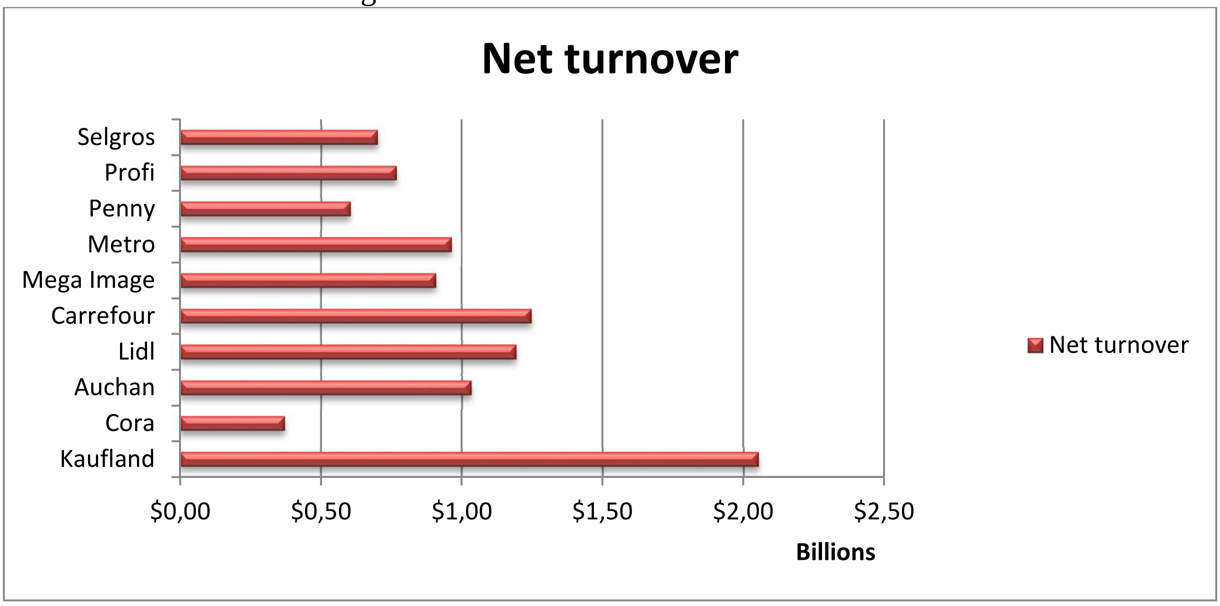
Figure 3 –Net profit from 2015 to 2017



Source: based on official statements from the Ministry of Public Finances

Through the last 3 years, the market profitability was around 3,5%. Figure 3 present that the strategic groups like Hypermarket have a profit above average and they can compete with the other strategic markets because they have the best balance between sales and profitability. On the other hand, Cash & Carry segment recorded for the analyzed period a net profit below average, but a good one compared with the trend that is seated nowadays, when Hypermarkets and Supermarkets are in the top of the list of all the consumers.

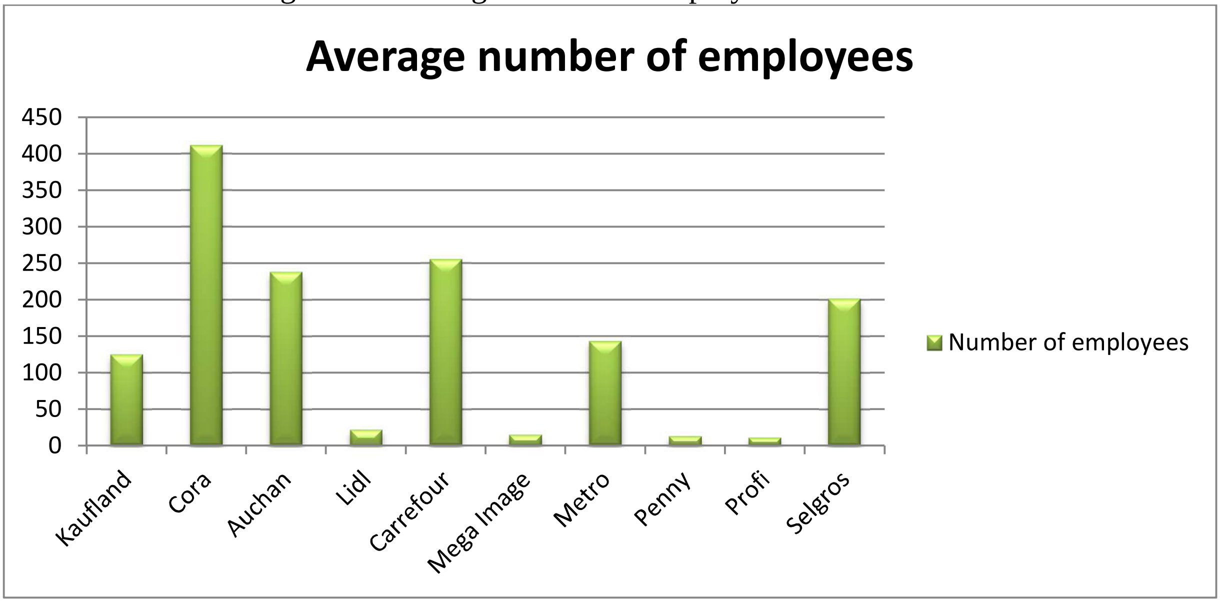
Figure 4 – Net turnover from 2015 to 2017



Source: based on official statements from the Ministry of Public Finances

Figure 4 present us the net turnover from 2015 to 2017 based on official statement from the Ministry of Public Finances from Romania. As the trend was presented, we can see a gap between the Hypermarket strategic category and other categories. The net turnover has a great impact in setting the main competitor on the retail market and how the retail market will develop in the future.

Figure 5 – Average number of employees 2015 to 2017



Source: based on official statements from the Ministry of Public Finances

Figure 5 presented the average number of employees from 2015 to 2017, showing that the two categories of these strategic groups, Discounters and Supermarkets have a low number of employees, depending on the location, compared with the other two strategic categories. Remarkably, after a comparison between the number of employees and the profit figures, it has been identified that Mega Image obtained the largest profit compared with other stores, with the lowest number of employees.

Furthermore, data were tested to see if they were distributed normally and if we could use this linear regression to obtain some conclusions regarding the influence of financial indicators to RCP. To find out if the tested data were normally or not, we decided to use the Shapiro-Wilk test, to discover if the data is significant (for all data to be significant, p value need to be under .05). (Shapiro and Wilk, 1965; Razali and Wah, 2011)

Table 1 summarizes the result of the correlation between the financial indicators that influence our principal indicator (rate of commercial profitability – RCP). R square for our regression model has a value of .994. This indicates that 99.4% of the rate of commercial profitability can be predicted using following eight indicators (rotation speed, loss rate, loss per employee, net profit over gross profit, net profit per employee, gross profit per employee, fixed asset rate, work productivity). Following these identified values, we acknowledged that this is a strong relationship between RCP and the other indicators.

Table 1 - Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.997[a]	.994	.972	.34042	1.534

Source: Authors, statistical analysis of collected data

Table 2 summarize how our eight financial indicators influence the RCP and present which of them are significant and how. As can be seen in table 2, of the eight analyzed indicators, just two of them had a significant statistical influence on RCP. The regression model presents that at the level of FMCG markets in Romania, if the working productivity increase by one unit, our dependent variable, RCP, decreases with -.000004. In the same time, when the net profit per employee increase by one unit, our dependent variable increases with .000142, with a positive relationship between them.

Table 2- Multiple linear regression results with RCP as dependent variable and financial indicators as independent variables

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	9.323	4.359		2.139	.166	-9.433	28.079
	Fixed assets	-.007	.015	-.088	-.491	.672	-.072	.057
	Work_ prod	-3.803E-006	.000	-.555	-4.420	.048	.000	.000
	NP/BP	-.069	.047	-.328	-1.454	.283	-.272	.135
	Loss per empl.	.001	.004	.521	.218	.848	-.018	.020
	Loss rate	-5.099	18.049	-.687	-.283	.804	-82.759	72.561
	Net profit/ empl.	.000	.000	1.328	8.025	.015	.000	.000
	Rotation speed	-.001	.001	-.432	-1.848	.206	-.005	.002

Source: Authors, statistical analysis of collected data

Considering our regression model, we will assume that of the eight studied indicators, two of them have a powerful influence on RCP variable, as we shown above. Regarding ANOVA, we've identified it is statistically significant (Sig = .021) which means that the indicators chosen to predict the RCP have a significant influence on the dependent variable. Also, the value of Adjusted R is .972, meaning that 97,2% of the dependent variable is influenced by the independent variables that we've studied and analyzed, and the P (sig) is less than 0.05 so the regression is statistically significant.

Table 3 – ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	37.220	7	5.317	45.882	.021[b]
	Residual	.232	2	.116		
	Total	37.451	9			

Source: Authors, statistical analysis of collected data

5. CONCLUSION

Our study exposed how some financial indicators could influence the rate of commercial profitability on FMCG retail companies in Romania. From the total number of indicators that we've studied, the paper showed that just two of them, net profit per employee and working productivity influence to a greater or lesser the rate of commercial profitability in this study. An important notice is that some relevant financial indicators that we've thought would influence the dependent variable, number of employees and all the fixed indicators, have no influence on the rate of commercial profitability, according to our model used above. At the beginning, we thought that more independents variables will influence the RCP variable, in order to identify how companies can increase their competitiveness and how they will try to improve their financial indicators. (Cârstea et al., 2017). Based on the research, it was identified that the Hypermarket strategic group maintain the largest of sales on Romania FMCG market, for the analyzed period. This is still happening through years, even if the Supermarket strategic group has encountered a colossal rise in last two years. Unfortunately, the Cash & Carry strategic group shows a small decline through years, and that's not a good sign for their stock market.

Also, this paper is not just a small analyze of some financial indicators. It's more than that. It suggest some managerial implications that the Romanian companies should not stop over analyzing just some standard indicators to find out how they can improve their rate of commercial profitability. (Schiffman et al., 2004) As we can see, the RCP is influenced by only some independent variables, and the variables that we thought were significant, weren't. In order to formulate a strategy, FMCG companies need to focus on find how financial indicators will influence their RCP and how can keep or change some indirect variables in order to be more profitable.

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THE SELECTION OF STOCKS USING PRINCIPAL COMPONENT ANALYSIS

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Abstract: *The purpose of this paper is to show how principal component analysis (PCA) can be used to construct the most efficient portfolios. Due to the large number of existing variables, it is difficult to perform statistical analysis of data, but PCA will help us in choosing the best performing shares. Through the PCA we will show the utility of this statistical method in the selection phase of the data. For this study we decided to select a number of representative companies for four central European countries: Czech Republic, Poland, Germany and Austria. The main objective of this analysis is to identify the most important factors indicating the most profitable shares, so we have considered a number of five financial indicators, representative for the selected firms.*

Keywords: *Stock selection, principal component analysis, diversification, data reduction, variance*

1. INTRODUCTION

The principal component analysis will help us in choosing the best performing shares, by reducing the original space to a smaller one.

In the first phase, we selected a group of shares traded on the stock exchanges in the Czech Republic, Poland, Germany and Austria. Due to the large number of existing variables it is difficult to perform statistical analysis of data, but principal component analysis will help us in choosing the best performing companies traded on the stock exchange. With this statistical tool we will reduce the initial space to a smaller one. The main purpose of this analysis is to identify the most important factors indicating the most profitable companies.

Subsequently, by applying a statistical size reduction method, we will obtain a number of shares to be as the most performing ones, which could be used to build optimal portfolios.

2. LITERATURE REVIEW

Fulga, Dedu and Serban [1] have developed an algorithm that takes into account the pre-selection of the financial titles and their allocation phase, collecting information for a total of 40 assets traded on the BSE. The procedure approached by the authors allowed them to build a diversified portfolio and improve the optimization algorithm.

The method of Principal Component Analysis was applied to three subgroups of stocks of the American index Down Jones Industrial. The authors showed the benefit of the PCA model in optimizing portfolio investments to achieve the best results and financial control [2].

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Ngai and Cheng [3] described and demonstrated the applicability of two multivariate statistical techniques, principal component analysis and correspondence analysis, as analysis tools for quality professionals. Authors showed that these simple but powerful techniques can facilitate the tasks of quality practitioners, who are frequently concerned with the detection and interpretation of relationships among a given set of quality data.

Meriç, Ding and Meriç [4] use the principal component analysis method to study the global portfolio diversification opportunities for investors of seven developed and twenty emerging stock markets.

The authors selected a total of 12 listed companies and calculate their various financial indicators using the principal component analysis of the SPSS software for the financial performance, evaluation and analysis method [5].

Yap [6] investigates the application of principal component analysis in the selection of financial ratios that are significant and representative for two industry sectors in Malaysia. The aim of Yap`s study is to use principal component analysis in order to obtain a more parsimonious and useful smaller set of financial ratios from the many available ratios that are found in the literature.

Another principal component analysis was applied on Australian market to show the value of the method. The study show that highly correlated stocks tend to remain highly correlated over long periods of times. Therefore, the results of this type of analysis can be used by investors to manage their portfolio [7].

By applying three data analysis techniques such as principal components analysis, cluster analysis and discriminant analysis to the data regarding the petitions that were registered by the insurance companies which activated in the Romanian market, Armeanu et. all obtained a classification that assesses the insurance market transparency [8].

3. DATA AND METHODOLOGY

The application we are proposing to illustrate - PCA - the size reduction, will be done on a sample of four Central European countries for a number of 5-8 variables.

The financial indicators selected for the principal component analysis are for the end of 2017 and are taken from the Thomas Reuters database.

Depending on the availability of the financial indicators (at the end of 2017) for the selected companies, we decided to take into account the following:

- for the Czech Republic we considered the following financial indicators: total return (TR), dividends per share (DPS), earnings per share (EPS), market capitalization (MC), total debt (TD), dividend yield (DY);
- for Poland we considered the following: total return (TR), dividends per share (DPS), earnings per share (EPS), total debt (TD), BETA, dividend yield (DY), market capitalization (MC), earnings before interest & taxes (EBIT);
- for Germany & Austria we considered: total return (TR), dividends per share (DPS), earnings per share (EPS), total debt (TD), BETA, dividend yield (DY), total assets (TA), earnings before interest & taxes (EBIT);

These fundamental indicators are used in the analysis of securities on the capital market:

- ✓ The **BETA coefficient**- is a measure of the volatility of a financial instrument or of a portfolio as a whole;
- ✓ **EBIT**- represents the gross surplus before tax deduction and interest expense deductions. After the payment of interest and profit tax is resulting the net profit used for the creation of own funds and shareholder remuneration results;
- ✓ **EPS** - one of the most used indicators is earnings per share, that is, a way to report the market value of a share with the returns to a common share;
- ✓ **DPS** - this indicator expresses how many cash units of cash dividends are paid per share in one year;
- ✓ **DY**- is an important indicator for investors who are interested in dividend shares;
- ✓ **MC-** is the market value of all company shares and a very good indicator of the size of a business;
- ✓ **TD** - a set of goods possessed in money and in nature or all the money resources invested in a business;
- ✓ **TR -** the ability of a firm to achieve revenue or, in other words, the ability of an enterprise to generate a surplus over expenditure.

4. RESULTS

Next we apply the Bartlett test of Sphericity which compares the correlation matrix of a random vector with a normal multivariate distribution with the unit matrix - a matrix with correlations equal to 0, except for the main diagonal, which has all elements equal to 1, since the Pearson linear correlation coefficient of variables with itself is equal to 1.

Table 1: Bartlett's sphericity test

	Czech Republic	***Poland***	***Germany & Austria***
Chi-square (Observed value)	21.39	53.85	45.66
Chi-square (Critical value)	3.94	16.93	16.93
p-value	**0.02**	**0.00**	**0.02**
alpha	0.95	0.95	0.95

The test's interpretation is:

- H0: There is no correlation significantly different from 0 between the variables;
- Ha: At least one of the correlations between the variables is significantly different from 0.

As the computed p-value is lower than the significance level alpha=0.95, one should reject the null hypothesis H0, and accept the alternative hypothesis Ha.

For all countries analyzed, the p-value of Bartlett's sphericity test is less than 5% and therefore we will reject the null hypothesis.

Czech Republic

First, for each variable we will calculate the main descriptive statistical selection indicators, such as: mean and standard deviation.

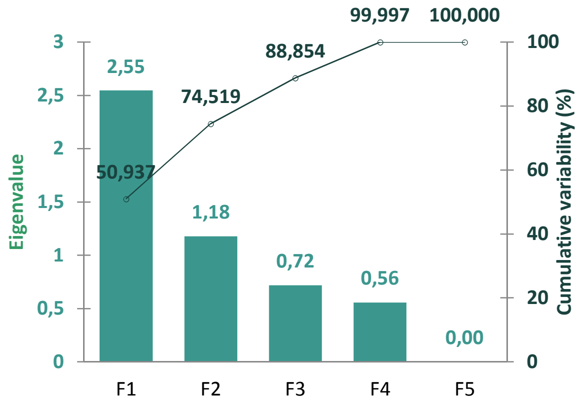
Table 2: Descriptive statistics of indicators

Variable	*Mean*	*Std. deviation*
TR	836.53	779.30
DPS	197.50	432.67
EPS	234.88	507.32
TD	49,055,612.33	61,191,792.76
DY	5.85	3.84

In the table 2 we have the standard deviation and the average. The standard deviation indicator records high values about in all cases, which could mean that that there is a high amount of information in the initial space. The higher the standard deviation, the more companies analyzed are very different from each other. Also, high levels of standard deviation can be explained by strong correlations between the original variables.

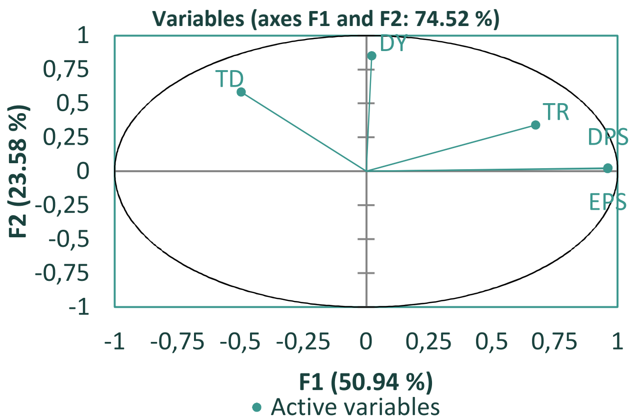
According to Kaiser's criterion, the number of principal components required to be taken into study is given by the number of eigenvalues strictly larger than 1.

Figure 1: Eigenvalue



According to the coverage percentage criterion (Timm) [9], the aggregate information of the main components should retain about 70% - 80% of the total information. Figure 1 highlights the share of information that each principal component takes as a proportion of its cumulative total. Thus, the first principal component takes up 50.94% of the total information. The second principal component explains 23.58% of the total dispersion, and cumulatively, the first two principal components take up 74.52% of the total dispersion.

Figure 2: Correlations between variables and factors



In Figure 2, the factor matrix elements are represented, which are the correlation coefficients between the original variables and the main components.

The first main component is strongly correlated in positive way with the TR, DPS and EPS indicators, and the second component is strongly correlated in positive way with TD and DY. The first principal component will provide us with information about their ability to generate profit and profitability. The second principal component will provide us information about their strategy of financing.

Table 3: Descriptive statistics of indicators

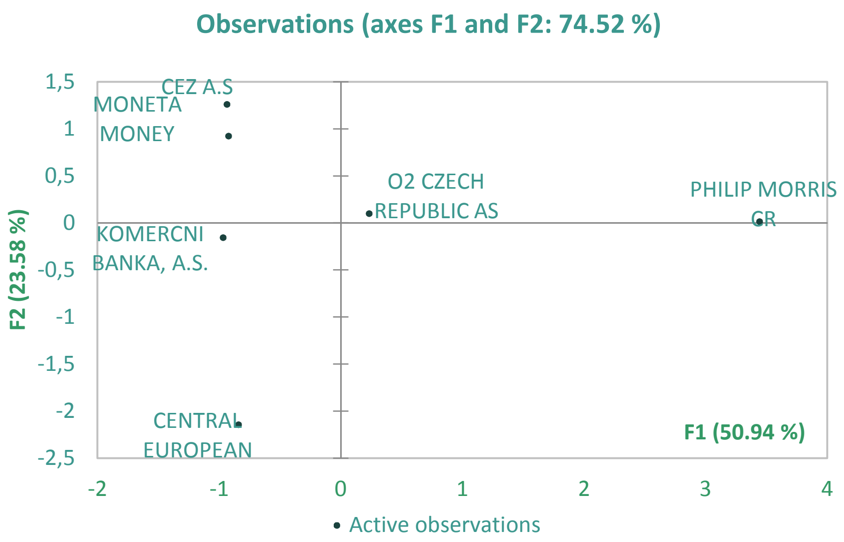
Indicator	*Communality*	*Specificity*
TR	0.57	0.43
DPS	0.93	0.07
EPS	0.92	0.08
TD	0.59	0.41
DY	0.72	0.28

A measure of how well the selected principal components explain the variance of each of the variables is given by a statistic called communality. In Table 3 we find the communality of the indicators representing the sum of the squares of the elements on the matrix factor lines, and the specificities represent the decrease between 1 and the communalities.

For DPS and EPS, communality is over 90%, this means that common factors are determined and the influence of specific factors is unrepresentative, representing less than 10% of the variance of indicators. Note that TR has the lowest communality, which indicates that TR is less well explained by the analysis than the other indicators.

In Figure 3 we note that PHILIP MORRIS CR and O2 CZECH REPUBLIC AS have the highest scores after the first main component. KOMERCNI BANKA and CENTRAL EUROPEAN have negative values of factors score.

Figure 3: Factor scores



Poland

In the case study for Poland we considered the following: total return (TR), dividends per share (DPS), earnings per share (EPS), total debt (TD), BETA, dividend yield (DY), market capitalization (MC) and earnings before interest & taxes (EBIT). We highlight the following descriptive statistics for indicators:

Table 4: Descriptive statistics of indicators

Variable	*Mean*	*Std. deviation*
TR	919.56	1,500.08
DPS	3.06	5.24
EBIT	2,790,362.73	3,011,643.35
EPS	6.11	7.12
MC	21,128,080.82	18,023,584.08
TD	9,844,252.73	10,379,277.62
BETA	0.92	0.37
DY	2.35	2.73

In Figure 4 we can see the correlation matrix's own values as well as the cumulative variance. Between all indicators only the first two are above 1, the rest being appropriate values of 0. From the above, we will have two principal components, being the only eigenvalues to have over-unit values: 3.431 and 2.324.

The two components explain 71.94% of the total variation of the initial space, which means that the reduction of the eight components to two records an informational loss of about 28.06%.

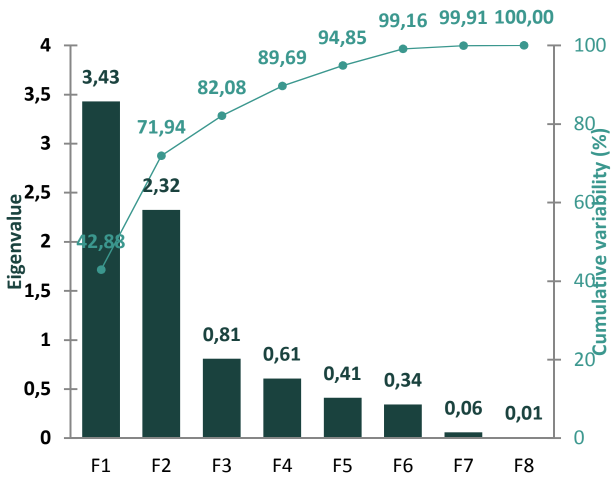


Figure 4: Eigenvalue

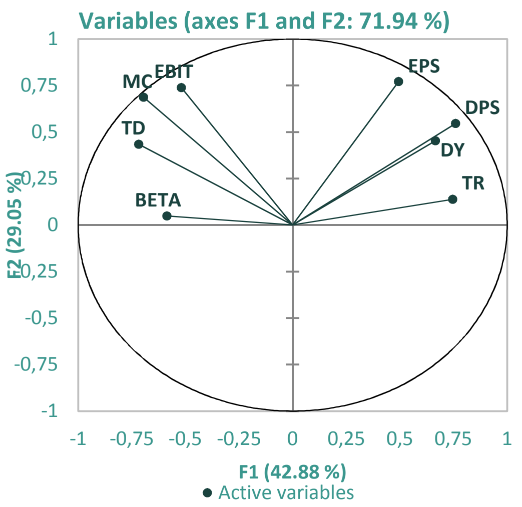


Figure 5: Correlations between variables and factors

The first principal component is strongly correlated in a positive way with the TR, DPS, DY and negatively with MC, TD and BETA indicators, and the second component is strongly correlated in a positive way with EBIT and EPS. Thus, the first principal component will provide us with information about the performance of the company in 2017, the size of the companies studied. The second principal component will provide us with information on operating profit and about the company's profitability.

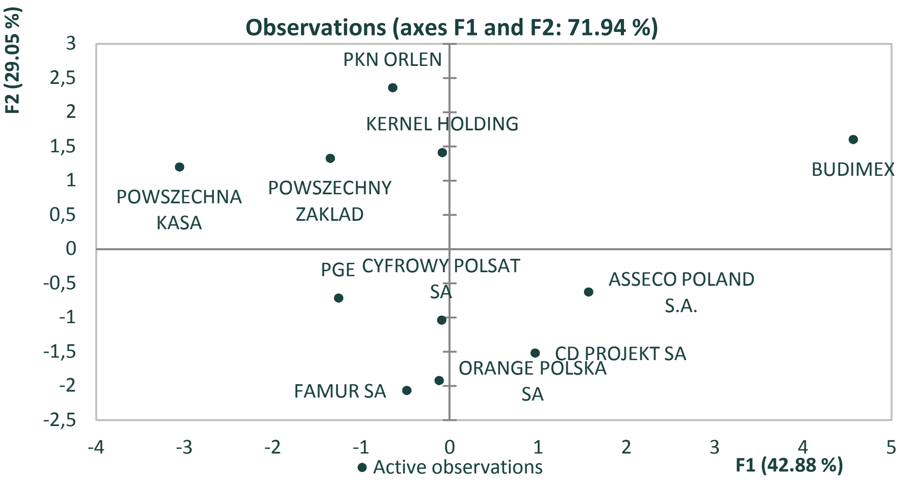
Table 5 Descriptive statistics of indicators

Indicator	*Communality*	*Specificity*
TR	0.58	0.42
DPS	0.87	0.13
EBIT	0.82	0.18
EPS	0.84	0.16
MC	0.95	0.05
TD	0.70	0.30
BETA	0.34	0.66
DY	0.65	0.35

For the DPS, EBIT, EPS, MC, TD and DY indicators, communality is over 58%, which means that the specific factors do not have a significant influence, which represents around 5%-40% of the indicator variance. The BETA indicator is more strongly influenced by specific factors (more than 60% of the variance indicators), as this indicator is more sensitive to the specifics of the company.

From the figure 6 we have three company classifications. A first class is made up of BUDIMEX - has the highest scores after the first main component, the second category being made up of FAMUR SA, ORANGE POLSKA SA, KERNEL HOLDING, CYFROWY POLSAT SA and PGE these recording negative factor scores.

Figure 6: Factor scores



Germany and Austria

In the case study for Germany & Austria we considered the following: total return (TR), dividends per share (DPS), earnings per share (EPS), total debt (TD), BETA, dividend yield (DY), total assets (TA), and earnings before interest & taxes (EBIT). We highlight the following descriptive statistics for indicators:

Table 6: Descriptive statistics of indicators

Variable	*Mean*	*Std. deviation*
TR	1,374.36	1,524.74
DPS	0.73	0.81
EBIT	2,099,109.70	1,767,560.69
EPS	1.49	2.94

TD	23,680,921.30	47,734,472.00
TA	89,652,202.30	141,071,118.05
BETA	0.94	0.51
DY	1.98	1.82

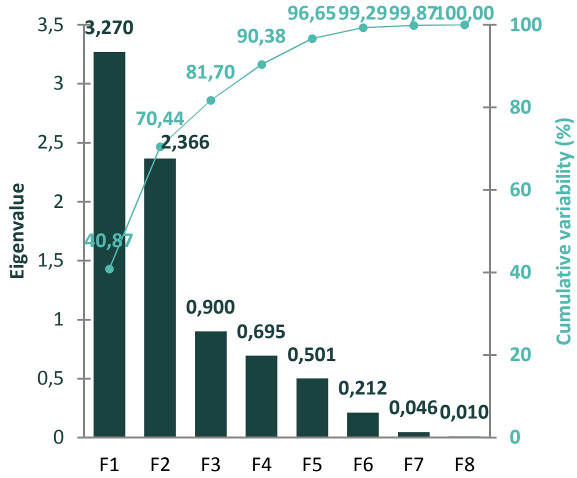


Figure 7: Eigenvalue

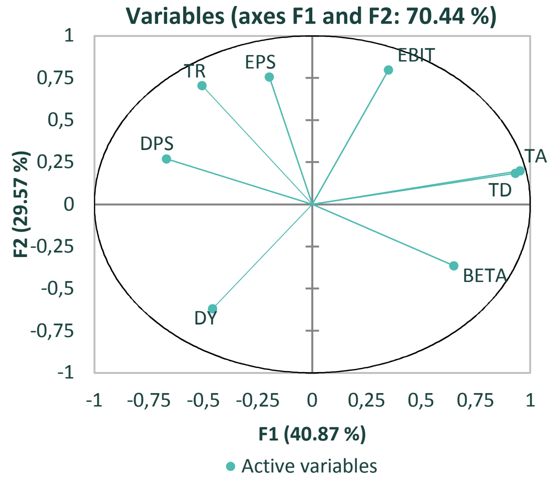


Figure 8: Correlations between variables and factors

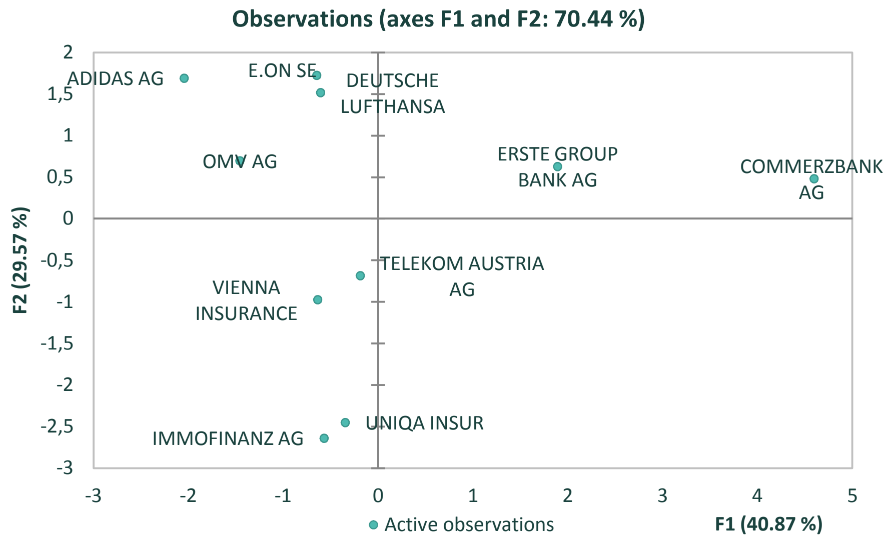
Only values above 1 are of interest because they have a richer information packet than the initial variables. The first two components account for 70.44% of the total variation. Of the eight values, only the first two components are over 1, the remainder having an appropriate value of 0. Out of the eight components, only the first two components are over 1, the rest are appropriate value of 0.

Table 7: Descriptive statistics of indicators

Indicator	***Communality***	***Specificity***
TR	0.75	0.25
DPS	0.52	0.48
EBIT	0.76	0.24
EPS	0.61	0.39
TD	0.90	0.10
TA	0.95	0.05
BETA	0.55	0.45
DY	0.59	0.41

For total assets and total debts, communality is over 90%, this means that common factors are determined and the influence of specific factors is unrepresentative, representing less than 10% of the indicator variance. These variables are influenced to a large extent by economic growth, capital market developments, etc., rather than company-specific factors. DPS and BETA are more strongly affected by specific factors - more than 40% of the variance of indicators, being more influenced by the company's specificity.

Figure 9: Factor scores



The first principal component is positively correlated with total debt, total assets, BETA, which means that companies with the highest scores on this component are the most performing in terms of these indicators. The second component is strongly correlated in a positive way with profitability, operating profit and negative earnings per share.

Taking into account the above, companies are distinguished according to each character. A first category includes COMMERZBANK AG and ERSTE GROUP BANK AG, another one includes IMMOFINANZ AG, UNIQA INSUR, VIENNA INSURANCE and TELEKOM AUSTRIA AG and another E.ON SE, COMMERZBANK AG, DEUTSCHE LUFTHANSA, ADIDAS AG, ERSTE GROUP BANK AG and OMV AG.

4. CONCLUSIONS

In this paper we showed that using a statistical size reduction method, we have succeeded in selecting actions more easily and efficiently. From the multitude of financial indicators that characterize the evolution of a company, we decided to use five indicators in the PCA. Based on the results of the PCA we made a classification of the selected actions. Through the PCA, we showed the usefulness of this statistical method at the data selection stage.

The theme addressed in this paper is of interest to both investors and the academic side. That is why we believe it is necessary to continue researching and discovering the best solutions and methods in efficient portfolios management. We plan in the near future to develop this analysis by addressing other selection methods such as discriminatory or factorial analysis in order to obtain a fair selection of assets.

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MARKETING TRENDS AND PERSPECTIVES ON THE BANK MARKET

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Abstract: *In contemporary business environment changes that are manifested through deregulation of financial operations, the strengthening of competition in financial services and development of the information system increase business risks both in the domestic and international markets. Basic business goals (financial gain, maximizing profit, growth, development, higher market share, risk avoidance) can only be achieved with maximum adjustment to the changes that are most effectively achieved by strategic management which is based on marketing principles that are focused on meeting customers need. Commercial banks must be market-oriented if they want to ensure survival, growth and development. This paper aims to show that modern banking goes into the process of transformation, especially banking management and business technology. Traditional banking is becoming less important when it comes to the efficient functioning of the financial system.*

Keywords: *Marketing plan, client needs, banking management*

1. INTRODUCTION

Until the mid-1950s, marketing was seen as being reserved for production activities, and as such bankers did not focus on it. It was only by the end of the 1950s and the beginning of the 1960s that the idea of utilizing marketing expanded to service activities as well. In our part of the world, the application of marketing in service activities (traffic, tourism, banking, insurance, etc) only began in the 1970s. Of course, this initial period of the application of marketing in service activities was not exactly about the concept of marketing, but about the concept of economic advertising and promotion [1]. The results were immediate; the banks that first began advertising managed to attract new depositors and thus increased their deposit potential. These activities affected the competing banks, which were forced to begin with the same marketing activities of their own as soon as possible. This competitive activity neutralized the advantages of the banks that began their advertising activities first. Customer orientation becomes a key aspect of a modern business which is being implemented in order to meet and to win loyal customers [2].

The primary aim of this paper is to raise the public awareness of the specifics of the application of marketing within the banking services sector and to support the successful implementation of business marketing philosophy. The secondary aim of this paper is to inform the public about the effects of marketing on modern banking and to provide answers to basic questions related to providing banking services to clients.

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2. MARKETING PLANNING IN A COMMERCIAL BANK

In market economies during the 1980s there was an increased need within banking and financial institutions for the use of strategic planning leverage as a means of reviewing the market position, and finding the most favorable methods for strengthening these positions in the future as a result of the deregulation of the financial sector, globalization and the increase in competition.

The main reason for planning is the lack of resources. Banks that operate on multiple markets are inevitably introducing a marketing plan that combines the creation of the bank's vision, a strategy for fulfilling this vision and the development of action programs that are used to define priorities, make decisions, set goals, and control the actions taken. Without it, the bank would have an unclear goal and would be unprepared to respond to the demands of its current clients, as well as to handle the task of battling the competition in the acquisition of future clients.

The starting point for marketing planning in banking is the analysis of the total supply and demand of financial services, as well as the projection of future changes in the structure of the financial system [3]. In this context, each bank, based on its own comparative advantages (such as their banking products and services, territorial distribution, capital base, human resources and IT capacities), projects the future strategy of its development in order to better understand the optimal directions of future development for the purpose of achieving a position on the market (in relation to the competition and the clients) that ensures the maximization of the profit margin, market share and share capital.

Four reasons for planning have been identified in business practice [4]:

1. Planning lays out the direction of the managers' course of action in a business bank. When the employees know the direction of the further development of the commercial bank, they are familiar with the content of their own contribution to achieving the set goals; they can coordinate their activities, cooperate with each other, and do what is necessary to achieve these goals. Without planning, departments and individuals hinder the commercial bank in moving efficiently towards its goals with their individual actions with varying purposes.
2. Planning reduces insecurity by forcing bank managers to look ahead, predict the results of these changes, and formulate the appropriate response. While planning cannot eliminate the occurrence of a change or risk, managers plan in order to anticipate a possible change and find the most effective response to it.
3. Planning reduces the amount of excess activity and secondary activities. When work activities are coordinated around established plans, the excess activity is reduced to a minimum, and inefficiencies can be corrected or eliminated.
4. Planning determines the goal and standards used for control. Through control, real business operation is compared with the goals, every significant deviation is identified, and all steps necessary for the making of corrections are taken.

3. THE ROLE OF THE BANK'S MANAGEMENT

Banking management recognizes the importance of achieving satisfaction with service users and the role employees have in securing this satisfaction, so their goal is to have as much competent human resources as possible [5]. The basic task of the bank's management, in coordination with the marketing manager, is to decide how best to utilize resources through planning, to which banking products and services they should be allocated, in which markets to operate, and which target groups to address in order to achieve the highest value, e.g. increasing the market share or gaining a shareholder. In addition, the management of the bank must be able to combine the skills and techniques of planning with a market concept in which the client is at the center of attention, because only then can the bank be expected to survive in the future under attack from the competition and under increasingly uncertain business conditions on the market. The result obtained with this proactive approach to create a marketing plan is the efficient and effective use of resources, the expertise and quality that customers can recognize and the profit that the shareholders expect. In this regard, it is very important for the management of the bank to see the marketing plan not only as one of the business elements, but as a driving force and the center of the entire strategic plan of the bank.

So-called Data Base Management is used more and more often for the needs of organizing and analyzing the data necessary in the process of creating and adopting marketing plans. It includes procedures for collecting, integrating, processing and storing information on the required areas from which data is to be collected [6]. One bank can form multiple databases and use them separately or combine data from different databases. Some databases can also be purchased by the bank from external suppliers. Regarding this, one of the important decisions that a bank should make is whether to independently form its own databases based on its own software, hardware and personnel capabilities, or to leave that task to specialized software companies. This decision will depend on the size of the bank, its technological equipment and personnel. If the bank is not prepared to allocate the extra resources to all of this, it is better to leave the databases to specialized external experts. However, in that case, there is a problem of control, which may be an issue if the databases are not managed internally. Also, if the bank provides data about its clients to an external specialized agency for the compilation and management of databases, the possibility of abuse arises, i.e. disclosure of information that is considered bank secrecy. Additionally, frequent database customization is often not possible if the databases are not located in the bank itself.

4. DEVELOPMENT POSSIBILITIES OF THE BANKING SECTOR

In considering its strategy for the coming period, a modern commercial bank should actively anticipate and monitor the trends and perspectives of the banking and financial markets in order to gain a competitive advantage. Banks are developing new and innovative products to adequately respond to changes that come from the environment [7]. These trends are most directly reflected in the innovation of products and services, distribution channels of sales and in the better satisfaction of the needs of the banking service users. In addition, commercial banks that monitor banking trends will be less likely to come into a situation where they have to correct their strategic and marketing plans in the process of implementing action programs due to a change in the situation on the market, or the actions of the competition.

Commercial banking today is trending towards the universalizing of business operations, i.e. offering a wide range of banking products and services to the economy and the public, where a desired mix of bank operations in these two key sectors must be considered.
The main arguments for the implementation of the universal business strategy in banking are [8]:

- -The strategy of cross-selling banking services,
- -Resilience to fluctuations in the rate of profit and growth,
- -The easier viewing of the client credit record.

5. SUGGESTIONS FOR THE IMPROVEMENT OF THE BUSINESS RESULTS OF BANKS

Based on the current situation and the observed trends in the banking market, we can provide certain suggestions that banks should follow in order to improve their operations. They are:

- The reduction of bank branch offices (number and size) with negative social, political and image-related repercussions;
- Focusing efforts on making each individual branch office economically viable;
- The developing of strong partnerships with retail chains;
- The transformation of branch offices that are intended for massive dealing with the public into Financial Shops, and those intended for clients with above-average earnings into Advice Centers;
- The extension of working hours in order to gain as many clients as possible;
- Changing the exterior look and design of branch offices in order to improve their sales;
- Moving the decision-making center from the headquarters to the periphery;
- Constant expansion of loaning;
- The development and fostering of long-term relationships with clients.

6. CONCLUSION

Keeping in mind the environment within which banks today operate, the acceptance of the concept of marketing is inevitable. In order to avoid risk during long-term arrangements with its clients, a bank must have a clear picture of those clients as well as of the expected events during the realization of these long-term arrangements. Risk minimization and successful completion of business can only be achieved by applying the concept of marketing. Every bank should be aware that, in conditions of increased competition in the deregulated market, they must not only retain existing customers and clients but also acquire new ones through the quality of their offerings.

In other words, the application of marketing is a necessity without which there is no rational and efficient achievement of goals and minimization of business risk. The market and the competition are the strictest judges who will punish even the smallest lapse.
Other than the existence of market conditions, for the marketing concept to be applied within a bank it is necessary for the bank to have a team of good experts (the management of the bank and the staff).

The highest degree of the implementation of marketing in banking is the so-called integral marketing, which includes marketing analysis, planning and control, that is, complex marketing management, coordinated with all of the other activities of the bank, whereby marketing integrates all of the other functions under a single goal: meeting the demands of clients while achieving profit and respecting social interests.
The winners in the ever escalating rivalry of today's financial institutions will be those banks that:

- Better anticipate the needs of their clients, in this case, financial services users;
- Show greater innovation, creativity and speed in terms of organizing, introducing and developing new banking products, services and banking technologies;
- Have better staff in the top management position;
- Provide cheaper and faster services for clients than the competitors.

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DIGITALIZATION AND CHANGES IN BANKING BUSINESS MODELS[187]

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Abstract: *Digitalization changes the relations structure in the banking sector and the business model of traditional banking, which becomes unsustainable, as combinations of new technologies and processes tears down the barriers between industry sectors, thus opening the financial market. This requires a change in business models, with trust of customer being an important factor of innovations success. This paper discusses the change of business models in banking sector in the context of Digitalization.*

Keywords: *Digitalization, Traditional Bank, FinTech, Business Model*

1. INTRODUCTION

Innovation and Digitalization of products and services have created conditions for change of ecosystem and transformation of the business models in the banking sector. Once a stable industry has become fragmented by and highly competitive environment, new competitors, different from traditional banks, have significantly changed the structure of the banking sector and recorded a remarkable share of revenues. Between years 2005 and 2017, number of new bank market participants to the European banking market was 1400 and they earned 6-7% of all revenues for that period, totaling to 54 billion Euros in 2016, which represents one third of new all banking revenues [3]. Digitalization changes the importance of traditional banks and raises three key issues: Openness, Collaboration and Investing [1].

Openness means Open Innovation [6] and Open Banking. Open innovation, as defined by Chesbrough [5], is the core of the digital revolution. For established banks, this means engaging in external knowledge capital, assets, technology solutions and often opening up its own intellectual property, and expertise to other innovators such as FinTech and BigTech (GAFA - Google, Apple, Facebook, and Amazon). This helps them to create new ideas, change organizational culture, identify and attract new skills, and discover new growth areas.

The Rules for Open Banking were proactively set by the European Union, through the new version of the Payment Services Directive (PSD2). When implemented, PSD2 opens the banking market and client data to third parties, such as competing banks, FinTech or BigTech. In 2018, 68% of banks were considering to invest in monetizing customer data, in order to launch open bank initiatives by investing [2].

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Investing in venture capital has always been the core of the innovation and now it applies more than ever. Addressing these issues creates challenges for banks, as they need to adapt their strategies and business models to these changes.

The innovation of the business model for their use with digital platforms cause that open innovation and value innovations are overlapping in order to develop new value for customers, that are willing to pay. The use of **digital** technologies will usually cause a **breakdown** of the original, dominant, business model and if other competitors also adopt a new business model, the whole industry will transform.

The current development of financial services in the context of digitization is often assessed as disruptive [15], [16], [17], which is debatable in the context of the Theories of Disruptive Innovation. Disruptive innovation, term created by Clayton M. Christensen [7], describes a process where a product or service initially starts at the bottom of a market as simple solution and then progresses trough the market, eventually force out established competitors. Innovation should ideally focus on improving the core business (incremental innovation), transformation of the core business (sustaining innovation) and disruption of the core business, leading to creation of new business (disruptive innovation).

The aim of this study is to examine and evaluate dynamic changes in the market of financial services in the context of digitization and assess the key aspects of the successful transformation of business models. The following has been identified as a supporting research question: Are FinTechs disrupting the banking sector?

Paper is a result of analytical and syntactical approach to analyzed topic. Based on a review of available literature discussing business models and digital platforms, transformative business model proposed by Kavadias [13], was chosen as the theoretical basis for the creation of conceptual framework, as the model identifies key aspects of the successful innovation, based on the connecting technological trends and market requirements. Emphasis of this paper will be on the relationship between traditional banking institutions and new market participants. Results of studies done by renowned institutions such as PwC, Deloitte, Accenture, WEF etc., have been qualitatively and quantitatively analyzed in this paper.

2. DIGITALIZATION OF FINANCIAL SERVICES

Banking has always been a demanding industry and the future will be even more challenging. Technologically supported financial innovations that could lead to the emergence of new business models, applications, processes or products, that are associated with substantial effects on financial markets, financial institutions and the provision of financial services are defined as fintech (without capital letters). [10] Companies, that use fintech for the purpose of providing one or more financial services, are called FinTech (with capital letters).

Significant technologies in the digital era, in which fintech excel include [4]:

- Data technology (analytics, AI, sensors, biometrics),
- Front-end interface (intuitive interface, gamification, advanced and virtual reality),
- Technology to improve traffic (automation, chatbots, blockchain),
- Infrastructure technologies (platforms, clouds, open APIs).

These advances in technology and an ever-wider range of new market participants facilitate the division of the value chain and speed up creation of the gap between production and distribution, which complicates the control and management of hundreds of billions of transnational transactions around the world [12].

WEF [17] identified 11 clusters in 6 areas of innovation exerting pressure on traditional business models:

- Payments: Emerging Payment Rails, Cashless World
- Market Provisioning: Smarter, Faster, Machines, New Market Platforms
- Investment Management: Empowered Investors, Process Externalisation
- Insurance: Insurance disaggregation, Connected Insurance
- Deposits & Lending: Alternative Lending, Shifting Customer Preferences
- Capital Rising: Crowdfunding.

Successful innovations are those innovations that may qualitatively and quantitatively use customer data on digital platforms, while they are not held back by regulation costs. These changes in market trends intensify the pressure on the transformation of business models.

3. BUSINESS MODELS

The digital economy has set a trend towards usage of business models based on platforms that allow cognitive analysis of customer data, eliminate unnecessary costs, and promote free or low fees for products and services, which threatens traditional bank fees and revenue. The digital banking interface enables **ecosystem collaboration** and **asset sharing**. 80% of banks cite implementation of a digital transformation program as a business priority for 2018 [11]. Sharing reduces entry barriers to industry from other sectors. They do not have to own the assets, but still may share the selected assets within the supply chain. Sharing typically occurs at a bilateral marketplace, which makes available added value for both parties. At the same time, regulators' actions have contributed to opening the market and embracing competition.

Banks will have to choose whether they will own of the interface or take a different role in the banking ecosystem. This may also mean a shift, from the current revenue generation model based primarily on interest margin, to a model based on fees or profit shares, which also mean possible loss of control over the client interface due to product separation and distribution. Delliote identified 4 options of possible outcome [9]:

1. **Bank as provider of services.** This model is a status quo. This could be a good way only for several dominant players with strong brands.
2. **Bank as infrastructure provider.** In this model, an existing bank would no longer provide a user interface or bank products. Instead, banks would generate revenue from providing technology services for online platforms and banking service providers. Banks could, for example, provide service features such as Know Your Customer (KYC), although this may not be the preferred option for today's traditional banks, it may be a choice for banks without a strong established brand.
3. **Bank as a product provider**. In this model, the bank gives up control of the client interface and competes by using the strengths of its products. Banks gain access to clients through third-party platforms or competitors.
4. **Bank as a client interface provider.** In this model, banks retain control over the user interface and remain the main interface for clients and their financial needs. However, they will no longer provide their clients with their own banking products and services. Instead, they will offer products and services through their own interfaces from different providers, including other banks, new players and financial and technology companies, allowing clients to freely choose their preferred third-party products.

This is already happening today in the asset management sector with emergence of retail investment platforms. This option would require banks to adopt a new business model. Existing banks considering this route would benefit from their strong, established brands. This option, however, is the most demanding choice in terms of technologies necessary for real-time integration with the ecosystem of third-party providers as well as advanced data analytics capabilities. Banks can act as a combination of these options, with the strategic alliances of traditional banks and FinTech playing a significant role. Thanks to their strong brand, expertise and experience, traditional banks will benefit from entering this new the market early.

4. COLLABORATION

For FinTechs and traditional financial institutions, there are two basic options - to work together or make own way. FinTechs' cooperates with traditional banks mainly in order to gain access to bigger customer base. More than 70% of FinTech's investments are realized in segments of individuals and small and medium sized enterprises (SMEs) that accounts for around half of the profits in banking sector [2]. The focus is in particular on mobile applications such as mobile point-of-sale solutions, cross-border payments and lending, blockchain technology and wealth management. FinTech's offer is usually highly personalized.

Three quarters of FinTech still need and prefer co-operation with traditional banks. They consider it to be advantageous for the following reasons: greater visibility through partnership with a strong partner, obtaining economies of scale, gaining customer's trust, better distribution of own infrastructure, access to capital. Most of the FinTechs wants to work on its own, some want to be taken over by other fines and only a minority wants to be taken over by a traditional company. When it comes to co-operation, White Label solutions are preferred in 66.4%, integrated in-house solutions in 65%, full outsourcing is next, fintech using API and in-house solutions alone are last [4]. On the other hand, FinTech see following as the main obstacles to collaboration: rigidity of traditional banks, the unwillingness to co-operate, cultural differences, regulation, IT compatibility and product cannibalism.

Despite the fact that FinTech undoubtedly change the structure of the banking sector, they have not fundamentally disturbed the competitive environment, yet. Banks maintain market leadership due to three factors that work in their favor [8]:

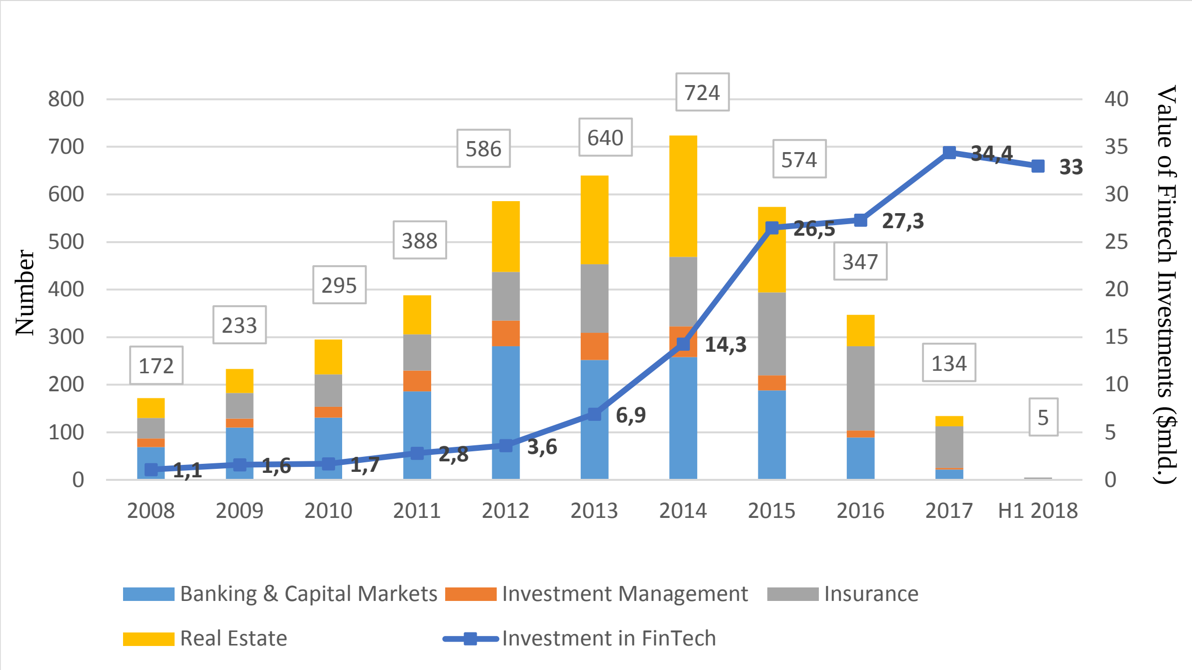
- Regulatory barriers to entry
- The natural inertia of customers to switch
- The capital to absorb, partner with, or replicate fintechs.

It is estimated that banks spend roughly 60% of their IT budgets for maintaining older IT systems, only 24% for development and 16% for innovation [14]. The strategic partnerships of traditional banks with fintech help banks differentiate not only by the quality of the online portal but also by the scope and nature of provided services. On the one hand, fintech represent opportunity for established banks to strengthen their market position and differentiate, while on the other hand they require banks to adapt to the agile workflow and innovative pace of new market players.

5. INVESTMENTS

Investment trends in FinTech changed significantly during 2008-2017. Between years 2008 and 2014, the number of newly founded FinTech rose from 172 in 2008 to 724 in 2014, which is more than 4 times increase [9]. In 2015, the first drop was recorded, this trend is still present (see Figure 1).

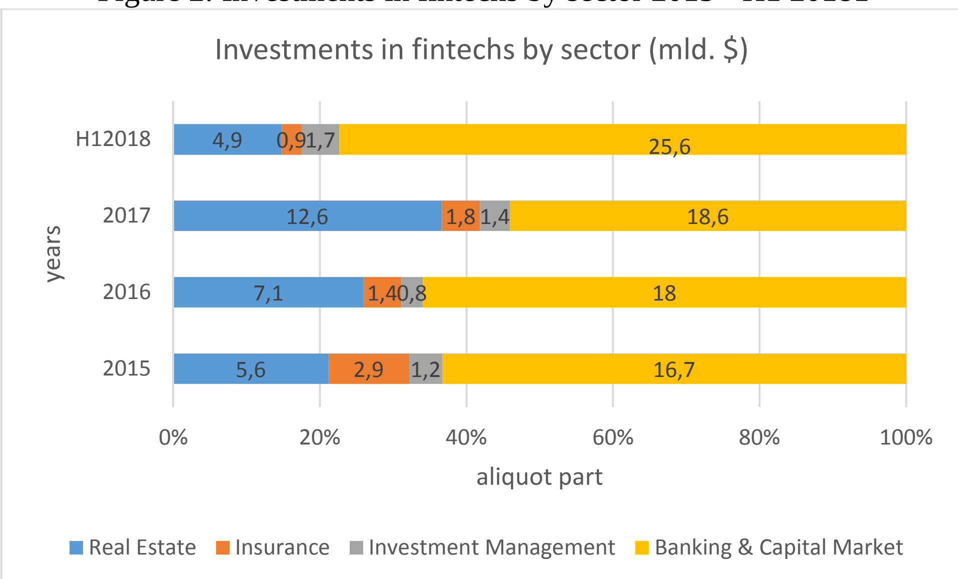
Figure 1: Number of FinTech companies founded by year, 2008–H1 2018



Source: Author based on [10]

In spite of the decrease in the number of new FinTechs, the volume of investments in FinTechs has significantly increased (see Figure 2). The biggest disparity between declining number of new FinTechs and volume of investments was recorded in the Banking & Capital Market sectors. The sharp drop in the number of newly founded Fintechs was caused by increased investors' demands, not only for technical and know-how but also for management. Investment focus shifts from "cool" generic ideas to comprehensive solutions, to specific issues and investing in experienced companies.

Figure 2: Investments in fintechs by sector 2015 - H1 20181



Source: Author´s based on [10]

FinTech's knowledge of technology and technical know-how still largely outweighs what they do not know about the financial industry and successful partnerships based on the fact, that each party has more to gain than to lose by cooperation. Successful partnerships require a holistic approach to challenges, ranging from understanding the challenges, focusing on innovation, agility and risk mitigation, common goals and clear visions.

CONCLUSION

Digitalization is not a one-time event, but rather a sustained pressure towards innovation, that will shape customer behavior and the long-term structure of the sector of financial services. The challenges resulting from Digitalization of financial services have opened up the banking ecosystem and changed the basic rules, which requires adequate transformation of existing business models.

We identified four key aspects of success in the financial sector, based on the Kavadias's transformative business model: personalization, asset sharing, cooperative ecosystems and agility. It confirms the real transformation changes in the financial services sector and offers commercial opportunities for banks.

Traditional banks proactively cooperate with FinTech, which really opens them with considerably more opportunities. Banks are mainly focusing on improving products and services for customers, reinforcing relationships with key customers. This could be considered as sustain innovation, yet not a disruptive innovation, according to the theory of disruptive innovation. FinTech tries to gain a customer base in the bottom parts of the financial market or try to create whole new market, but it is not enough to compete against traditional banks with an established brand history, an existing customer base and above all, experience in the industry. The biggest risk to the existing model so far presents global GigTech. Elimination of these risks depends on the regulations of the financial market, competition rules and safety standards of financial services.

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CORPORATE GOVERNANCE IN BANKING INDUSTRY: REVIEW AND RESEARCH PERSPECTIVES

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Abstract: *Banks have an essential role in the development of the economy. The following characteristics of banks distinguish them from all other companies: opacity: the quality and characteristics of bank assets, and in particular of loans, are not easy to assess by outsiders; regulation: the banking sector is traditionally ruled in a very strict way; maturity and risk transformation: banks facilitate the matching between demand and supply of capital by making risk appetite and liquidity of the surplus units which offer funds (typically households) compatible with that of the deficit unit which ask for funds (typically companies); mitigation of the asymmetric information problems between surplus units and deficit units; negative externalities: crisis of a single intermediary can sometimes extend to the entire financial system turning a circumscribed problem to a situation of systemic instability.*

This paper aims to review the recent academic research concerning the corporate governance (henceforth CG) in the banking sector along the following theme areas: a)study of the relation between the CG indicators and the performance of banks; b) investigating the relation between CG and the risk appetite of banks; c) study of the relation between the type of CG and performance or success of M & A.

The present paper suggests some ideas for future research by identifying some interesting areas which are little or unexplored at all. The first interesting theme area could be the study of the relationship between CG and the intensity of regulation/supervision on the banking sector. The presence of a strong governance and an effective internal control systems could make a strict regulation unnecessary, which on the one hand seems necessary to prevent abuse at the expense of competitors and investors, yet on the other could make the markets which adopt it unattractive. A second potential source of empirical research could be the analysis of the relation between CG parameters and types of funding instruments or types of lenders in order to figure out which is the most efficient form of financing and what kind of governance can attract a certain type of lender and / or the greater amount of funding in absolute terms.

Keywords: *Financial intermediation, Corporate finance, Banking Industry.*

1. INTRODUCTION

The academic research concerning the corporate governance (henceforth CG) in the banking sector has developed along the following axes: study of the relation between the CG indicators and the performance of banks; investigating the relation between CG and the risk appetite of banks; study of the relationship between the type of CG and performance/success of M & A. For each of these areas of study this paper will proceed to an analysis of the more recent and significant contributions grouping them in as many sections as the theme areas identified.

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This paper is focused on the most recent research by selecting those published from 2000 onwards.

2. CORPORATE GOVERNANCE AND PERFORMANCE OF BANKS

Studies in this research domain share the attempt to find, through an empirical analysis, a link between the characteristics of banks, in terms of governance, and their performance. In some cases, the empirical analysis of banks was carried out during the financial crisis (2007-2010) involving the banks, in other cases, in the immediate aftermath of the banking crisis, when it seemed to transform into a crisis of sovereign debt of some European peripheral countries. Some authors point out that strong governance goes hand in hand with good performance while others find that this relation is not significant or even inverse.

In this area it is worth mentioning the work of [1] which, by analyzing a sample of 62 US commercial banks included in the S & P 1500 during the crisis from 2005 to 2010, shows that a strong corporate governance has had a positive effect on the performance of institutions. Yet the results of the analysis of the relationship between corporate governance and the returns of listed shares of the institutes do not seem unambiguous. Another interesting study place able in this area was carried out in 2011 by [2], analyzing a sample of 236 US commercial banks in the 2005-2008 period obtained mixed results about the relationship between strong CG and performance. In particular, CG indicators (including the degree of ownership concentration, the size of the board, the age of the board members, the presence of anti-take-over devices, the frequency of meetings of the board) individually studied, may show significant relations with performance, but considered as a whole reveal an ambiguous effect on performance itself. The authors however, based on the results of their study question the inevitability of conflict of interest between ownership and managers by stating that a rapport of trust between shareholders and management is still possible. This study also provides empirical support for the need to provide banks with an adequate amount of equity capital, by noting a negative effect of leverage on performance, and the need for the rewards and incentives of managers are weighed against risks. Another article about these issues is the one by [3], that by examining a sample of 69 large commercial banks from 6 different OECD countries find a positive and significant relation between board size and performance, proportion of non-executive board members and performance, as well as the number of annual meetings of the board and performance. In substance, the authors find that a greater emphasis on these three prerogatives of the board improves the quality of supervision of managers by the board and reduces conflicts of interest. The fact that the relation between performance and respectively the size of the board and the proportion of non-executive members of have a parabolic form, confirms there is an optimum point for both the size and the number of non-executive members; after this point the value and the profit performance of the bank diminish rather than increase. Financial businesses characterized by a strong ownership concentration than others in the pre-crisis period showed no negative performance during the crisis.

[4] investigate the relationship between the CG and the operating performance of a sample of 68 US bank holdings in 2007. The performance is measured through the CAMEL indicator which synthesizes 5 parameters (capital adequacy, asset quality, management, earnings and liquidity) also used by the Federal Deposit Insurance Corporation, in its reports come to the conclusion that all corporate governance indicators negatively affect the operating performance of the BHC except for the number of board committees and for the role of the auditor which shows a positive association with the performance. The explanation for the negative association is attributed to the fact that non-executive board members have little knowledge of the

operational dynamics of the BHC and the banking sector. [5] try to investigate the reasons for the disappointing performance in a sample of 164 large banks belonging to countries adopting schemes of deposit insurance during the period of the crisis (2007-2008) .The authors come to the conclusion that those reasons have little or nothing to do with the quality of corporate governance; performance (thus considered as the dependent variable) rather showed an inverse relation with the extent of leverage and risk. The researchers show that countries with less strict supervision and regulations, higher GDP, a more concentrated banking sector, and without schemes of deposit insurance, are those which have performed worse. Paradoxically, the concept of being “shareholder friendly”, which conventionally is considered an indicator of the quality of governance, implies the poorest performance, and fails to obtain commendable implications of conduct and guidelines for the governance policies

3. CORPORATE GOVERNANCE AND RISK-APPETITE BY BANKS

In this theme area, academic studies share the attempt to find, through an empirical analysis, a link between the characteristics of banks in terms of governance and their risk appetite. The study of the existence and direction of the causal relation has produced divergent outcomes.

Standard agency theories suggest that ownership structure influences corporate risk taking [6]. Bank managers with private benefits of control will tend to advocate for less risk taking than stockholders; so greater cash flow rights by the largest owner are associated with greater risk.

The Basel Committee on Banking Supervision (2010) point out that poor corporate governance may contribute to bank failures and the ownership structure plays a key role in this dimension.

The best governance practices recommended by the Basel Committee to face banking risks are: having a risk-dedicated board committee; having a majority of independent BoD members; and CRO be part of the bank’s executive board. It is possible to group Bank Risk in four main categories [7]: insolvency risk of the counterpart (credit and settlement risk); operative risk; market risk sortable in interest risk for liabilities in general and non listed securities, price risk for listed securities and exchange risk; and inflation risk. Earlier literature on risk management did not include the interdependence between the various risks. Only in the 1990s, the academic literature started to focus on an integrated view of risk management.

[8] focused on outcomes in terms of risk stemming from the conflict of interest between ownership and managers in a sample of 300 banks from 48 different countries. The two scholars showed that a greater power of the owners in terms of governance and a greater concentration of ownership of the bank corresponds to a greater risk appetite of the bank itself, by measuring risk through the index Z Score. The authors state that regulation affects the relationship between risk appetite and the bank's governance structure; in particular the relation between strength of governance and risk tolerance, although still positive, appears weaker in economies with stricter rules for the protection of shareholders. [9] analyzed the relation between the use of governance garrisons against the risk and the performance on a sample of 372 US banks during the 2007/2008 crisis. The authors deduced that in those governance structures where the CRO reports to the CEO, equity returns and ROE are significantly higher than others, yet they are likely to not pay adequate attention to risk in the management agenda because of the potential conflict of interest between the CEO and the CRO. The banks whose boards took more risks before the crisis witnessed a performance below average during the crisis. Relations between the other CG indicators and performance do not appear significant, and even in the case of size and independence of the board they are negative. The authors suggested putting the CEO and

the CRO on an equal footing; in doing so, they can both report directly to the board, although this is likely to entail a slight deterioration in performance.

[10] examines in more detail the effects of the board structure on the extent of the risks assumed by banks in reference to a sample of 212 US bank holding companies. This scholar found that strong boards (with more distinctly aligned behavior with shareholders interests) determine a greater risk propensity; the opposite happens with a stronger CEO than the board. In summary the author suggested submitting those banks in which the interests of managers and shareholders are more aligned to a closer monitoring since shared interests would expose banks to excessive risk.

[11] analyze a sample of 249 western European banks in the period 1999-2005; the authors pointed out that in the case of concentrated shareholding banks in which a clear separation between ownership and management does not occur and in which for the shareholders it is relatively easy to monitor the performance of management, the ownership structure influences the risk appetite. Risk appetite and likelihood of default are higher in banks in the shareholding of which institutional investors or non-financial companies have a greater weight compared to those in which individuals, families or other banks have a predominant role. This, according to the two authors, is due to the fact that the latter have a lower chance of diversifying its investment portfolio compared to institutional investors and therefore fewer incentives to take risks. They show that changes in the ownership structure in banks with a broad shareholder base do not influence the risk.

4. THE TYPE OF CG AND PERFORMANCE/SUCCESS OF M & A

Most of studies on M & A reveal disappointing returns for the shareholders of acquiring banks involved in M & A which would stem from poor governance arrangements that fail to adequately safeguard shareholders from the adverse effects of M&A bids [12], although standard economic theory, argues that M&A occurs because of their potential in cutting costs and/or increasing revenues.

The Agency Theory succeeds in finding a number of possible explanations for the disappointing outcomes of performances of M & A: firstly, it can be assumed that senior executives overestimate their ability to perceive and realize the potential gains from a merger (Hayward and Hambrick, 1997); the second one is that managers engage in M&A in order to pursue their own self-interests even jeopardizing the corporate value [13]. The third is that, since senior executives cannot diversify their human capital invested in one single firm, they try to diversify the portfolio activity of the firm through M&A in order to minimize the variance of company’s returns and consequently the risk of losing their job [14]. Shareholders who, on the contrary, have the opportunity to diversify their portfolios, consistent with CAPM's theory, [15] receive no benefit from such a company's specific risk mitigation strategy.

The authorities’ sensitivity of the importance of banks for systemic stability implies that, almost universally, hostile takeovers are a rarity in banking as most banks bids require regulatory approval**.**

The disappointing results of M & A in the banking sector, especially in view of the shareholders of the incorporating bank, have often been attributed to an ineffective CG, unable to adequately protect shareholders. [16] have analyzed some large-scale European or US banking mergers and discovered that nine of them report a negative outcome, one a positive outcome, and three a neutral outcome. The negative results of these studies are difficult to reconcile with the standard economic theory, which suggests that M & As have an intrinsic potential for cost reduction and revenue growth. The Agency theory has produced a number of possible explanations of reasons why managers can use their discretion to undertake M & A which is not maximizing the value of the banks involved as above summarized. The most important governance variables that can re-align the interests of bank executives to those of shareholders, as identified in the US market, can be grouped into three categories:

I. *Executive remuneration* [13]: long-term management remuneration incentives could function as an insurance, for shareholders of the incorporating bank, against excessive merger premiums.
II. *Board composition* [17]: in order that a BoD can effectively counteract egoistic managerial behavior - as in is the case of acquisitions at the expense of shareholder wealth - its independence from management must always be guaranteed [18] by balancing insider and outsider members of the board [19]. In the banking sector, supervisory bodies assume the role of external controllers, while independent directors (entitled to the control of management discretion in most other economic sectors) have a very limited role in reducing agency costs [17]. Ultimately, the independent BoD members do not appear able to protect shareholders from the negative effects in terms of value of mergers between banks.

III. *Board diversity* [20]: in the case of non-financial firms, empirical evidence suggests that diversity (ethnicity, gender) in board composition increases the effectiveness of monitoring and attenuates agency costs [20]. However, in extant literature, it is still difficult to find an analysis of the effects that the variety in the composition of the BoD has on a bank's performance. A possible solution to strengthen the role of the board could be to provide specific M & A. Committees within the national self-discipline codes of the CG M & A committees should be part of the board and consist of independent directors. It is conceivable that the M & A committees put additional pressure on management in order to evaluate the effects of acquisitions in terms of value more accurately. Secondly, supervisory authorities should consider loosening some of the restrictions on types of M & A transactions executable by banks.

5. CONCLUSION

At the end of this review although brief, yet we hope sufficiently exhaustive, about governance in banking, we would like to suggest some ideas for future research by identifying some interesting areas which are little or unexplored at all.

The first interesting theme area could be the study of the relationship between CG and the intensity of regulation/supervision on the banking sector. The presence of a strong governance and an effective internal control systems could make a strict regulation unnecessary, which on the one hand seems necessary to prevent abuse at the expense of competitors and investors, yet on the other could make the markets which adopt it unattractive [21]; this is particularly true at a time of extreme capital mobility where states and their national markets are driven to compete almost as private companies to get caught up capital. From this perspective, it might be interesting to study relations between types of CG frameworks in the banking industry and the efficiency of the financial markets or the cost of capital. This approach would help identify the most efficient geographic areas or states and their peculiarities, thus providing useful policy suggestions to those states which want to increase their attractiveness to investors.

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THE EFFECTS OF RISK IN BANK GOVERNANCE - CREDINS BANK CASE

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Abstract: *The focus of this paper is the exposure of banks to various risks, how they affect the bank's benefits, to what extent, what are the results, what are the theoretically said, and what are the risks to which the banks "scared" the most.*
Based on numerous studies carried out by different authors, the risks to which a bank is exposed are classified in macroeconomic risks and in specific risks that arise from bank activity itself.
In this study, we have focused on the three main risks that a bank faces most, namely the interest rate risk, exchange rate risk and credit risk. We have taken into consideration respectively the spread of the interest rate on loans with the deposit interest rate, the euro exchange rate, the dollar exchange rate and the ratio of bad debt provision to total loans to individuals.
For further analysis of these risks and for measuring their impact on a bank, it is reasonable to assume that a bank's profitability, as a benchmark for bank performance, bank shareholder returns, and a an important indicator of the effect of banking activity on a country's economy.
On the basis of the linear regression built with the help of the E-views were answered questions raised and on the basis of regression coefficients we have received an answer regarding the extent of the impact of each of the above-mentioned risks in the bank's ROE, Credins Bank.

Keywords: *exposure to risk, interest rate risk, exchange rate risk, credit risk, bank.*

Introduction

The banking system in Albania plays a key role in the development of the economy and the country. It is the main channel of funds from the subsidiaries to the deficit entities, which it performs through the provision of banking products, respectively deposits and loans. Because of the importance that the banking system has in our country, the study and treatment of the risks to which this system is exposed is an issue that deserves special care and treatment.

The main focus is exactly the banks' exposure to different risks, as these risks affect the bank's benefits, to what extent these risks are affected, and whether the results match theoretically and what is the risk to which banks are "scared". For the study of this link we will concentrate on the impact these risks have on bank ROE as an important indicator of the benefits and performance of banks as a whole. For the realization of this study, as an example bank is taken Credins Bank and we will use a linear regression as a suitable model to identify the link between different variables.

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The E-Views program and the Excel program were used for model building. For the construction of the model, the annual reports published by Credins Bank have been taken into account since 2003 (the year of the establishment of the Credins bank) and until 2015, statistics published by the BoA regarding deposit interest rates and of credits over the years and statistics published by OPEN DATA regarding exchange rates.

Based on the correlation coefficients, the factors are ranked by importance in the descending order in such a way: the ratio of bad debt, the interest rate differential of the deposit interest rate and the exchange rate at euro. The most important factor, is the bad debt ratio, which we have calculated as the ratio of provisions for lost loans to total loans granted to customers, which means The higher the ratio, the greater will be the negative impact it has on the bank's profitability, namely the Return on Equity.

Objective of the study

In this context, the main objective of the study is to identify the risks that affect the bank's profitability. Other specific objectives include:

1. Realizing an empirical analysis at the level of a second tier bank
2. Through empirical analysis we find the extent of the impact of different risks on the bank's profitability in the study
3. To draw conclusions and make valid recommendations regarding the bank being analyzed.

Research question

To achieve the objectives set out above, we have raised some questions that will help us in obtaining the answers we seek. The research questions raised are:

1. What are the risks to which banks are exposed?
2. How do these risks affect the bank's profitability in the study?
3. How big is the impact on profitability?

The hypotheses of the study

In accordance with the required objectives and research questions, hypotheses are also formulated that will assist us in the realization of our study and will be presented in more detail in the third chapter of this paper. The study's hypotheses relate to theories related to bank profitability that have been developed over the years by banking sector researchers and other empirical studies related to profitability in banks. The three hypotheses formulated and assisted in drawing conclusions are:

H01: The difference between the credit interest rate and the deposit interest rate does not have a direct impact on the profitability of the bank
Ha1: The difference between the interest rate on loans and the deposit interest rate has a direct impact on the profitability of the bank
H02: Bad debt does not have a direct impact on the bank's profitability
Ha2: The bad debt has a direct impact on the bank's profitability
H03: The Euro Exchange Rate does not have a direct impact on the bank's profitability
Ha3: The Euro Exchange Rate has a direct impact on the bank's profitability

Model and definition of variables

To carry out the study, we will use a linear regression as a suitable model to identify the link between different variables.

In the regression in question, the subordinated variable (Y) is the return on equity (ROE), calculated as the ratio of net profit (profit after tax) to the total share capital. Regarding the independent variables, we suggest that as macroeconomic factors are selected:

- Spread (the average interest rate spread of the loans with the average interest rate on deposits);
- Exchange rates in euro, As a banking factor it was selected;
- The ratio of provisions for bad debt to total loans.

Regarding the variables, return on equity (ROE) has been selected as a floating variable, as in a bank, as in any other business, the major exposed entities are its shareholders and the ROE best reflects the fluctuations in the benefits shareholders depending on independent variables.

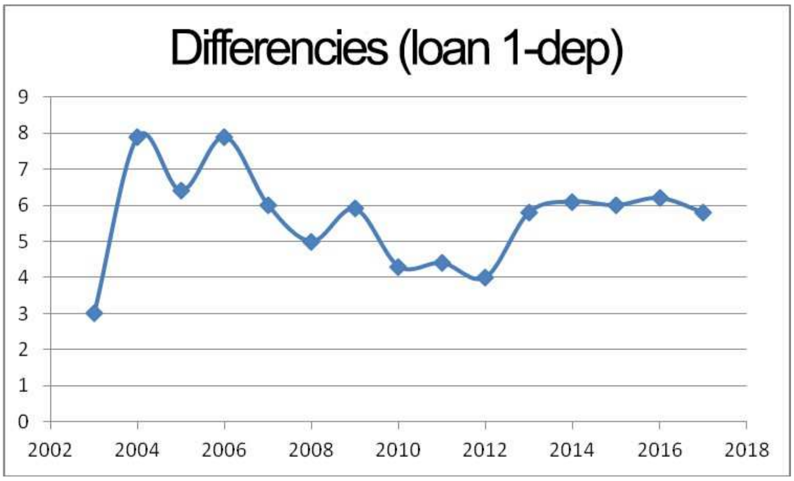
Since banks are businesses whose main earnings are credit or lending interests, and one of the banks' expenses are deposits interests, it is precisely selected as one of the independent variables the average interest rate spread of the loans at the rate of the average deposit interest (spread-in). The expansion of the markets, the globalization of the economy, has made banks and other businesses expanding their activity in other countries, thus exposing them to exchange rate risk. Given the fact that the Credins bank, the largest number of foreign currency transactions in the euro and the dollar, these two courses for independent variables are exactly selected.

Another problem faced by banks is the exposure to credit repatriation, which has to do with the risk of non-payment of liabilities by borrowers. For this reason, the bad debt ratio with the total of loans is another independent variable that has been taken into consideration. The period of the work study includes a relatively long period that goes from 2003 to 2015.

Independent variables.

The performance of interest rates on loans and deposits. We emphasize that the average interest rates on loans and deposit interest (spread) were taken into account. As we can see from the graph, the difference between the two average rates is basically the same, except for 2003 and 2004. Low borrowing rates in 2003 may have been used by the bank as a strategy to attract customers, but their big change is noticeable immediately after one year. Further, there is a decrease in the credit rate, which may have come as a result of competition, in parallel with the growth of the deposit rate until 2009, after which they have been increasingly falling, the lowest level of which was reached in 2015. The effect of interest rates on bank profits was reviewed by Samuelson (1945). It has been shown that in general terms, banks' profits tend to increase if interest rates are on the rise. Short (1979) also found a positive relationship between nominal interest rates and profitability indicators.

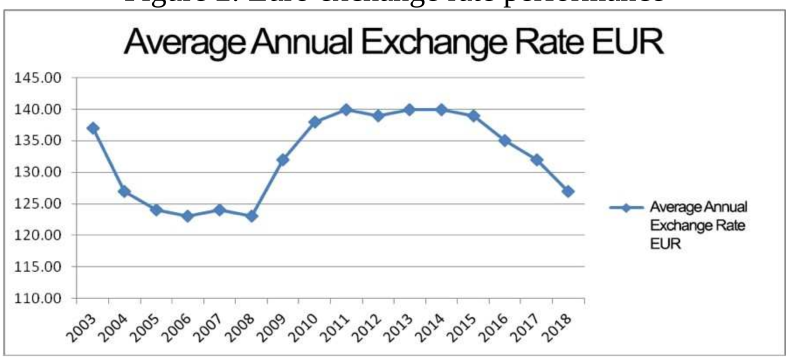
Figure 1: The performance of the interest rate difference of interest rates on deposits, 2003-2018



Source: Bank of Albania, adapted by the author

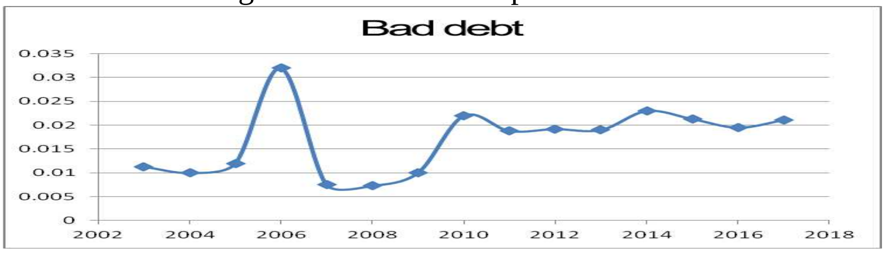
Euro exchange rate performance. Based on figure no. 2, we see that around 2007-2008, the Euro has depreciated against the lek, a consequence of the 2008 global crisis. Further, the Euro has had a growing trend of appreciation compared to the lek, an increase that has come as a result of a series of factors that have affected the offer and demand for Euro. As such we mention: borrowing in Euros for the purchase of immovable property by individuals; visa liberalization has increased the demand of individuals to spend holidays or purchasing products abroad, mainly in European countries; Visa liberalization has increased the number of individuals visiting migrant relatives by reducing the number of returning migrants to Albania, which reduces the Euro market offer during the summer months compared to previous years; the political situation in Albania and the various events that have taken place, have removed foreign investors, which reduces the demand for domestic currency. To conclude whether the euro exchange rate has a positive or negative impact on the bank's profitability, we must also analyze the loan-deposit ratio for the bank in question. Under the conditions when the percentage occupied by deposits in the total of the liability is greater than the percentage of loans in the total assets, then it is clear that the bank has more deposits in euro than loans to customers; therefore the impact will be negative, as the bank will have higher spending in the euro; conversely, if the bank would have more credit in euro’s than the deposit. Another factor to mention is the fact that the euro exchange rate may have a negative impact even in cases where euro-denominated loans were at fixed rates, thus being more exposed to exchange rate volatility.

Figure 2: Euro exchange rate performance



Source: Bank of Albania, adapted by the author

Figure 3: The bad debt performance



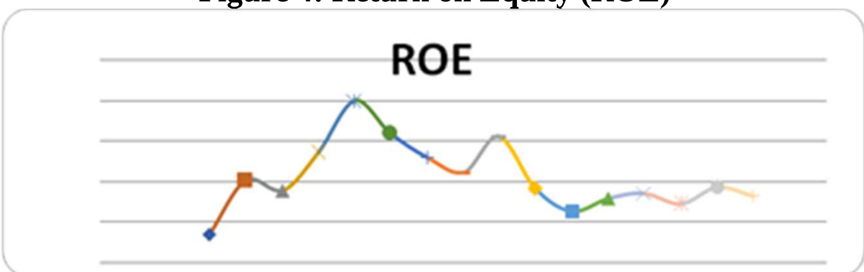
Source: Financial Reports Credins Bank, adapted by the author

The bad debt performance. For the treatment of bad debt, the ratio of provisions to total loans granted to customers was taken into account. "Provision for loan losses" is reported as a counter-calculation of the "Loan to Clients" account. This is an indicator that is expected to have a negative impact on the profitability of banks, and is therefore included in this study to measure the effect on profitability. The report in some way shows the level of risk to which the bank is exposed. As we see in the chart, in 2006, there has been an increase in the value of provisions for bad debt, an increase which may have come for several reasons, such as increasing the level of credit to individuals, reducing the credibility to clients and a possible increase in subordinated, doubtful and lost loans. After this fluctuation, it seems that this level is kept within a certain interval which does not exceed 2.2%

- **Dependent variables**

Return on Equity (ROE). As a dependent variable in this study, ROE was used as an indicator of profitability in the regression analysis because ROE has been widely used in previous studies as a profitability index and information measure for which it was not only easier to "provide by the annual reports of the banks under review but also because it remains one of the best indicators to measure the profitability of Albanian banks that has direct connection to the earned income in relation to the invested capital". So ROE, which is measured as a net equity income ratio, is widely used to measure banks' profitability in the banking system. An increase in ROE is a positive phenomenon; however, the factors that may have caused it may be different and may affect the interpretation of the results. However, referring to this indicator over the years in the case of system banks, ROE changes in recent years have mainly come from fluctuations in profit margins and risk levels. An initial negative ROE indicates the negative result the bank had in the opening year, but the result seems to have rebounded quickly. We also add that the financial crisis has given its effects two or three years later. How this indicator is influenced by the aforementioned variables will be studied in the following.

Figure 4: Return on Equity (ROE)



Source: Financial Reports Credins Bank, adapted by the author

2.1. Raise statistical model hypotheses

The most important role building hypothesis is that it guides the direction of the study towards a problem in the research study.

The basic hypothesis that supports the main research question is presented as follows:
- H0: There is no statistically significant link between the variables studied with the bank's profitability in the study. This is the main hypothesis, the rejection of which will lead to the acceptance of the alternative hypothesis along with its 4 sub-hypotheses.
- Ha: If At least one of the variables taken in the study (β1, β2, β3) has an impact directly and statistically significant in the bank's profitability.

To test the relationship between ROE and Spread (Ikredi - Idep), the following hypotheses have been raised:
- H01: β1 = 0 (The difference between the interest rate on loans and the interest rate on deposits does not have a direct impact on the bank's profitability)
- Ha1: β1 # 0 (The difference between the interest rate on loans and the deposit interest rate has a direct impact on the bank's profitability)

To test the relationship between ROE and Bad Debt (Loan Provision for Loans to Individual Clients), the following hypotheses have been raised:
- ❖ H02: β2 = 0 (Bad debt does not have direct impact on bank profitability)
- ❖ Ha2: β2 # 0 (Bad debt has a direct impact on bank profitability)

To test the relationship between the ROE and the Euro exchange rate, hypotheses have been raised the following:
- ❖ H03: β3 = 0 (The Euro Exchange Rate does not have a direct impact on the bank's profitability)
- ❖ Ha3: β3 # 0 (The Euro Exchange Rate has a direct impact on the bank's profitability)

2.1.1. Processing and testing of statistical data

As mentioned at the beginning of this issue, a linear model was chosen for data analysis and hypothesis testing.

For the construction of the model, the annual reports published by Credins Bank have been taken into account, from 2005 to 2015, statistics published by the BoA regarding deposit and loan interest rates over the years, and published statistics from OPEN DATA regarding exchange rates. The E-Views program and the Excel program were used for model building.

For the evaluation of these data a statistical model based on the MKV method (the least square method) was used with a confidence level of p = 95% or a 5% significance level. To draw conclusions on whether the factors under consideration impact on the bank's profitability or not, and if so, how it will affect, it will be based on the interpretation of correlation coefficients (coefficients β) and other coefficients such as of definability, the adjusted coefficient of determination etc. The study was based on 13 observations (13 years during which the study is being conducted), 5 variables in the model and 4 explanatory variables.

The table below summarizes the statistical data about the variables taken in the study for Credins Bank.

Table 1: Descriptive statistics for variables taken in the study, 2005 - 2017

Variables	No. of observations	Min	Max	Average	Stand. Deviation
ROE	13	-0.04103	0.295462	0.117722	0.092091
Spread	13	0.029	0.077	0.056	0.013584
BD	13	0.004938	0.032322	0.015438	0.007705
ERE	13	122.8	140.3301	132.928	7.514222

Source: Author's calculations

Assessing the data from the table above we draw the following conclusions about the variables taken in the study for the period 2005-2017:

First: Credins Bank has an average ROE of 11.77% and a standard deviation equal to 9.20%. The smallest ROE value the bank has received in the year of its establishment. After this year, ROE levels have been generally good.

Second: The average spread (credit interest rate and deposit interest rate) is 5.6%, while the deviation from the average is 1.35%.

Thirdly, the ratio of provisions to loans is on average 1.54% and the deviation from the average is 0.77%.

Finally: The euro exchange rate over these years has captured an average value equal to 140.33 and a standard deviation equal to 7.51. Normally, the euro appreciation against the lek or vice versa is influenced by the various factors we have mentioned above.

2.1.2 The results of the economic model and their interpretation

The econometric model obtained from the analysis of the collected data is presented as follows:

$ROE = 0.7117 + 0.003236 * SP-0.3592 * BD+ 0.000168 * ERE$ (1)

Before proceeding with the analysis of each of the variables, we must answer the main hypothesis we have risen, which is related to the global significance of the model, and then examine the statistical significance of each of the variables.

Regarding the statistical significance of the variables, we will start from the student's test (t-statistic or observed) and the probabilities for each variable, identified in the E-Views program. Based on the following table (No. 2), we draw the following data:

Table 2: Table of data

VARIABLES	PROB. FROM E-VIEWS
SPREAD-I	0.0792
REPORT PROCEEDINGS TO CREDIT	0.0165
EXCHANGE RATE IN EURO	0.0715

to conclude whether independent variables are statistically significant or not comparable, or more critically observed, or the probabilities above with the 5% significance level. As we see, two of the variables, respectively the spread and the euro exchange rate, are statistically unimportant for the level of 5%, but are statistically significant for the level of 10%, while the other two variables result statistically significant.

Based on the correlation coefficients, the factors are ranked by importance in the descending order in such a way: the ratio of bad debt, the interest rate differential of the deposit interest rate and the exchange rate at euro. Of course, the most important factor, among the factors taken into consideration, as it was expected, is the bad debt ratio, which we have calculated as the ratio of provisions for lost loans to total loans granted to customers, which means: The higher the ratio, the greater will be the negative impact it has on the bank's profitability, namely the Return on Equity.

- Ho No statistically relevant link between the variables taken into consideration with the bank's profitability in the study spelled down H0
- Ha - If At least one of the variables taken in the study (β1, β2, β3) has an impact directly and statistically significant in the profitability of banks. ----Accepted Ha

To test the global importance of the system of course, we refer to Fisher's values.

The analysis shows that Fisher's value of 4 and 8 degrees of freedom ($\alpha = 0.05$) is 4.439502, greater than the critical Fisher value of 3.837853, which indicates that the model is statistically significant; independent variables in the model are mutually statistically different from zero. So, with this result since Fisher's current value is higher than the critical one, we have enough data to reject Ho (zero hypothesis) and to accept the hypothesis Ha (alternative hypothesis) that there exists at least one variable with different coefficients from zero that affects the variable taken in the study.

Based on the results presented in table no. 3, we say:

Since R2 (Determination Coefficient) marks the figure 0.689417 or more simply

68.94% shows that the variables we have taken in the study explain in the regression model at 69% dependent variable. Naturally, this figure is satisfactory, because many other internal and external factors that could affect the profitability of the bank were not taken into account in order to be realistic in the study. So, we conclude that this value indicates a relatively high explanation of the variables we have taken in our study that are good representatives.

Whereas the adjusted R2 marks the value of 0.584125 which is, of course, a little smaller than the probability coefficient due to the number of variables taken in the study. These determinability coefficients indicate that there are still variables that are not included in the model that affect the bank's profitability and may be macroeconomic factors but also other internal indicators such as liquidity or other financial factors.

Normal distribution of waste. Another important element for an econometric model is the fulfillment of some key assumptions about the model. The main assumption is that the wastes have normal distribution. Through the E-Views program, we conclude that waste tends to have normal distribution, but there are also deviations. This comes as a result of the small number of surveys, which means that in the conditions when the regression would be built on the basis of a larger number of observations, then the results would be more accurate and closer to reality. In other words, the more we increase the number of elections, the more results will converge towards the real value of the population.

Autocorrelation. Based on the value of the Durbin Watson index, resulting in 1.655153 in our model, i.e. close to 2, we say that our model built to test the link between profitability and specific banking and macroeconomic factors does not suffer from autocorrelation. We say that we would have to deal with the problem of autocorrelation when the remnants of the model would not be correlated. In such cases, to continue with it, it is necessary to eliminate self-reliance.

Multicollinearity. We say that we would be in multicollineary terms, so the variables would have linear links between them, if the correlation coefficient would be too high and the coefficients of the variables would be statistically insignificant. We are not in such conditions, so our model does not suffer from multicellularity.
The following table presents the regression output, in which we are also focused on giving some of the above answers.

Let us draw some conclusions about the interpretation of regression coefficients that have an impact on the dependent variable that measures the bank's profitability and performance, that is RO**E.**

Dependent Variable: ROE Method: Least Squares Date: 15/04/18 Time: 19:51 Sample: 1 13 Included observations: 13

ROE= β (0)+ β (1)*S+ β (2)*BD+ β (3)*ERE

Table 3: Study results

	Coefficient	Std. Error	t-Statistic Prob.	
β (0)	**0.711713**	0.571519	1.245301	0.2483
β (1)	**0.003237**	0.092091	1.156925	0.0792
β (2)	**-0.359237**	0.013584	-3.108229	0.0165
β (3)	**0.000169**	0.007705	1.036902	0.0715
R-squared	**0.689417**	Mean dependent var		0.117722
Adjusted R-squared	**0.584125**	S.D. dependent var		0.092091
S.E. of regression	0.072271	Akaike info criterion		-2.133058
Sum squared resid	0.041785	Schëarz criterion		-1.915770
Log likelihood	18.86488	Hannan-Quinn criter.		-2.177721
F-statistic	**4.439502**	Durbin-Ëatson stat		**1.655153**
Prob (F-statistic)	0.095421			

Source: Author's calculations

We start from what we have termed as X1, respectively the interest rate spread of the loans with the interest rate on deposits. What we are told by the coefficient β1 is that for any change with a unit of this indicator, return on equity will increase by 0.3% if other variables are kept constant. In fact, the impact that interest rates have on bank profitability and performance is even higher, since banking activity itself is such that the largest part of the income generates from the interest on the loans granted, but given that we have taken the marginal interest, its effect becomes more relaxed, as logically we are studying the impact that this difference results in, so we are studying the impact of a smaller value. For level of 10% significance, we say that the zero hypothesis is rejected. In relation to the hypotheses raised for X1:

- *H01: β1 = 0 (The difference between the loan interest rate and the deposit interest rate does not have a direct impact on the bank's profitability) -* ***Disown H0***
- *Ha1: β1 # 0 (The difference between the interest rate on loans and the deposit interest rate has a direct impact on the bank's profitability) -* ***Accepted Ha***

A very important variable is also the bad debt ratio, which we have mentioned as a ratio of provisions for lost loans to the total of loans granted to customers. It was also expected that this report would have a significant and direct impact on the bank's profitability. What banks aim consistently is to reduce the level of lost loans or defined sub-criteria, taking into account the fact that the latter's impact on bank benefits is huge. Thus, it results from our model, for any change with a bad debt ratio unit, return on equity decreases by 35.9%, under conditions where other variables are kept unchanged. In addition to the relatively large impact on return on equity, through this coefficient, we conclude that the bank is highly exposed to credit risk, i.e. the risk of partial or total loss of credit to customers, a risk which, if it occurs, would cause the bank considerable losses. For the 5% level, we say that the zero hypothesis is rejected. Regarding the hypotheses raised for this variable, we say that:

- *H02: β2 = 0 (Bad debt does not have direct impact on bank profitability) Disown H0*
- *Ha2: β2 # 0 (Bad debt has a direct impact on bank profitability) -- Accepted Ha*

The euro exchange rate appears to have a positive impact on the bank's profitability, albeit small. That is to say, for each one unit of exchange in the euro exchange rate, the return on the bank's equity will increase by 0.0169%, under conditions where other factors are kept unchanged. For the level of importance 10%, the zero hypothesis have been discarded. Regarding the hypotheses raised for this variable we say that:

- *H03: β3 = 0 (Euro exchange rate does not have direct impact on bank profitability)* ***Drop down H0***
- *Ha3: β3 # 0 (Euro exchange rate has a direct impact on bank profitability)* ***Accepted Ha***

Table 4: Summary of study results

HYPOTHESIS	*DECISION*	*IMPACT*
SPREAD HAS IMPROVED IMPACT BENEFIT ON THE BENEFITABILITY OF THE BANK	*TO BE ACCEPTED* (10%)	POSITIVE
SHEET CREDIT REPORT HAS IMPROVED IMPACT ON THE BENEFITABILITY OF THE BANK BALANCE	*TO BE ACCEPTED (5%)*	*NEGATIVE*
EXCHANGE RATE IN EURO HAS IMPROVED IMPACT ON THE BENEFITABILITY OF THE BANK	*TO BE ACCEPTED* (10%)	POSITIVE

Source: Author's calculations

CONCLUSIONS

The objective of the subject matter was to identify the risks to which a bank is exposed and to measure their impact on the bank. To show the sign and the extent of the impact of some risks on the example bank, we constructed a linear regression with three independent variables and a dependent variable, i.e. the example bank ROE, Credins Bank. The ROE was selected as a dependent variable for some key reasons such as:

1. An important indicator of the benefits and performance of banks as a whole.
2. An important indicator not only because of the information it provides about the health of the economy every year, but also because profits are a key determinant of growth and employment in the medium term.

Regarding the risks faced by the Albanian banking sector, the Bank of Albania evaluates the following:

1. Credit risk has experienced an increase during the first semester of 2016. The value of non-performing loans increased by 11.7% and the ratio of non-performing loans to the banking sector has climbed to 20%, compared to 18.2% at the end of 2015. The main contribution to this growth of non-performing loans has been provided by credit to businesses, foreign currency credit and medium-term loans. The growth of non-performing loans was accompanied by a slight reduction of their coverage with reserve funds and equity, although these indicators remained close to the levels of the previous year. For the first quarter of 2018, the level of non-performing loans remains higher than the end of 2017, when it reached 13.2% of total loans, with a significant drop of 5 percentage points compared to December 2016 when were 18%. This was the lowest level of problematic loans since December 2010.
2. The liquidity risk in banking activity is low. The low value of the ratio of loans to deposits, the continuation of deposit growth, and the high presence of liquid assets on the minimum requirements of the regulatory framework, indicate a very good situation of the banking sector's liquidity situation.
3. The banking sector is exposed to market risk (including exchange rate risk and interest rate risk), despite the decrease in the size of exposure during the period. The direct risk of exchange rate on banking activity is limited, as the assets and liabilities in foreign currency are approximate, while the provision for credit risk provisions and the whole (for other types of assets) exhibit substantial growth compared to the previous year, respectively by 15.8% and 30.4%.

According to the study conducted, based on the built econometric model and the interpretation of the respective coefficients, we have come to the conclusion that:

1. Based on the correlation coefficients, the factors are ranked by importance in the descending order in such a way: the ratio of bad debt, the interest rate differential of the deposit interest rate and the rate of interest rate exchange rate in euro’s. Of course, the most important factor, among the factors taken into consideration, as it was expected, is the bad debt ratio, which we have calculated as the ratio of provisions for lost loans to total loans granted to customers, which means: The higher the ratio, the greater will be the negative impact it has on the bank's profitability, i.e. the return on equity.
2. For any change with a spread unit, return on equity will increase by 0.3% if other variables are kept constant.
3. What banks are aiming consistently is to reduce the level of lost loans or defined sub-criteria, taking into account the fact that the latter's impact on bank benefits is huge. Thus, it results from our model, for any change with a bad debt ratio unit, return on

equity decreases by 35.9%, under conditions where other variables are kept unchanged. In addition to the relatively large impact on return on equity, through this coefficient we conclude that the bank is very exposed to credit risk, i.e. to the risk of non-payment of part or all of the loans granted to the client, a risk which would, if present, cause the bank considerable loss.

4. The exchange rate in euro results to have a positive impact on the bank's profitability, albeit small. That is to say, for each one unit of exchange in the euro exchange rate, the return on the bank's equity will increase by 0.0169%, under conditions where other factors are kept unchanged.

RECOMMENDATIONS

Based on the conclusions drawn and the research conducted, below we will make some recommendations:

1. As we can see from the model, the internal risks to which the bank is exposed have more impact on bank profitability than macroeconomic factors. However, in order to preserve high or acceptable levels of ROE, a bank should, in drafting strategies, have a strong record in managing specific risks, primarily credit risk, but also considering the macroeconomic environment and the risks that arise from it.
2. Improving such indicators as credit risk, other indicators related to the internal and macroeconomic environment, will have a positive impact on improving ROE, i.e. the bank's profitability.
3. Carefully and comprehensively study the borrower's clients, in order to avoid or reduce as much as possible the problems that may arise with the partial or full repayment of the loan, with increased vigilance.
4. Exposure of the banking sector to unfavorable exchange rate movements should be regularly assessed and followed carefully.
5. Bank capitalization should be encouraged so that banking performance can grow. A well-capitalized banking system will provide financial stability and will make the industry more flexible to external shocks and risks. This is because well-capitalized banks have lower financial risk and are therefore more likely to survive financial crises.
6. Finally, given that only three variables that affect the bank's profitability are taken into account in the study, it is recommended that future studies take into account more risks or factors that affect the bank's profitability to achieve more accurate results.

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FINANCE AND ENERGY. ANALYSIS OF THEIR RELATIONSHIP AND FUTURE DEVELOPMENT TRENDS

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Abstract: *Through an overview of recent developments in finance and in the energy sector, this work represents an analysis of the relationship of their development trends. This study is carried out through an interdisciplinary approach and we decided to prefer the observational research method in order to expand the people's perceptual knowledge in inspiring their thoughts and discovering new ways of development for finance and energy. From the original physical currency to banknotes then to electronic payment methods with the development of the internet economy, internet financial digital currency is becoming a new concept. Bitcoin was born in 2008 and since 2012 the Bitcoin's raised monetary value has allowed people to remember two major financial crises recently. It's still a fiat money (without intrinsic value) which is only as good as the Organization that issues it. Included but not limited to whether the entity is defaulting, the currency will become worthless. Because Bitcoin is not issued by any central bank, but by the information service provider which exists outside the monetary system, there is no centralized management of the country, and there is a great risk of losing control. Finance is not entirely a virtual economy. So ultimately, currency development trends must return to intrinsic value. For the foregoing, there is the possibility for the energy currency, not only for its uniform measurement but also for its good stability characteristics. As an energy currency, it is not necessary to print, not to apply the exchange rate, no corresponding pollution, and even better it will help to alleviate the environmental problem in the current phase and in a practical and effective way to face the challenges of global environmental degradation. The international unit of energy is joule and we can consider it as the unit of energy money because of energy and its intrinsic value. As stated by Brett Scott, there are good reasons to consider energy as a potential currency. If the future integrates energy into the financial system and becomes a means of payment, it will not only eliminate the risk of currency depreciation through a global unified measurement unit, unimpeded flow and easily exchange as a general equivalent, but also optimize energy saving and use to achieve the protection of environment and to realize the original nature of human return to nature. The emphasis is given to the possibility of integration of the financial sector with the energy one, a theme that can be framed between economics and science/technology or their combination. The aim of this research is to develop a parametric numerical model able to foresee the possibility of combining finance and energy, allowing for both a sustainable development. This will be realized by reviewing all different approaches to the subject and all the solutions created. This will allow us to analyze the pros and cons of all the existing cryptocurrencies related to energy sector. The last step of this analysis consists in identifying the main characteristics that this cryptocurrency must have in order to achieve the desired results.*

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1. INTRODUCTION

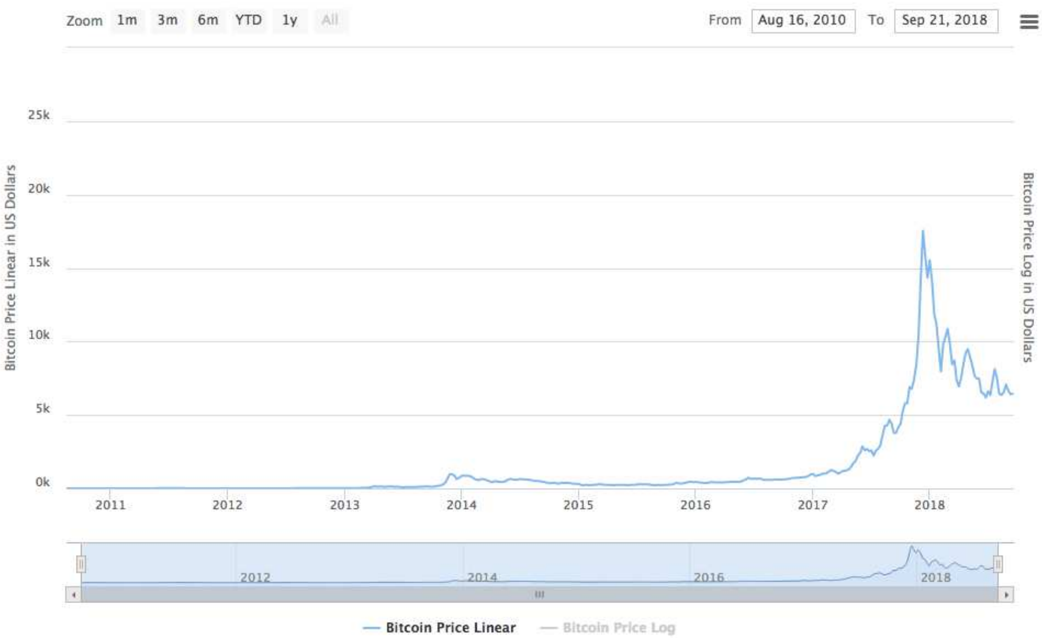
With the development of the internet economy, digital finance and cryptocurrecies are becoming new concepts. Their development is recording at a rate far beyond our expectations.

We can also feel that the internet technology is a revolution and it can be defined as a disruptive technology, subverting many traditional industries. How many physical stores have been subverted by Amazon and Taobao, and the people are already familiar with digital currency, which can drive economic development to a certain extent.

About digital currency, you have to mention Bitcoin. It's as a concept, was born in 2008 by a mysterious expert named "Zhong Ben Cong", at the same time as the US subprime mortgage crisis and even the global financial crisis.

At that time, Bitcoin was not worth the money, but because there were always players trading, some people began to publicize the hype, which gradually increased from 2009 to 2012, especially in 2012, showing explosive growth. This has made many players who were not Bitcoin come in and use this as a financial investment.

Figure 1: Bitcoin Price History Chart. Source: CoinMarketCap.



The coin value of Bitcoin soared, allowing some people to see business opportunities, build or expand trading platforms, trying to attract more people to join and earn transaction fees. It is precisely because when more and more players have joined, the value of Bitcoin has begun to rise.

Table 1: Stages of Evolution of Money. Source: personal elaboration.

N.	Stage and evolution of Money	Origin time	Physical currency form	Character	
				Vantage	Disadvantage
1	Non-Monetary exchange	c.?350 BCE		Freedom for exchange; environmental protection	Different sizes, difficult to compare; no equivalent in exchange
2	Commodity Money	Bronze Age	Furs; skins; salt; rice; wheat; utensils; ceramic; livestock; weapons, etc.	Has intrinsic value; environmental protection; perishable; not easy to store	Heavy; difficult to carry
3	Metallic Money	1000 BCE – 400 CE	Gold; silver; copper, etc.	Has intrinsic value; easily handled, ascertained	Inconvenient; dangerous to carry; pollution; uneven texture; difficult to segment
4	Paper Money	400–1450	Banknotes	Doesn't has intrinsic value; issued, regulated and controlled by the central bank	Doesn't has intrinsic value; pollution; has time limit and geographical restrictions
5	Credit & Electronic Money	1450-2008	Cheques; credit cards and debit cards	Convenient, smart	Doesn't has intrinsic value; pollution
6	Digital Money	After 2008	Bitcoin; ripple; stellar; litecoin; ETH, etc.	Uses cryptography to seek to ensure trust and fungibility	Doesn't has intrinsic value; pollution; Instability supported by technology platforms
7	Energy Money	Near future	Solarcoin	Has intrinsic value; convenient; environmental protection	Doesn't need to carry

From the process of currency development and its characteristics, as every currency has an important role in each period of economic development, it is important to remember that fiat money is only as good as the Organization that issues it because of the inexistence of an intrinsic value. As a matter of fact, if the entity defaults, the currency will become worthless.

The depreciation of the inflationary currency has led many people to start not to believe in the traditional financial system.

As a matter of fact, we think there is a problem with the financial system, and this problem will cause the depreciation of the money in your hands.

Moreover, in international transactions, the high exchange fee makes transactions of the virtual currency faster. In the past, it was realized in order to avoid the depreciation of the banknotes in the hands.

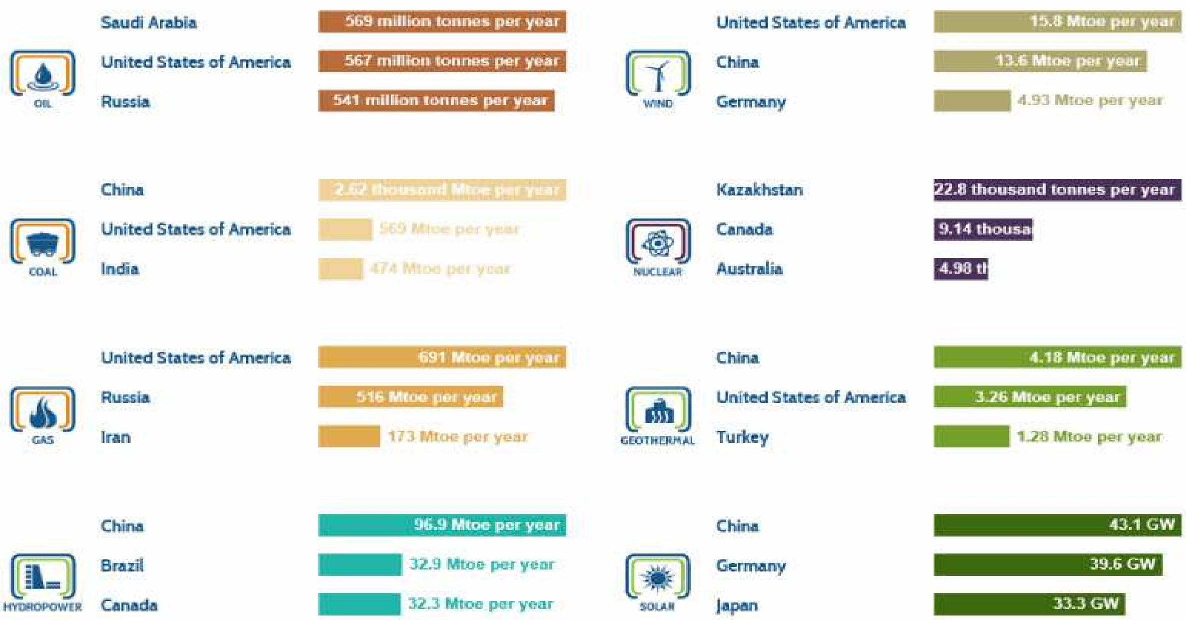
Virtual currency, after all, it is still money. For this reason, there is the problem of depreciation when a country has too much debt; or because of the responsibilities of the central bank's monetary valuation; or because of the economic growth and central bank policies; or when speculators quickly lose confidence in a country's economic or monetary policy and generate a currency crisis; or the special case of the dollar as a reserve currency, etc.

Energy refers to various resources that can be directly obtained or obtained through processing and conversion. There are many categories including primary energy and electricity such as coal, crude oil, natural gas, coaled methane, hydro, nuclear, wind, solar, geothermal, and biomass; secondary energy sources such as heat and refined oil, as well as other new and renewable energy sources. Bioenergy (also known as biomass) uses organic matter (such as plants) as a fuel to generate energy through technologies such as gas collection, gasification (solidification of gases), combustion and digestion (wet waste only). Biomass energy is also a valuable renewable energy source, as long as it is properly implemented, but it depends on how biomass fuel is produced.

Hydrogen, wind, solar, ocean energy, biomass energy and nuclear fusion energy, the way of new energy, is just a part of the multi-step advancement of energy utilization. Neglected, the engine with great potential or the principle of work and the innovation of ideas are the first direction of energy development in the future.

The conversion of energy includes kinetic energy, potential energy, thermal energy, and light energy, etc.

Figure 2: Top 3 Producing Countries by Resource Worldwide.



Source: https://www.worldenergy.org/data/resources/

Table 2: Some forms of energy (that an object or system can have as a measurable property).

N.	Type of energy (from)	Transformation (to)	Description
1	Mechanical	14	the sum of macroscopic translational and rotational kinetic and potential energies
2	Eletric	3	potential energy due to or stored in electric fields
3	Magnetic	2	potential energy due to or stored in magnetic fields
4	Gravitational	2, 14, 15	potential energy due to or stored in gravitational fields
5	Chemical	2	potential energy due to chemical bonds
6	Ionization	2	potential energy that binds an electron to its atom or molecule
7	Nuclear	3, 15	potential energy that binds nucleons to form the atomic nucleus (and nuclear reactions)
8	Chormodynamic	14	potential energy that binds quarks to form hadrons
9	Elastic	14	potential energy due to the deformation of a material (or its container) exhibiting a restorative force
10	Mechanical wave	14	kinetic and potential energy in an elastic material due to a propagated deformational wave
11	Sound wave	14	kinetic and potential energy in a fluid due to a sound propagated wave (a particular form of mechanical wave)
12	Radiant	2, 14	potential energy stored in the fields of propagated by electromagnetic radiation, including light
13	Rest	15	potential energy due to an object's rest mass
14	Kinetic	5	the energy that it possesses due to its motion
15	Thermal	2	kinetic energy of the microscopic motion of particles, a form of disordered equivalent of mechanical energy

Source: personal elaboration.

Why we say there is the possibility for the energy currency to become the development target of the future currency. Not only because its uniform measurement but also because its good stability characteristics.

As we all know is that Bitcoin, as one of the most important electronic currencies, is not issued by the central bank, but issued by the information service provider. The issuer exists outside the monetary system, which is not conducive to centralized management of the country, and there is a risk of losing control. Finance is not entirely a virtual economy.

This trend has also been asserted by one of relevant scholars, Brett Scott.

“There are good reasons to consider energy as a potential currency, explains Brett Scott, who calls himself Alternate Finance Explorer and author of the book "The Heretic's Guide to Global Finance: Hacking the Future of Money:" Ideally a currency should be anchored to something people always need, so energy-based currencies are interesting because certificates are a necessary asset everywhere. " …“However radical a hypothesis may appear, energy-based currencies are not completely new and unprecedented. Launched in 2014, SolarCoin (SS) is one of the first examples, and is now adopted in around 21 countries. It provides what is described as a social protocol that supports the exchange of value, where SS1 represents 1 MWh of solar energy production. SolarCoin currently claims to be the world's largest locally-based solar-based remuneration program, valued at over $12 billion”… “We are entering an era in which energy is power, literally; a world in which energy is the new currency”

From the current stage, the energy industry is a capital-intensive industry, and financial support plays a vital role in its development. In the process of interactive development of energy finance, the development of the energy industry has promoted innovation and cooperation in the financial industry, as well as the demand for diversified financial services.

The special needs of energy development strategies for financial services have made energy finance face many issues such as support for energy industry development, financial service methods, financial products and even the entire financial market for energy industry innovation.

Both the financial system and the energy industry need innovation, and the combination of the two achieves this goal. If the future integrates energy into the financial system and becomes a means of payment, it will not only eliminate the risk of currency depreciation via global unified measurement unit, unimpeded flow and easily exchange as a general equivalent, but also optimize energy saving and utilization to achieve environmental protection, ultimately to realize the original nature of human return to nature.

2. LETTERATURE REVIEW

Before the introduction of the Bitcoin system (BTC), there had already been several attempts to create a secure digital currency and, at the same time, to allow the protection of anonymity of users and to be able to operate without a central authority.

Already in 1998, Wei Dai had conceived "b-money", a virtual currency that had already foreseen a payment system linked to a virtual ledger comparable to the blockchain of the BTC system, but less complex and, therefore, less secure in confirming the transactions.

In 2005, Nick Szabo presented "bit-gold", from a technical point of view very similar to bitcoins, but with serious fundamental economic defects: there had not been a precise amount of virtual money to distribute and, above all, the speed at which to distribute it; anyone who had procured a powerful enough computer could have produced an almost unlimited quantity, thus eliminating its value.

Undoubtedly, Bitcoin is partly based on the fundamental characteristics of these predecessors, but has been able to stand out for greater efficiency in combining the structural elements of the whole system through the link between blockchain and mining, as will be illustrated below.

Even the hundreds of cryptocurrencies were born after the success of Bitcoin in recent years, they have never detached too much from the fundamental aspects of the BTC system.

As a matter of fact, although the concept of electronic currency dates back to the late 1980s, Bitcoin, launched in 2009 by pseudonymous (and still unidentified) developer Satoshi Nakamoto, it is the first successful decentralized cryptocurrency.

To sum up, a cryptocurrency is a virtual coinage system that functions much like a standard currency, enabling users to provide virtual payment for goods and services without a central trusted authority.

In order for an asset to be used as a currency in commercial transactions, it must possess the following fundamental requirements attached to money:

1. Be a valid unit of account;
2. Guarantee a reserve of value;
3. Being an efficient means of exchange.

Undoubtedly, Bitcoin represented a real revolution with respect to the forms of money adopted in the course of history.

As a unit of account, bitcoins have characteristics superior to the money currently used. Generally, currencies having legal tender are divided into cents, according to a decimal system, while the cryptocurrency can be divided into satoshi, each of which corresponds to 0.00000001 bitcoins, ensuring unparalleled accuracy, regardless of the type of currency in which or from which it is converted: a considerable advantage offered by the dematerialization of money.

In this way, even if the value of bitcoins were to increase enormously in the future, microtransactions and micropayments in any currency will still be technically possible in the coming years.

Cryptocurrencies are based on the transmission of digital information, using cryptographic methods to guarantee unique and legitimate transactions.

Bitcoin has taken the digital money market a step further by decentralizing the currency and freeing it from hierarchical structures of power. Instead, individuals and businesses electronically process coins on a peer-to-peer network.
It caught wide attention in early 2011 and several altcoins appeared - a generic name for all other post-Bitcoin cryptocurrencies.

Litecoin was released in the autumn of 2011, obtaining a modest success and enjoying the highest cryptocurrency market cap after Bitcoin until it was exceeded by Ripple on October 4, 2014. Litecoin changed the Bitcoin protocol, increasing the speed of transactions with the idea that it would be more suitable for daily transactions.

Ripple, launched in 2013, introduced a completely unique model compared to that used by Bitcoin and currently maintains the second highest market capitalization of about $255 million.

Another noteworthy coin in the evolutionary chain of cryptocurrency, Peercoin, employs revolutionary technological development to secure and sustain its currency.

Peercoin combines the PoW technology used by Bitcoin and Litecoin along with its proof-of-stake (PoS) mechanism to use a hybrid network security mechanism.

More recently, NuShares / NuBits emerged, introduced in August 2014, which are based on a double currency model almost entirely separated from the single currency model used by previous crypto-currencies.

At the time this paper was written, the cryptocurrency industry consisted of over 2080 coins with different user bases and trade volumes.

Due to the high volatility, the market capitalization of the cryptocurrency sector changes drastically, but at the time of writing this paper has just finished $181,142 billion, with Bitcoin accounting for about 53% of market capitalization.

The cryptocurrency market has evolved in an irregular way and at an unprecedented speed during its short duration. Since the release of the pioneering anarchist cryptocurrency, Bitcoin, to the public in January 2009, over 2080 cryptocurrencies have been developed, most with only a minimum of success.

Research on industry is still scarce. Most of it is individually focused on Bitcoin rather than on a more diversified spread of cryptocurrencies and is constantly outperformed by developments in the fluid industry, including new currencies, technological progress and increased government regulation of markets.

Although the fluidity of the industry, of course, is a challenge to research, a thorough evaluation of the cryptocurrency industry is required.

Following the success of Bitcoin, hundreds of alternative cryptocurrencies have been created, many of which have tried to solve the technical problems of bitcoins (above all the very high generation costs) proposing structural changes, while many others are in fact simple copies of bitcoin and the original blockchain system.

The proliferation of these new currencies is due in most cases to the hope of easy profits, if the price of the new currency should increase dramatically as it has occurred with the Bitcoins, especially considering that this kind of activity does not require nor relevant initial investments or even special protocols and regulations to follow.

Furthermore, the original Bitcoin system is completely open source. On 15th November 2018, according to the Coin-MarketCap, Bitcoin holds about 53% of the cryptocurrency market and is by far the most famous and important.

Among the cryptocurrencies that have spread the most in recent years there are Litecoin, GeistGeld, SolidCoin and BBQcoin; these currencies are also called altcoins, as we have already said before.

Going more in detail, Litecoin, created in 2011 by Charles Lee, was conceived as an updated and perfected version of the Bitcoin system: the new algorithm introduced allows any user to extract the currency, with far more efficient energy consumption. In this way, moreover, the whole system prevents that only users who have a very high computational power can profit from the Litecoin system; the algorithm also allows to shorten the transactions. Furthermore, the final and total money supply will be equal to 84 million units (and therefore the quadruple with respect to the Bitcoins); however the offer, even if higher, is however limited and this will not allow Litecoin to avoid the deflationary problems linked also to the Bitcoin system. Also the Feathercoin, introduced in 2013 by Peter Bushnell, guarantees an offer of currency that, even if equal to four times that of Litecoin, is still limited.

Cryptocurrencies like Peercoin and Novacoin, on the other hand, propose a completely different approach with the proof-to-stake system as an alternative to proof-to-work: when a cryptocurrency unit is successfully created, those who have solved the cryptographic puzzle are not rewarded. But, a sort of "dividend" is distributed to all the units already in circulation, rewarding those who hold the most. In fact, even in the extraction of these cryptocurrencies 15 are the users with more powerful hardware to get the best results. An interesting case is that of Ethereum Project (founded in 2014), which proposes to use blockchain technology even in areas other than online payments and completely disconnected from the economic sphere, for example to ensure the security of votes made via internet. Such potential applications, although the entire project is not yet complete, have attracted the attention of IT giants such as Microsoft and Intel, but also of companies such as Airbus and Toyota. The price of Ethereum's currency, Ether, has grown by 2700% from January to May 2017, even exceeding the very high bitcoin growth rates in the same period (see Kharpal 2017).

To these are added the so-called "digital currencies", including Liberty Reserve, WebMoney, Perfect Money and CashU, but they are not based on cryptography and must be purchased using an intermediary (even if most of them try to guarantee to the user the complete anonymity), renouncing to the attractiveness of the principle of decentralization.

With the sole exception of Litecoin and Ethereum, however, all these currencies are still scarcely used in real transactions and the Bitcoins undoubtedly still enjoy the advantages of the first-mover, which in a context like this could prove more relevant than technological superiority. Certainly the vast majority of cryptocurrencies will not be used in the future and the growth of the last few years of the entire sector is mainly due to massive speculation.

Many users, in fact, buy dozens of different cryptocurrencies without any intention of using them as a medium of exchange, waiting to be able to resell them at higher prices in the future.
It is not for a very long time that money is the cash as we understand it today. In Japan, for example, rice was the unit of account of the great fiefs until the second half of the nineteenth century. In Iceland, at the end of the same century, the price of each commodity was established

on the basis of the equivalent of dried fish. And going even further back in the centuries, the commodity currency was represented by cattle, shells, obsidian, salt, tea and pieces of fabric.

Today, however, we have cash. But that of money is a world that is anything but static: the very popular checks are becoming an historical find, while electronic payments are now part of everyday life, through credit cards or even smartphones.

At the base of all these digital transactions, however, are always the national currencies: the euro, the dollar, the pound, the yen ... And if instead we began to use energy as a global currency? This is the proposal / provocation by Brett Scott, author of The Heretic's Guide to Global Finance: Hacking the Future of Money.

There are good reasons to consider energy as a potential currency, explains Brett Scott who calls himself an Alternative Finance Explorer.

Ideally, a currency should be anchored to something people always need, so currencies based on energy are interesting because the certificates represent a necessary good everywhere.

Alternatively we could think of these currencies as a financing instrument - the possibility of collecting funding for a renewable energy project through the issue of representative certificates of energy that will be produced in the future (in this sense, the currencies based on energy to a certain extent resemble equity certificates).

However radical a hypothesis may appear, energy-based currencies are not completely new and unprecedented.

There are already embryonic examples of energy as a currency. There is, for example, the SolarCoin cryptocurrency (whose symbol is §), launched in 2014 to stimulate the production of solar electricity globally.

SolarCoin (§) is one of the first examples, and today it is adopted in around 21 countries.

It provides what is described as a social protocol that supports the exchange of value, where §1 represents 1 MWh of solar energy production. SolarCoin currently claims to be the world's largest locally-based solar-based remuneration program, valued at over $ 12 billion.

SolarCoin, a project supported by an open community, was created in 2014 by its own founders and some volunteers who set up the SolarCoin Foundation. SolarCoin Foundation rewards solar energy producers with blockchain-based digital tokens at a rate of 1 SolarCoin (SLR) for 1 MWh of solar energy produced.

Based on Blockchain technology - the same as BitCoin – it provides a social protocol that supports a value exchange, in which 1 § is equivalent to 1 MWh of solar energy produced.

The SolarCoin project uses the advantages of the blockchain to support the development of solar energy on the planet. SolarCoin is a digital asset and a currency intended to support the transition from an economy focused on fossil fuels to an economy supported by solar energy.

The Solarcoin Foundation rewards solar energy producers through digital tokens based on blockchain technology at the price of 1 SolarCoin (SLR) per MWh of solar energy produced.

SolarCoin is an additional premium recognized free of charge and independent of any other incentives that solar plant owners might be entitled to receive (such as government incentives, incentive tariffs, green certificates, tax credits, CO2 reduction credits, etc.). Anyone producing solar energy, helping to avoid CO2 emissions, can receive a reward in SolarCoin.

The SolarCoin project is global, decentralized and independent of any government. Solarcoin is similar to other cryptocurrency like Bitcoin, but unlike these, SolarCoin 'binds' the distribution of money to a real economic activity of public utility: the production of verifiable solar energy.

Different but with a very similar objective is the initiative of the British start-up ZAPP, which aims to create and place on the world market an app that renumber consumers for the storage and use of renewable energy. Its operation is based on the Zapp Points, or points that customers can earn by charging their electrical appliances synchronizing to the production of renewable energy. The Zapp Points earned by the customer can then be exchanged for goods and services or converted into cash.

There is then another initiative that brings the concept of energy closer to that of currency to be used concretely for the physical development of the real world. It has its base of operations in New York, more precisely in Brooklyn, on President Street: here the startup Transactive Grid has launched a pioneering project that uses a microrete powered by solar energy, boasting a technology based on the cloud and the Internet of Things. The New York experiment aims to allow peer-to-peer energy exchanges: if a President Street building generates excess solar energy, it is automatically made available to other houses. And all this happens without the use of cash, through the secure platform for Ethereum transactions, also based on Blockchain.

As you can understand from these initiatives, in short, the hypothesis of the energy used as a currency is not so radical: something is already moving, in a global perspective for which energy is increasingly synonymous with power (and then, in some ways, even cash).

Another type of cryptocurrency based on energy is represented by Energy Efficiency Coin (EECoin).

Energy Efficiency Coin is a blockchain asset class designed to have a positive ecological impact and to track a weighted aggregate of real world renewable energy markets, giving token holders the opportunity to vote on which renewable resource markets will be included in the weighted average price. Energy efficiency coin is a pegged asset in which the price is linked to a weighted super index of the constituent green equity and bond indices, where keeping the price index peg becomes the incentive trading strategy and the revenue stream for the company of token shareholding, ensuring future financing for capital management and the development of technical platforms.
Additional type of coin based on renewable energy is represented by Electronic Energy Coin (E2C) that is a trading block platform for green technology.

E2C is built according to the ERC-20 token standard, which is used by the famous Ethereum system. This makes E2C compatible with most of the cryptocurrency standards and protocols on the market.

In E2C, we look at an ecological and sustainable future. Our project will be based on an energy revolution, a fairer distribution and better control over the use of energy.

Conventionally, the energy market is dominated by a few people. This entails high costs for ordinary people, such as owners of private companies.

All these types of crypto currencies are a testimony to how there is a link between the world of crypto currencies with the energy sector and therefore with the financial world.

However, it should be noted that most of the cryptocurrencies based on energy sector assets are limited only to certain energy sources, such as, in particular, renewable energy sources.

Our intention is to present a new interpretation for this topic, giving the possibility to identify a standard method that can be used for the whole energy sector.

3. METHOD

The Kinetic energy is the energy that an object has due to its motion and its expression is as follows, with the meaning of half mass times velocity squared:

$$E_k = \frac{1}{2} m v^2 \tag{1}$$

Where, if direction and speed direction are the same:

E_k, is the energy of a mass, m, in motion, v^2
E_k = Kinetic energy
m = mass (kg)
v = velocity (m/sec)

Kinetic energy is a scalar, also a state quantity. The expression is as follows:

$$\text{Unit: Joule (J) } 1\text{kg}\cdot\text{m}^2/\text{s}^2 = 1\text{J} \tag{2}$$

After combined the above two formulas, we have:

$$E_k = 1 \text{ kg m}^2/\text{sec}^2 = 1 \text{ Joules} \tag{3}$$

3. DISCUSSION AND CONCLUSION

The international unit of energy is joule (or abbreviated as J). We can consider it as the unit of energy money which is the energy that has intrinsic value. This new kind of energy cryptocurrency differs from existing solutions as it is based globally on the energy macro-category and not on a sub-sector. This element is what makes this solution new and represents a strong point compared to existing solutions.

While intrinsic value means that the commodity has value even if it is not used as money. As energy there are production, exchange, reserves, distribution and consumption.

As there is neither energy nor mass can be destroyed; rather, both remain constant during any process, there is no energy depreciation, on the contrary only energy appreciation. In addition, using energy as a currency, there is no need for printing or casting and applying the exchange rate, so there is no corresponding pollution.

Even better, it will contribute to relieve the environmental problem in the current stage and in a practical and effective way to meet the challenges of global environmental degradation.

Energy issuer and reserve agency – International Energy Bank (IEB) which will be given support and capacity for combination through IMF (International Monetary Fund) and IEA (International Energy Agency) to realize the unique currency form - Energy and its unified currency symbol “Joule (J)”.

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ON THE RISK FACTORS OF THE YIELD IN THE CRYPTOCURRENCIES MARKET

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Abstract: *A cryptocurrencies are considered as digital assets that use strong cryptography to secure financial transactions, control the creation of additional units, and verify the transfer of assets. Bitcoin was released as the first and the most popular cryptocurrency in 2009. Since its release, over 4000 alternative cryptocurrencies have been released. After a period of gradual growth of the Bitcoin value, we were able to observe a dramatically increasing in its value at the beginning of this year. This was followed by a subsequent rapid decline to the value it keeps to this day. A similar development we can, however, observe with other cryptocurrencies. This paper presents the results of an empirical analysis of the nature of the factors that explain changes in yields of the ten most traded cryptocurrencies. Consistent with the analysis of the current currencies yield curves, the principal component method has shown that two or three factors are sufficient to explain most of the yield variation. These results are essential for hedging purposes.*

Keywords: *cryptocurrency, risk factors, yield volatility, principal components*

1. INTRODUCTION

Cryptocurrencies have become a full-fledged investment tool in a short period of their existence. Demand for these assets is still growing. In particular, the transition of 2017 and 2018 was characterized by a great interest in buying and the sharp rise in cryptocurrencies prices. However, it was also followed by a sharp decline. These turbulences in the cryptocurrencies market show that it is necessary to analyze their yields and the risks associated with them similarly as we do with other investments.

A cryptocurrency is in general considered as a digital asset designed to work as a medium of exchange that uses strong cryptography to secure financial transactions, control the creation of additional units, and verify the transfer of assets (see [2]). The formal definition of the cryptocurrency was given in [5]. According to Lansky, a cryptocurrency is a system that meets six conditions:

1. The system does not require a central authority; its state is maintained through distributed consensus.
2. The system keeps an overview of cryptocurrency units and their ownership.
3. The system defines whether new cryptocurrency units can be created. If new cryptocurrency units can be created, the system defines the circumstances of their origin and how to determine the ownership of these new units.
4. Ownership of cryptocurrency units can be proved exclusively cryptographically.

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5. The system allows transactions to be performed in which ownership of the cryptographic units is changed. A transaction statement can only be issued by an entity proving the current ownership of these units.
6. If two different instructions for changing the ownership of the same cryptographic units are simultaneously entered, the system performs at most one of them.

Study of yield curve behavior has been an import part of financial market research as it provides us important information about the future expectation of growth, inflation, recession, etc. Modeling interest rates for the purposes of pricing of interest rate dependent cash flows and hedging the interest rate risk have been a topic of much interest to actuaries over recent decades (see for example [8], [4], [7] and [1]). These studies demonstrate both similarities and differences in international bond markets.

The aim of this study is to apply the factor analysis to determine the number of factors that explains the volatility of the yields in the cryptocurrencies market. Unlike conventional currencies, there does not exist the bond market for different maturities and the corresponding yield curves. Therefore, our work is based only on exchange rate gains and losses against the US dollar.

2. DATA AND METHODS

The data necessary for purposes of our analysis, we obtained from the CoinMarketCap portal [9]. This source provides data on exchange rates for a total of 2100 cryptocurrencies, with USD as the counter currency. This data is provided on a daily basis starting on April 28, 2013, or later on the day on which the relevant coin was commenced. For purposes of our analysis, we have selected ten cryptocurrencies according to the highest market capitalization. Specifically, these were the following cryptocurrencies: Bitcoin, Ethereum, EOS, Litecoin, Cardano, Dash, Dogecoin, Monero, Nem, and Neo. The data was downloaded on October 6, 2018. So we have got datasets in length from 371 values for the shortest record of Cardano exchange rates to the longest series of 1986 rates for Bitcoin or Litecoin.

Figure 1 shows the exchange rate development of three cryptocurrencies, Bitcoin, Ethereum, and Monero. It is easily visible that the exchange rate development for all three selected currencies was very similar, with a peak on the break of the year 2018. A similar result we could observe also in the case of other relevant cryptocurrencies. It is, therefore, reasonable to expect that the returns on investments in individual cryptocurrencies are fundamentally influenced by common factors.

Let us assign the USD exchange rate of the cryptocurrency at time t as P_t. The corresponding yield y_t of the investment in the period from t to $t+1$ we compute by formula:

$$y_t = \frac{P_{t+1} - P_t}{P_t}. \tag{1}$$

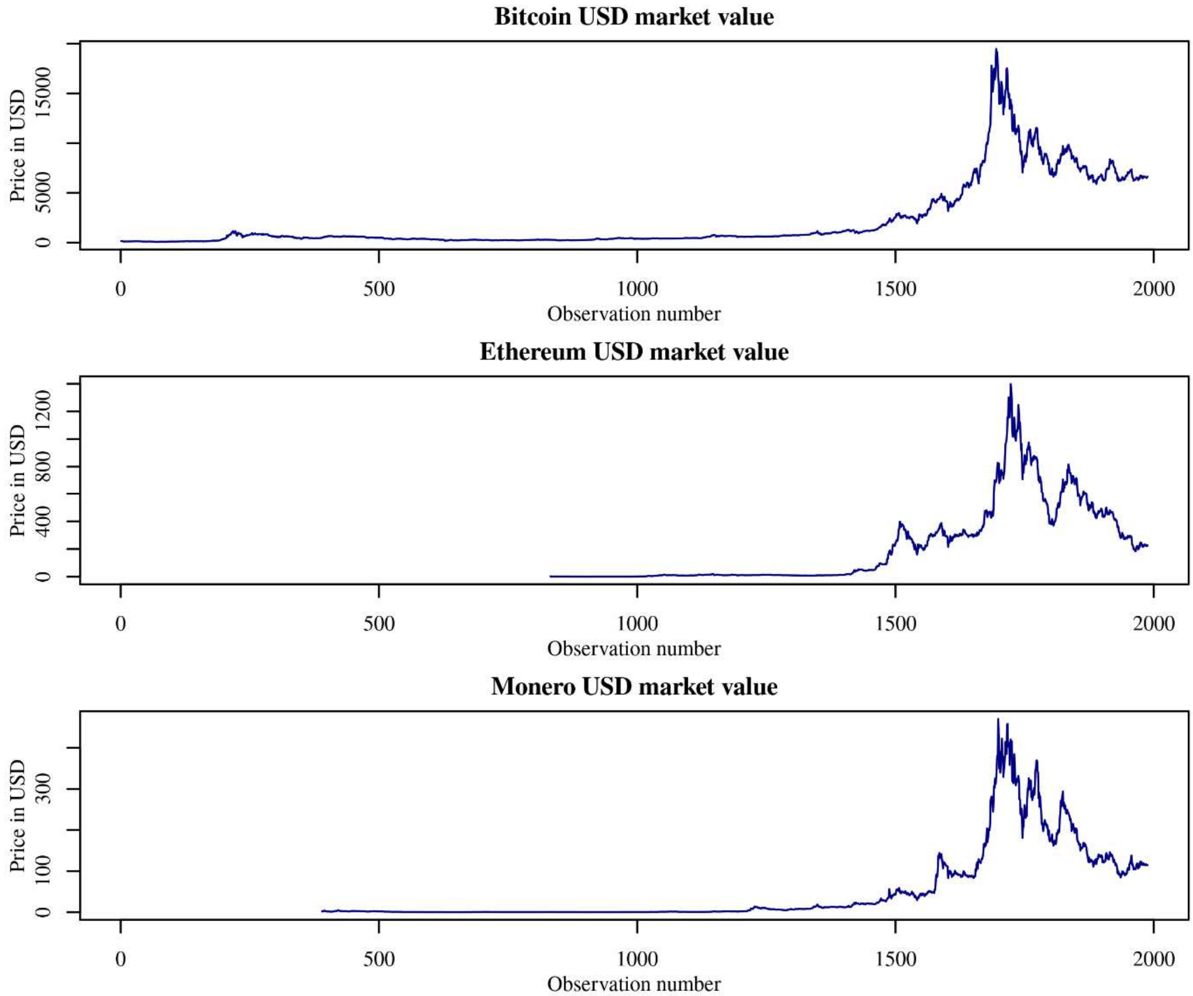
In order to determine the factors that explain the substantial part of the yield volatility we apply the multivariate factor analysis (see for example [6]). That means, we will estimate the changes in the cryptocurrency yields in the form:

$$\Delta y_{ct} = \sum_{i=1}^{n} \alpha_{ci} F_{it} + \varepsilon_{ct}, \tag{2}$$

where:

Δy_{ct} is the change in the yield of the investment in cryptocurrency c at time t,
F_{it} is the value of the i-th independent random factor at time t,
α_{ci} is the factor loading for the i-th factor for cryptocurrency c
ε_{ct} is the error term, representing the volatility unexplained by the factors.

Figure 1: Market values of three selected cryptocurrencies, expressed as their USD exchange rates. The observations are numbered from 0 on 2013 April, the 28-th, to 1986 on 2018 October, the 6-th. (Source: Own elaboration of data by [9].)



We estimated the factor loadings using the correlation matrix and principal component factor analysis. This method works also with the eigenvalues and eigenvectors of the correlation matrix. The most common steps can be described as follows:

1. Preparing the data, especially compute the correlation matrix.
2. Decide how many components to extract.
3. Extract and rotate the components.
4. Compute the factor loadings, communalities and portion of volatility that is explained by the factors.
5. Interpret the results.

Important role in the principal components factor analysis plays stating the number of the factors. Here are three the most frequently used methods:

- The Kaiser-Harris criterion. It suggests retaining the components with eigenvalues greater than 1.
- Cattel scree test. The eigenvalues are plotted against their component numbers. Such plots typically demonstrate a bend or elbow, and the components above this sharp break are taken in account.
- Parallel analysis. We run simulations, extracting eigenvalues from random data matrices of the same size as the original matrix. If an eigenvalue based on real data is larger than the average corresponding eigenvalues from a set of random data matrices, that component is retained. (For more details see [3]).

3. RESULTS

The first step in the analysis is to compute the yields and simultaneously the changes in the yields for all cryptocurrencies. The essential sample characteristics for both are presented in Table 1. Look on the Table 1 confirms that all cryptocurrencies keep relatively stable value. The median values show, that there is a fifty-fifty chance in growth or decline and the positive values of the average daily yields are caused by short periods of dramatically growth that correspond to the Max columns in the Table 1.

Table 1: Selected sample characteristics of the yields and changes in the yields of the investments in the cryptocurrencies.

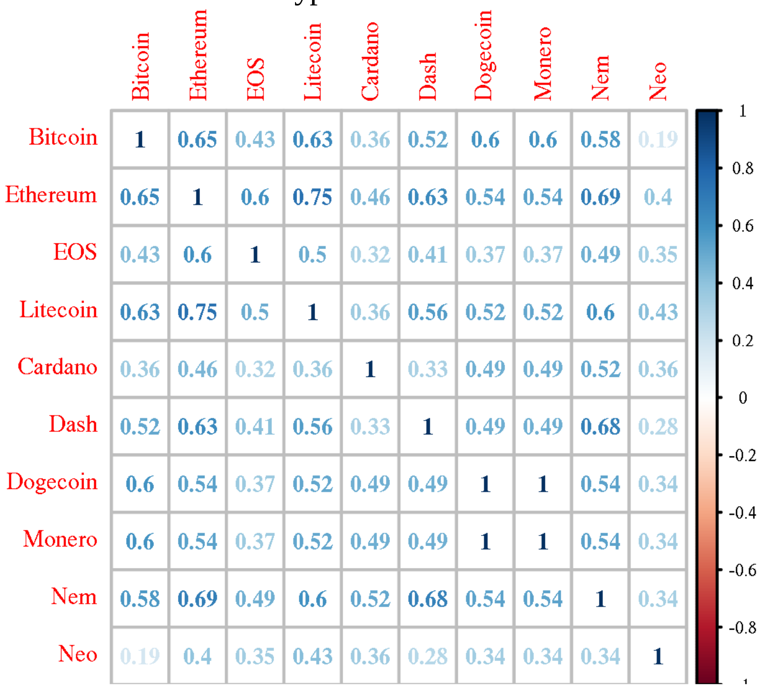
Currency	***Yield***				***Change in the yield***			
	Mean	***Median***	***St.dev.***	***Max***	***Mean***	***Median***	***St.dev.***	***Max***
Bitcoin	0.002	0.003	0.044	0.435	0	0	0.062	0.572
Ethereum	0.007	0	0.074	0.497	0	0	0.101	0.758
EOS	0.010	-0.003	0.126	1.730	0	0	0.166	1.762
Litecoin	0.004	0	0.075	.281	0	0	0.103	1.327
Cardano	0.001	-0.005	0.124	1.335	0	-0.002	0.166	0.953
Dash	0.007	-0.003	0.094	1.906	0	-0.001	0.136	1.660
Dogecoin	0.005	-0.003	0.095	1.894	0	0	0.126	1.414
Monero	0.005	-0.001	0.0795	0.764	0	0	0.126	1.414
Nem	0.001	0	0.107	1.911	0	0	0.111	0.646
Neo	0.013	-0.0046	0.139	1.022	0	0.003	0.156	2.045

(Source: Own elaboration, data by [9].)

For the deeper analysis of the common factors influencing the yields it is necessary to compute the correlation matrix of the yield changes. In order to save some space, it is presented on Figure 2, in the form of the heatmap with values. The values of the correlation coefficients are colored so that darker color represents the higher absolute value of the correlation. In order to determine the number of components retained, we draw a scree plot. The result is illustrated on Figure 3. We easily see, that all three methods state only two principal components to be sufficient to explain the variability of the yields. Really, we have only two eigenvalues λ_1=5.524 and λ_2=1.030, which are greater than 1. On Figure 3 is also visible the sharp break at the second eigenvalue. Because the third eigenvalue is close to one (λ_3=0.906), we include three factors in our calculations. These three principal factors then explain about 77% of the yields volatility.

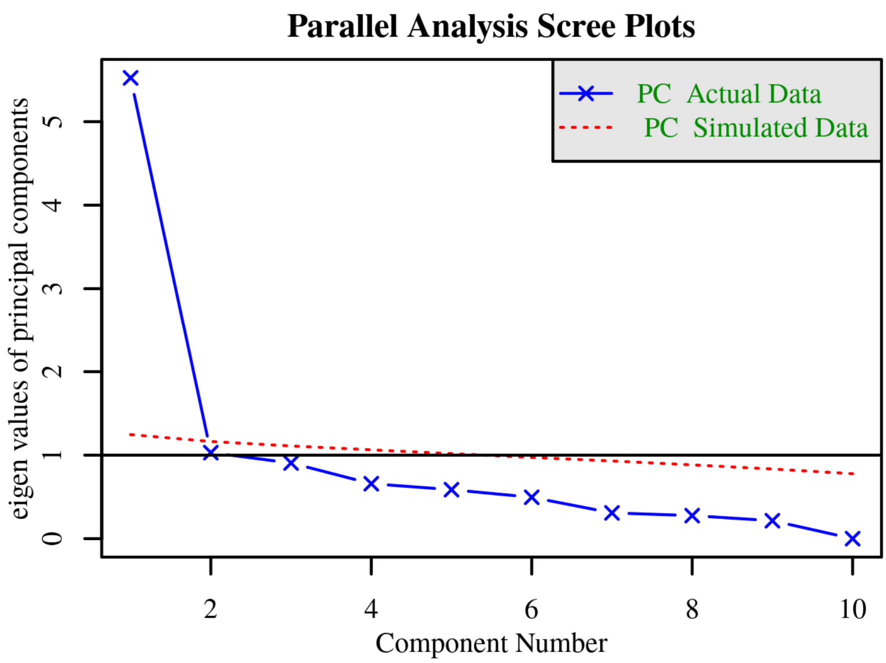
All numerical calculations have been made using the R statistical programming environment with the psych package. So we obtained the results that are summarized in Table 2. The corresponding root mean square residuals value (RMSR) of the model is 0.07.

Figure 2: The correlation matrix of the yield changes for the investments in the cryptocurrencies.



(Source: Own elaboration.)

Figure 3: The scree plot for stating the number of the principal components. (Source: Own elaboration.)



These three factors can be interpreted as explaining different types of change in the yields. The first factor affects the changes in the yield of all currencies in the same direction, so we can interpret it as a parallel shift factor.

Table 2: The factor loadings obtained by the principal component method with three explaining factors.

Currency	*Factor 1*	*Factor 2*	*Factor 3*	*Uniqueness*
Bitcoin	0.69	0.49	-0.10	0.28
Ethereum	0.82	0.27	0.26	0.19
EOS	0.68	0.03	0.36	0.42
Litecoin	0.76	0.26	0.25	0.29
Cardano	0.21	0.50	0.52	0.43
Dash	0.75	0.27	0.05	0.36
Dogecoin	0.31	0.91	0.16	0.05
Monero	0.31	0.91	0.16	0.05
Nem	0.72	0.35	0.21	0.31
Neo	0.20	0.12	0.88	0.17

(Source: own calculations.)

The second factor has as well positive effect on all currencies, but here are greater differences as in the case of the first factor. Moreover, for some currencies it is very close to zero. So we can interpret this factor as the "curvature" factor.

The third factor has an opposite effect on Bitcoin and on the other currencies. So it can be interpreted as a "slope" factor since it changes the slope of the rates of return.

Compared with the studies of the yield curves for arbitrary currencies, the slope and curvature factors appear to be more important in explaining the volatility of the yields changes on the cryptocurrencies market. We can expect a single factor model to replicate only around 56% of the yields changes.

4. CONCLUSIONS

In this paper, we examine the common factor structure of the cryptocurrencies exchange rates against the USD returns corresponding to ten cryptocurrencies. We have applied the principal components analysis to identify the factors which are responsible for volatility of the yield curve. The study finds that the three principal component explains a major part of the total variance of exchange rates yields changes. Compared with studies for conventional studies three factors are sufficient to explain substantial part of the variance in the yields. It means, that a single factor mode, frequently used for the pricing purposes of the bonds denominated in the conventional currencies, is in this case insufficient nor for purposing of pricing, nor for hedging. For this reason it is considered essential that multi-factor models be used for immunization.

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SMOOTHED HEIKIN-ASHI ALGORITHMS OPTIMIZED FOR AUTOMATED TRADING SYSTEMS

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Abstract: *Heikin-Ashi is the Japanese term for "average bar". This methodology is well known as one of the methods to identify and follow the trends using a price time series in financial markets. Nowadays, in the first decades of the 21st century, in the electronic trading environment, with very volatile price market conditions, using the Heikin-Ashi method gets new and special connotations especially when it is about the high-frequency trading. It was found that combining the classical Heikin-Ashi candlesticks with modern limit conditions reliable trading algorithms can be generated in order to produce a good trading return with automated trading systems. This paper will present several trading algorithms based on Heikin-Ashi method for algorithmic trading especially adapted for high-frequency trading systems. It will be revealed how the trading signals can be automatically built and used in order to automate the trading decisions and orders. Exit signals will also be discussed. Trading results obtained with the presented algorithms for Frankfurt Stock Exchange Deutscher Aktienindex Market will be displayed in order to qualify the methods and to compare them with any other trading strategies for high-frequency trading. As conclusions, Heikin-Ashi combined with special limit conditions can generate reliable trading models for algorithmic trading.*

Keywords: *algorithmic trading, automated trading systems, Heikin-Ashi*

1. INTRODUCTION

In the first decades of the 21st Century "the development of e-businesses represents an important factor in boosting the growth and prosperity of the human society". [1] In the new electronic trading environment of the financial markets, automated trading systems (ATS) have become an important part in any modern financial investment company. "The development of the information and communication technology leads to the creation of new business models and decision support systems". [2]

"In electronic financial markets, algorithmic trading (AT) refers to the use of computer programs to automate one or more stages of the trading process". [3] The trading decisions and orders are made partially or completely automatically nowadays by computers using advanced mathematical algorithms. "High-frequency trading (HFT) is a type of algorithmic trading characterized by high speeds, high turnover rates, and high order-to-trade ratios that leverages high-frequency financial data and electronic trading tools". [4]

There is a considerable number of trading strategies and models in the literature, but not all of them are adapted for algorithmic trading. Nowadays the algorithmic traders "represent 52% of market order volume and 64% of nonmarketable limit order volume". [5]. Different analytical

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trading models that can be automated for the financial markets are presented by Larry Connors in [6] and [7] with proved reliable results. Using the genetic based algorithms, interesting researches are presented by Yong Hu [8] and José Manuel Berutich [9]. Hybrid trading strategies are also developed in the last time; a hybrid system is presented by Youngmin Kim [10]. A significant number of the trading strategies that can be automated for the stock exchanges are adapted from the currency market; some reliable strategies are presented by Kathy Lien in [11] and [12]. Considering the current academic literature related with the trading strategies adapted for algorithmic trading, the subject about how the Heikin-Ashi transformation can be used to detect the trend and to automate the trading signals is not treated. This is the purpose filled by the current paper.

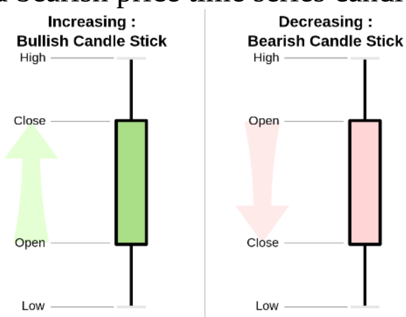
This paper will present some algorithms optimized especially for HFT. The models presented here are based on the Heikin-Ashi (HA) methodology. HA is the Japanese term (平均足) for the "average bar" and represents a transformation of the price time series into a new series with the purpose to filter the noise and to obtain a graphic representation for the price trend. The HA model is well known as a good method to identify and follow the trend in financial markets. This paper will present how the HA methodology can be combined with modern limit conditions (LC) in order to improve the trading efficiency and to automate the trading decisions for inclusion in ATS.

It will be revealed the way how the trading signals based on HA can be automatically built and used in order to automate the trading activity. Exit signals will also be discussed and built using the same technique in order to automate the exit procedures. To qualify the presented methods and to compare them with any other trading strategies for HFT, trading results will be presented in the last part of the paper. These results were obtained with a HFT of the Frankfurt Stock Exchange Deutscher Aktienindex DAX30 Market [13]. The results will qualify the signals obtained with HA as to be reliable trading signals for AT that can be included and optimized for any ATS.

2. HEIKEN-ASHI TECHNIQUE

It is well known that a price time series in financial market is given by the four values Open, High, Low and Close price levels for each time interval. The time interval can vary between one second until one month or even one year. Having the values above, noted here with Oi, Hi, Li respectively Ci for each i interval, the time price series can be easily recorded and used further. For an easy view, the four price levels characteristic for each time periods are drawn as candle sticks presented in Figure 1.

Figure 1: Bullish and bearish price time series candlesticks (source: [14])



Candlestick charts are thought to have been used and developed “in the 18th century by Munehisa Homma (1724-1803), a Japanese rice trader” [15]. The colors used for the candlesticks are at the user disposal. The bullish and bearish differences are usually highlighted using different colors. In the figure 2 it is represented a time price series of the DAX30 index on daily timeframe using the candlesticks representation.

Figure 2: Time price series with candlesticks

The price trend is not obvious in the figure 2. Even the colors are different for bullish and bearish candles the price tendency is not defined by this graph. The Heikin-Ashi technique will highlight the bullish and bearish tendency of the graph. Reducing the noise and the volatility a more accurate image will be obtained. A new price transformation will be made.
For each i time interval, the open level in the new space will be the average level between open and close price of the last interval, the close level will be the average between the forth price levels of the current interval and the low and high will be given by the minimum respectively maximum of the price levels by:

$$\begin{cases} Oha_i = (O_{i-1} + C_{i-1})/2 \\ Lha_i = \min(L_i, O_i, C_i) \\ Hha_i = \min(H_i, O_i, C_i) \\ Cha_i = (O_i + H_i + L_i + C_i)/4 \end{cases} \quad (1)$$

This transformation will gives us a clearer image for the tendency of the price movement. Using one color for the intervals with Ohai<Chai (usually green or blue) and other color for the cases with Ohai>Chai (usual red) we will obtain a graphs like in figure 3.

Figure 3: Time price series with Heikin-Ashi candlesticks

The price time series in the Figure 3 is the same as in the Figure 2. In the figure 3 the transform made by formula (1) is drawn.

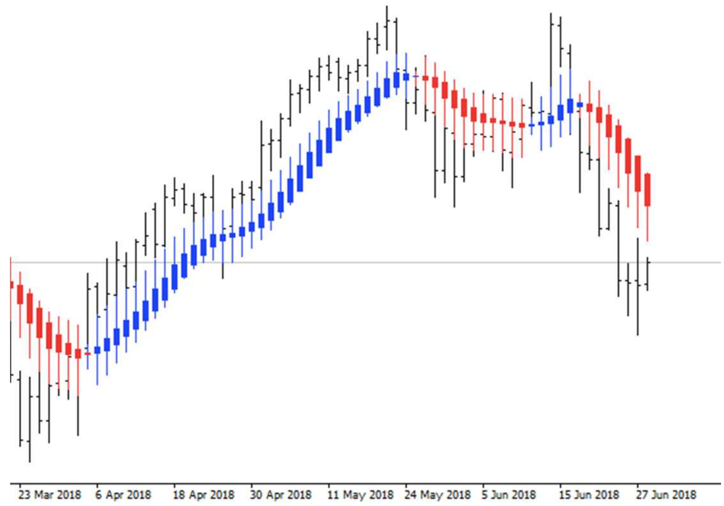
3. SMOOTHED HEIKEN-ASHI

Even the image is clearer using HA candlesticks, trading in volatile price movements is still difficult. As we can see in figure 3, between the two bullish intervals there are some red HA candlesticks. The graph suggests the long trend is almost finished but a strong continuation contradicts this conclusion after a small interval. To filter the false signals and to give a more stable graph, remaining in strong correlation with the price behavior, a different smoothed HA transform is proposed:

$$\begin{cases} \overline{Oha_i} = \left(\overline{O}_{i-1} + \overline{C}_{i-1}\right)/2 \\ \overline{Lha_i} = \min(\overline{L}_i, \overline{O}_i, \overline{C}_i) \\ \overline{Hha_i} = \min(\overline{H}_i, \overline{O}_i, \overline{C}_i) \\ \overline{Cha_i} = \left(\overline{O}_i + \overline{H}_i + \overline{L}_i + \overline{C}_i\right)/4 \end{cases} \qquad (2)$$

where $\overline{O_i}$, $\overline{H_i}$, $\overline{L_i}$ and $\overline{C_i}$ represent the averages values for the open, high, low respectively close price levels for a specified M number of time intervals. Good results are obtained using exponential moving averages [16]. The smoothed HA technique obtained with formulas (2) using exponential averaged of the price levels for M=6 time periods is presented in figure 4.

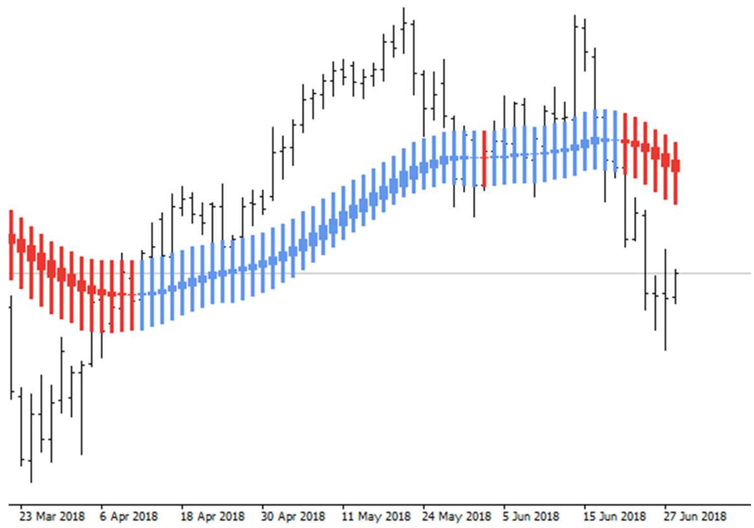
Figure 4: Time price series with smoothed Heikin-Ashi technique



Comparing the figure 3 and figure 4 it can be noticed that the indication given by the candlesticks colors is clearer, a long trade being possible for the entire bullish period included in the figure 4. In practice it is observed that using small period intervals for the moving averages is proper to identify the secondary trends.

For the main trend higher values for the period of the smoothing moving averages must be used. In the figure 5 is presented the same price time series with a modified smoothed HA technique using M=40. It can be observed that the price trends are mode obvious. This methodology is more adaptive to catch and follow the large trends. The graph forms the figure 5 was obtained using an exponential moving average for the smoothed HA. The timeframe used in figure 3, figure 4 and figure 5 is the daily timeframe.

Figure 5: Time price series with smoothed Heikin-Ashi technique for longer intervals



Coding the smoothed HA technique in any multi query programming language is one usual task. To exemplify, in the figure 6 it is presented a sample code for smoothed HA written in Meta Quotes Language [17].

Figure 6: Meta Quotes code for smoothed HA

```
while(pos>=0)
  {maOpen=iMA(NULL,0,MaPeriod,0,MaMetod,PRICE_OPEN,pos);
   maClose=iMA(NULL,0,MaPeriod,0,MaMetod,PRICE_CLOSE,pos);
   maLow=iMA(NULL,0,MaPeriod,0,MaMetod,PRICE_LOW,pos);
   maHigh=iMA(NULL,0,MaPeriod,0,MaMetod,PRICE_HIGH,pos);
   haOpen=(haOpenBuffer[pos+1]+haCloseBuffer[pos+1])/2;
   haClose=(maOpen+maHigh+maLow+maClose)/4;
   haHigh=MathMax(maHigh,MathMax(haOpen,haClose));
   haLow=MathMin(maLow,MathMin(haOpen,haClose));
   if(haOpen<haClose){haLowBuffer[pos]=haLow; haHighBuffer[pos]=haHigh;}
   else{haLowBuffer[pos]=haHigh; haHighBuffer[pos]=haLow;}
   haOpenBuffer[pos]=haOpen; haCloseBuffer[pos]=haClose; pos--;}
```

The problem that will be treated in the rest of the paper is how to use smoothed HA price levels in order to build automated trading signals and how to include them into ATS.

4. TRADING SIGNALS

Once we have the methodology to obtain HA and smoothed HA candlesticks in order to identify the price trends, in this chapter it will be presented the way to build automated trading signals based on these techniques.

In order to automate the trading decisions and orders, the information regarding the price evolution given by HA series must be transformed into a Boolean variable called trading signal. When the BuySignal variable will have “true” value, a buy trade will be initiated by the ATS. For those markets where sell trades can be considered, when the SellSignal variable will have the “true” value, a short trade will be opened by the automated trading algorithm. For this purpose, the price behavior must be included in these signal variables. The way to build the trading signals based on smoothed HA technique is:

$$\begin{cases} BuySignal_i = \left(\overline{Cha_i} > \overline{Oha_i}\right) \wedge \left(\overline{Hha_i} > \overline{Lha_i}\right) \\ SellSignal_i = \left(\overline{Cha_i} < \overline{Oha_i}\right) \wedge \left(\overline{Lha_i} < \overline{Hha_i}\right) \end{cases} \tag{3}$$

Using smoothed HA technique exit signals can be also considered when the HA changes the color of the candlesticks:

$$\begin{cases} BuyExit_i = SellSignal_i \\ SellExit_i = BuySignal_i \end{cases} \tag{4}$$

The exit signals given by formula (4) can be optimized finding the best value for the M number of time intervals used in the smoothed HA series. The relations (4) are used for AT, especially when trades are kept longer to catch longer trends.

The formula (4) is not proper for HFT where the profit target is very small. For HFT additional conditions must be imposed in order to avoid opening trades in the overbought and oversold intervals. These conditions will be presented in the next chapter.

In the figure 5 there is a direct relation between the price tendency and the distance between the Open and the Close of the smoothed HA price levels. When the distance between Ohai and Chai is increasing, the price has a strong movement tendency. When the distance between the open and close of the HA smoothed levels is decreasing, the price is slowing down and it is approaching to change its behavior or trend. This considerations will generate the second type of trading signals based on HA technique. A buy signal can be considered when the open of the smoothed HA is lower than the close and the distance between the two levels is increasing. The sell signal can be made in the same idea for those periods with close less than open of the smoothed HA:

$$\begin{cases} BuySignal_i = \left(\overline{Cha}_i > \overline{Oha}_i\right) \wedge \\ \left(\overline{Cha}_i - \overline{Oha}_i > \overline{Cha}_{i-1} - \overline{Oha}_{i-1}\right) \\ SellSignal_i = \left(\overline{Cha}_i < \overline{Oha}_i\right) \wedge \\ \left(\overline{Oha}_i - \overline{Cha}_i > \overline{Oha}_{i-1} - \overline{Cha}_{i-1}\right) \end{cases} \tag{5}$$

The relations (5) will generate trades only on the intervals when the price makes significant movements in the direction of the trend. All the rest intervals will be ignored or used in order to close the already opened trades. Decreasing the distance between the open and close of the smoothed HA can be also a good exit signal:

$$\begin{cases} BuyExit_i = \left(\overline{Cha}_i < \overline{Oha}_i\right) \vee \\ \left(\overline{Cha}_i - \overline{Oha}_i < \overline{Cha}_{i-1} - \overline{Oha}_{i-1}\right) \\ SellExit_i = \left(\overline{Cha}_i > \overline{Oha}_i\right) \vee \\ \left(\overline{Oha}_i - \overline{Cha}_i < \overline{Oha}_{i-1} - \overline{Cha}_{i-1}\right) \end{cases} \tag{6}$$

The signals (3), (4), (5) and (6) can be applied for different timeframes. These signals can be used for both AT and HFT. For HFT the profit target is small. A significant larger number of trades will be made for HFT. For this case additional conditions must to be imposed in order to avoid opening trades on overbought and oversold intervals.

5. LIMIT CONDITIONS

Good results were obtained combining the trading signals presented in the last chapter with limit conditions imposed in the "Price Cyclicality function" [18] values. Noting with PCYi the value of the price cyclicality function, the limit conditions for the long signals can be automated using the next formulas:

$$\begin{aligned} &BuySignal_i = \left(\overline{Cha}_i > \overline{Oha}_i\right) \wedge \\ &\left(\overline{Cha}_i - \overline{Oha}_i > \overline{Cha}_{i-1} - \overline{Oha}_{i-1}\right) \wedge \\ &\left(PCY_i > \rho\right) \wedge \left(PCY_i < \xi\right) \end{aligned} \tag{7}$$

where ρ and ξ are two functional parameters that will be optimized for each traded market. The computational way to build the PCY function can be found in the author paper [10]. The parameter ρ assure that the trading signal is not initiated too earlier while the parameter ξ will filter the trades in order not to be opened in overbought intervals. The sell signals using the limit conditions with the PCY function can be built similarly.

It was found that the trading signals (7) can open trades even the price trend is not strong enough. In order to filter these cases, a limit condition can be imposed for the gradient of the PCY function. Especially for HFT this filter will ensure good and positive profit expectancy. New trades will be opened by (7) only if the gradient of the PCY function will be higher a specified δ value:

$$\begin{aligned}
&BuySignal_i = \left(\overline{Cha}_i > \overline{Oha}_i\right) \wedge \\
&\left(\overline{Cha}_i - \overline{Oha}_i > \overline{Cha}_{i-1} - \overline{Oha}_{i-1}\right) \wedge \\
&\left(PCY_i > \rho\right) \wedge \left(PCY_i < \xi\right) \wedge \\
&\left(PCY_i - PCY_{i-1} > \delta\right)
\end{aligned} \tag{8}$$

The measure of the functional parameters ρ, ξ and δ will be found by an optimization process using the time price series for a historical interval. Using an iterative process, the optimal values for each functional parameter will be found checking the trading signals for each time interval in the historical price series. Trading results obtained with (8) will be presented in the next chapter.

6. TRADING RESULTS

In this section we will present trading results obtained with the signals detailed above. These results were obtained using TheDaxTrader [19], an automated trading system that uses smoothed HA trading signals in order to generate buy trades for DAX30.

The results presented in table 1 were obtained for HFT of contract for difference (CFD) of DAX30 the period 01.06.2015 – 30.06.2018 with a spread of 1 point using a fixed target of 10 points for each trade. The risk and exposed capital management were made using the “Global Stop Loss Method” presented in the author paper [20].

The smoothed HA trading signals (8) were built for a four hours timeframe interval. An additional condition was imposed regarding the hourly intervals of the executed trades between 8:00 and 16:00 coordinated universal time (UTC) in order to ensure the liquidity on the market.

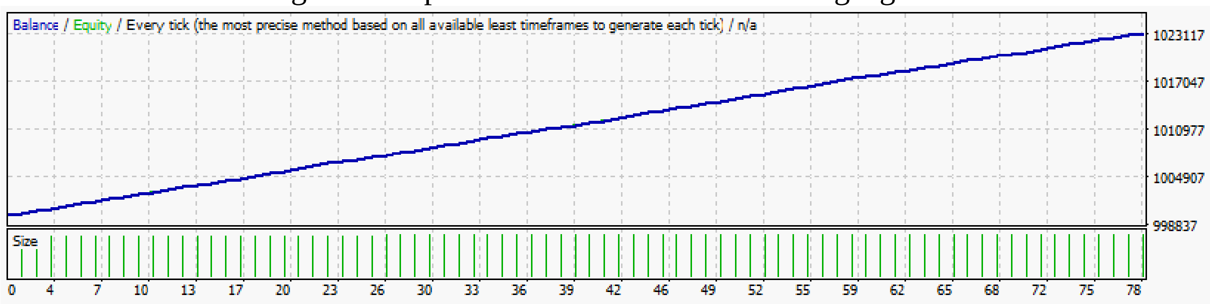
Table 1. Trading results obtained with smoothed HA trading signals

Trading signals (8)	***results***
Start trading	01.06.2015
Stop trading	30.06.2018
CFD spread	1
Profit target	10
Number of trades	78
Total profit	23,257
Maximal drawdown	5,442

Absolute drawdown	2,204
Maximal RRR	1:4.27
Absolute RRR	1:10.55

The results presented were obtained with the next functional parameters included in the formula (8): M=40, ρ=5, ξ=95 and δ=8. The capital evolution due to the smoothed HA signals is presented in figure 7. In the case presented no losing trades were recorded.

Figure 7: Capital evolution due to HA trading signals



The trading results above were obtained considering only one trade opened in a moment of time. If a trade is opened and a new trading signal appears, no additional trade will be considered until the initial trade is closed. The maximal time interval of the longest trade was 111 hours.
In order to reveal the advantages of the Smoothed Heikin-ashi methodology we present a comparison with other known trading methods. The results presented in table 2 were obtained using algorithmic trading in the same period of time (01.06.2015 – 30.06.2018), on the same financial market (DAX30) with the same ten points target.

Table 2. Comparison between trigonometric interpolation and other known trading methodologies

Trading signals	Number of trades	Profit	Drawdown	Risk to reward ratio
Smoothed Heikin-Ashi signals	78	23.257	5,442	1:4.27
Moving averages perfect order signals	96	18,045	8,712	1:2.07
Parabolic stop and reverse signals	102	18,816	6,011	1:3,47
Relative Strength Index signals	68	16,372	5,901	1:2.77

The known trading methods used were the “Moving averages perfect order methodology” [11], “Parabolic stop and reverse methodology” [21] and “Relative strength index methodology”. [6] Each method was optimized to obtain the best trading efficiency for the financial market used. In table 2 it can be seen that the SHA methodology makes a significant larger number of trades with a very good value for the risk and reward ratio (RRR). These results are an additional confirmation that the method is a reliable trading methodology for algorithmic trading.

The author uses the HSA trading signals presented in this paper since 2013 year. This methodology was included in TheDaxTrader automated trading software. With a proper optimization parameters set, the HSA trading signals generate only profitable trades in the stock markets. This methodology was tested, implemented and used with the same good results for a representative number of financial markets: Deutscher Aktienindex (DAX30), Dow Jones Industrial Average (DJIA30), Financial Times London Stock Exchange (FTSE100), Cotation Assistée en Continue Paris (CAC40), Swiss Stock Exchange Market Index (SMI20), Australian

Securities Exchange Sydney Index (ASX200), Tokyo stock Exchange Nikkei Index (Nikkei225), NASDAQ100 Index, Standard & Poor's Index (S&P500) and Small Capitalization US Index (Russell2000). Also with good and stable results the trigonometric interpolation methodology presented in this paper was applied for Gold and Bent Crude Oil financial markets starting with 2015 year.

6. CONCLUSIONS

The Heikin-Ashi trading technique can be improved using smoothed methods with different types of moving averages. The smoothed Heikin-Ashi model can be adapted for algorithmic trading and high-frequency trading in the electronic trading today's market conditions. The presented model permits to identify the up and down trends for different timeframes in any financial market. When an uptrend is detected, a buy signal will be generated by the trading software. Similarly, for those markets with profitable sell conditions, when a down trend is detected, sell trades can be considered.

Automated trading signals can be built using the smoothed Heikin-Ashi time series. Both buy and sell trading signals can be automated together with the exit signals using Boolean variables. In order to avoid opening trades in the overbought and oversold price intervals, additional limit conditions must to be imposed for the Smoothed Heikin-Ashi trading model.

Using the price cyclicality model these conditions can be included in the trading signals variables in order to automate the trade decisions. In order to avoid opening trade in the intervals when the price is not making significant movements additional limit conditions can be imposed with the gradient of the price cyclicality function in order to consider only the strong trends. With all these conditions, the smoothed Heikin-Ashi trading signals can produce a significant number of trades with positive profit expectancy.

The presented trading methodology can be optimized based on the functional parameters in order to be traded on different timeframe intervals and different markets. The functional parameters included in the trading signals formulas will be optimized using repetitive algorithms in order to maximize the profit and to reduce the exposure and capital risk. The proper parameter set will be obtained for each traded market.

The presented trading signals can be named reliable, once a period of 36 months produced trading results with 1:4.27 RRR and 1:10.55 absolute RRR. The optimization process of the functional parameters for the trading signals presented can be made using a time price series of the historical price for any market with good liquidity. These signals can be also optimized for algorithmic trading with longer profit target for automated trading or automated investment systems.

Looking at the compared results included in table 2 we can say that the signals obtained using the smoothed Heikin-Ashi methodology are reliable trading signals. The values for the RRR and the number of trades and profit obtained with the presented methodology are a good confirmation for this assumption.

All trading and the exit conditions included in the presented methodology are based on the Heikin-Ashi price transformation and can constitute a stand-alone trading model for automated trading systems. Being exclusively a mathematical model, the methodology presented in this paper can be applied with good results for algorithmic trading and high-frequency trading. This model can also be used for manual trading.

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INNOVATIONS IN INTERNATIONAL PAYMENTS

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https://doi.org/10.31410/itema.2018.526

Abstract: *The banking industry is under permanent pressure for innovation of banking services and banking products. In 2014 all members of Eurozone implemented new payment system developed under Single Euro Payment Area project (SEPA). SEPA project harmonizes the way euro payments are made across Europe. In 2016 other member states of European Union joined this platform. SEPA allows consumers, businesses and public administrations to make and receive credit transfers, direct debit payments and credit cards under the same basic conditions. SEPA credit transfer is realized in one banking day. The non-banking competition in payments pressed banks to go further and the result was the implementation of first SEPA instant payment in 2017 realized in max. 10 seconds. The Society for Worldwide Interbank Telecommunication (SWIFT), which is one of the most important institutions accelerated innovations in international payments, offers a new cross border payment system known as SWIFT global payments innovation (SWIFT gpi). The aim of this paper is to define innovations in payments, especially: SEPA instant payment and SWIFT gpi. To achieve this aim we are using qualitative methods such as analysis, synthesis and comparison.*

Keywords: *SWIFT gpi, SEPA instant payment, Application Programming Interfaces, Distributed Ledger Technology, Artificial Intelligence in Payments, Ripple X-Current*

1. Introductions

The banking industry is under permanent pressure for innovation of banking services and banking products. According to World Payments Report 2018 during 2015-2016, global non-cash transaction volume grew at 10,1% to reach 482,6 billion [5]. We have to agree with Chris Hamilton, Group CEO, BankservAfrica that without a developed payment system we cannot have a developed economy. Wealth and prosperity depend upon digitalized payments systems in the modern world. [5] Bruno Mellado, head of international payments and receivables at BNP Paribas stated that the whole market infrastructure worldwide is moving to real-time payments and taking away the paradigm of end-of-days and validations as things would be working 24/7. [5]

Together with digitization and the development of new technologies, they are creating new opportunities for entrepreneurship in a volatile, uncertain, resulting into revolution of demand and supply in the field of energy supply side, which requires an adequate transformation of existing business models. [16] Technological innovation: Smartphone adoption has reached 70% in developed countries, while in various developing countries phones are often replacing cash and wallets. [15] Payments providers are regularly popping up due to catalysts like social platforms; nearfield communication (NFC) based payments and digital currencies. New players

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and business models: while the traditional financial industry once controlled the world of payments, new start-ups, spin-offs, and partnerships are introducing new options for the payments sector. In the last few years numerous new FinTech startups have launched with a focus on mobile payments. [4] The focus tends to be on new services, for instance, security with fraud detection and authentication, improved customer experience or making funds available quickly to small businesses when their line of credit is approved. Nowadays, the secure development has become a real and urgent matter in many countries around the world [11]. The next step for these organizations may be determining whether real-time payment becomes a core business element and way to design an operating model to help optimize that service delivery [7].

In 2014 all members of Eurozone implemented new payment system developed under Single Euro Payment Area project (SEPA). SEPA project harmonizes the way euro payment are made across Europe. In 2016 other member states of European Union joined this platform. SEPA allows consumers, businesses and public administrations to make and receive the credit transfers, direct debit payments and credit cards under the same basic conditions. SEPA credit transfer is realized in one banking day. The non-banking competition in payments pressed banks to go further and the result was the implementation of first SEPA instant payment in 2017, realized in max. 10 seconds. The Society for Wordwide Interbank Telecommunication (SWIFT) which is one of the most important institutions accelerated innovations in international payments, offers a new cross border payment system known as SWIFT global payments innovation (SWIFT gpi). The aim of this paper is to define innovations in payments especially: SEPA instant payment and SWIFT gpi. To achieve this aim we are using qualitative methods such as analysis, synthesis and comparison.

2. INNOVATIONS IN PAYMENTS

Over the past decade, we have seen huge changes in technology and business models. New payment platforms and solutions, updated regulations dealing with efficiency and security of payments can - most notably - have higher expectations from traders and consumers. The introduction of low-value instant payment systems in multiple countries will lead to significant changes in how businesses and consumers send and receive payments. We can expect that by more countries developing instant payment solutions, instant payment will be present in all major markets by 2020. Countries with instant payment solutions will evolve to enable both “push” and “pull” instant transaction types. Value limits will increase as banks become more comfortable with fraud and sanctions controls. Value added services will be built on the top of Instant Payment schemes. In future payment traffic will migrate from traditional Wires and ACH/Low-Value Instruments and payment traffic will also migrate from card schemes to instant payments. [6]

Table 1: The Tipping Point for Real-Time Payments

MERCHANT/CUSTOMER EXPECTATIONS	– Get real-time payments – Better us of cash flow – Reduce fraud – Improved and integrated client payment experience – Aid with acceptance – No late fees if same day payment – Low-fee transfers
REGULATORY PRESSURE	– Regulatory mandates

	– Central Bank mandate – AML – To move away from Cash/Checks
NEW PLAYERS AND BUSINESS MODELS	– FinTech start-ups delivering capability – New remittance player – clearXchange – Social platforms
TECHNOLOGY INNOVATION	– Smartphone adoption – Multiple P2P apps – Pay via social tools – Multiple ACH windows – Real-time settlement – Digital currencies – Biometrics
GLOBALISATION	– Need to connect across countries – Pressures from other countries adopting

Source: Deloite: Real-time payments are changing the reality of payments [7]

There are many different market solutions to enable faster payments. We can expect that banks will be scattered by these developments, if they do not consider their customers` needs. Efficient organizations in financial sector start with customers` needs and develop value propositions that are clearly differentiated against competitors, and then put in place the infrastructure needed to support those value propositions.

Many of the innovations refer to a more open and transparent network. However, this can lead to issues around anti-money laundering (AML) and cyber security. In addition, many payment providers are not being as careful as they should with KYC (Know Your Customer) checks, as we have seen in some recent high-profile AML cases. Payment providers with high levels of AML compliance have less chance of incurring a penalty from the regulators.

3. SEPA INSTANT PAYMENTS

One of the most important payment projects of the new century is the SEPA project, an initiative of the European banking industry managed by the European Payments Council (EPC). The aim of SEPA was to eliminate the differences in the ways of realization of domestic and cross-border bulk payment transactions within the Automated Clearing House (ACH), in order to increase efficiency and to reduce costs for all parties involved. The greatest benefit of this European project is the implementation of a new payments landscape to be able to realize cross border retail payments at the same time and price conditions as domestic ones, and even more important is the standardization possibilities. [10]

SEPA also introduced some changes in banking systems: banks had to change their national codes and account numbers for new standards - IBAN (International Bank Account Number) and BIC (Bank Identification Codes). This change represented the biggest challenge for banks within SEPA, as they were using previously different codes for bank accounts in member states. First discussions on the introduction of SEPA mainly focused on the benefits that SEPA would bring in retail payments to consumers, retailers and banks. In recent years, the globalization reached such an importance that currently multinational and transnational companies are able to benefit from SEPA the most. Before implementing the SEPA instruments most corporations had to maintain multiply bank accounts, often one for each country of operations. After the introduction of SEPA every business can - theoretically - be able to run one treasure operation with one bank for the whole Europe. Eradicating the need for multiply resources, currencies, languages, banks and financial managers generate significant savings. Billions of euro's can be saved through improvements to treasury operations through the automation of account payables and receivables, which encourage corporations and their banks to focus on releasing much greater efficiencies through "supply chain automations". [19]

This brings additional strategic opportunities in the segment of large companies that enhance the current trends of centralization, standardization and automation resulting in cost reduction on the one hand and in improving risk control on the other. In particular, centralization goes about creating a centralized financial management (treasury), payment factory and in-house bank, which also brings billions of savings. Automation is associated with the introduction of new interfaces in information technology, with further dematerialization of paper and direct treatment. In the area of standardization SWIFT continues to play an important role - offering large companies new ways to communicate. To advance the goals of centralization helps SEPA payments that the company is able to reduce the number of accounts needed within the EU and to facilitate the centralization of liquidity. The automation simplifies data reconciliation and uses the new data elements. There are also simpler system configurations at hand, thanks to the elimination of domestic formats. Corporates are able to harmonize and use one database format (XML) for the whole Europe. [10]

The next step in SEPA was identified by European Central Bank (ECB) in November 2016 – the need for a pan-European euro instant payment solution. The most relevant features of the SEPA Instant Credit Transfer Scheme, launched one year later in November 2017, is the immediacy – the funds will be available in less than ten seconds after the transfer is initiated. Another important feature is the fact that the scheme will be open and accessible to users and service providers 24 hours a day, 7 days a week. These two main features, immediacy and accessibility, are the ones that best describe the scheme. Any bank or PSP (Payment Service Provider) can adhere to this scheme. Initially, the SEPA Instant Credit Transfer scheme was implemented in eight European countries: Austria, Estonia, Germany, Italy, Latvia, Netherlands and Spain. PSPs from Finland, Belgium, Malta, Portugal and Sweden will also be ready in 2018. [18]

Instant payments can be extremely useful in a number of situations, for instance, to urgently send money to a relative living abroad. But what is even more important, instant payment can be an excellent substitute for cash. They are also very convenient when paying for goods or services that require on-the-spot payment, such as moving company services or buying antiques. [8] In terms of payments functionalities and reach, corporates have probably more requirements than individuals and their demand for instant payments may be lower because they have alternatives. For a purely B2B environment, the limitation of EUR 15,000 could become an obstacle and that is why they are watching it very closely and, if necessary, they will increase that amount. However, for many purposes, having instant payments functionality is something valuable and beneficial, and corporates and businesses will benefit from it as well. [18]

4. THE SWIFT GLOBAL PAYMENTS INNOVATION (SWIFT GPI)

The SWIFT global payments innovation (SWIFT gpi) is the largest change in cross-border payments over the last 30 years and is a new standard. SWIFT gpi dramatically improves the customer experience in cross-border payments by increasing their speed, transparency and end-to-end tracking. Hundreds of thousands of cross-border payments are today being sent, using the new gpi standard, and payments are made quickly, typically within minutes, even seconds. SWIFT gpi allows corporates to receive an enhanced payments service, with the following key features:

- Faster, same day use of funds within the time zone of the receiving gpi member
- Transparency of fees
- End-to-end payments tracking and
- Remittance information transferred unaltered.

Launched in 2017, gpi one year later already accounts for 25% of SWIFT cross-border payment traffic. More than 165 banks, representing 80% of SWIFT's cross-border payments traffic, and including 49 of the world's top 50 banks, have signed up for the service. To date, 50 million gpi payments have been processed, with hundreds of thousands of payments sent daily across 350 country corridors, in more than 100 currencies. In major corridors, such as USA-China, gpi already accounts for more than 40% of payment traffic. It is set to be the standard for all cross-border payments made on the SWIFT network by the end of 2020. [22] SWIFT gpi is seen as a key player in China's Belt and Road Initiative (BRI). It is designed to improve the customer`s experience in correspondent banking by increasing the speed, transparency and predictability of cross-border payments. The service offers Chinese banks faster transactions and also improves the overall banking experience by creating predictable settlement times, transparent bank fees and FX rates, and clear statuses. This turn leads to shorter supply cycles and faster shipping of goods on the customer`s end. The discrepancy in standards and regulation across the BRI introduces a number of challenges, such as the absence of unified communications framework and compliance issues. Strengthening financial connectivity on the BRI routes is vital in ensuring its success in driving trade and stimulating economic growth across Asia. [13]

As a next phase, SWIFT has created a work group comprised of banks from China, Australia, Singapore and Thailand to explore, if these payments can further be sped up. The work group will define a set of business rules to look into how business process frictions can be overcome to facilitate faster (or close to real-time) payments. The working group will also identify domestic real-time payment systems that will carry the gpi information and unique end-to-end transaction references (UETRs), to allow the reach of the gpi service to extend into domestic payment system environments.

5. OTHER IMPORTANT INNOVATIONS IN PAYMENTS

Application programming interfaces (APIs) are technologies used by the travel sector for years to allow two applications to communicate. In the financial sector banks and payment service providers (PSPs) now use them to be able to open their infrastructure to share data, to communicate with one another and to enable straight-through payment processing on international business payments. They can also improve the efficiency of an accounts payable function by reducing manual input. The potential benefits are in smoother experience as businesses can carry out more tasks within their existing business applications rather than logging into multiple systems and more simplified and accurate audit and reporting processes.

It enables finance departments to automatically call on FX rates for their payments from their provider, as well as accessing beneficiary verification tools all with their existing business architecture. In addition, once payments have been sent, auto-reconciliation can take place significantly reducing manual processing time. [3]

API basically provides access to an organization's digital assets and services; deployed effectively it allows users to access a third party system from their own environment. Emerging trends are evident in API usage across the fintech space, as well as banks' usage to extend differentiated services to corporate customers. [20]

Major reason for banks to foray into the API space, as the future will see many financial services emerges not only from banks but also from start-ups. While banks have the huge asset of financial data, which they are trying to protect, a smarter approach would be to generate new revenue streams from that asset. [21]

Distributed ledger technology (DLT) is one such innovation that has been cited as a means of transforming payment, clearing and settlement (PCS) processes, including how funds are transferred and how securities, commodities and derivatives are cleared and settled. DLT is a term that has been used by the industry in a variety of ways and so does not have a single definition. Because there is a wide spectrum of possible deployments of DLT, this paper will refer to the technology as some combination of components including peer-to-peer networking, distributed data storage, and cryptography that, among other things, can potentially change the way in which the storage, recordkeeping, and transfer of a digital asset is done. [14]

Current payments gateways rely on international payments passing through intermediary banks, which may slow the process down, increase costs and reduce payment visibility. With distributed ledger technology (DLT) payments become more or less instant and – due to the nature of the transaction – do not require intermediary banks. Well-known example of DLT is blockchain, with Ripple being one of the bigger names. Blockchain uses a ledger to store each transaction so all parties can see the relevant data and nothing can be altered. There are still regulatory and compliance issues to solve before blockchain become mainstream solution. Using DLT can reduce costs and improve efficiency, as international payments do not need to pass through intermediary banks. Payments are generally more secure thanks to increased transparency. International payments arrive with beneficiaries much faster compared with current payment gateways such as SWIFT. [3]

Modern electronic payment systems rely on trusted, central third parties to process payments securely. As the world of technology advances by big steps forward, new challenges and security problems emerge [12]. Recent developments have seen the creation of digital currencies like Bitcoin, which combine new currencies with decentralized payment systems. Although the monetary aspects of digital currencies have attracted considerable attention, the distributed ledger underlying their payment systems is a significant innovation. As with money held as bank deposits, most financial assets today exist as purely digital records. This opens up the possibility for distributed ledgers to transform the financial system more generally. [2]

Artificial Intelligence (AI) is helping many companies to improve their efficiency around their international payment processes. For example, it can help to reduce time spent on manual data input and reduce errors, so more payments go through successfully. One form of AI called machine learning (ML) can be used to identify and stop fraudulent online payments before they happen. With ML, the system processes a huge amount of data in an instant and progressively improves its “knowledge” about a person or situation. It can be used to work out the identity of the person making the online payment, or more specifically determine whether the person who owns the account is making the payment. It can also help companies to decide whether to offer individuals services such as bank accounts or loans. As many payments are now made in real time, and international payments will not be far behind, ML is a vital tool in stopping online payment fraud and cyber attacks. Machine learning can be used to reduce foreign currency (FX) risk by helping corporate treasury departments process large volumes of data and make more informed hedging decisions. [3]

AI technologies will clearly have huge impact on the financial services sector. Banks will redefine how they work (their processes), what they sell (their products and services) and how they interact with their customers and employees (their user experiences). They’ll redefine their operating structures for an AI-enabled workforce. Humans and AI will work together to drive process and operational efficiency. And new AI applications will create growth through improved customer and employee experiences. [1]

Ripple X-Current is a private blockchain technology that uses inter-ledger protocol. According to the information provided by Ripple, the enterprise software solution enables entities on the chain to instantly settle cross-border payments. To give payments the greatest chance of success, Ripple uses a two-way messaging format allowing entities to share information in real time such as fees, FX rate and risk and compliance information.[3] Ripple's cross-border payments product for banks - the xCurrent - offers an alternative to SWIFT for moving payments between banks and payment providers in different countries. Ripple describes xCurrent as a global real-time gross settlement (RTGS) system – the same label the world's central banks use to describe their own settlement systems. But each state's RTGS settles only its own currency while Ripple's ‘global' RTGS settles multiple currencies. It uses blockchain (distributed ledger) technology and real-time messaging to enable cross-border payments that are claimed to settle in seconds within the network of financial institutions using Ripple's software, which the company calls RippleNet. [9]

Ripple cross-border payments may involve correspondent banks. Using xCurrent, the financial institutions involved in the payment send messages to each other in real time to confirm payment details prior to initiating the transaction, and to confirm delivery once it settles. The payer's bank initiates the process by using Ripple's messaging to gather the required information, including a quote for all fees charged by each bank in the chain, as well as the FX rate. This lets the payment provider inform the customer in advance about the total cost of sending the payment, in contrast to the fee uncertainty associated with traditional bank-initiated cross-border payments. [17]

CONCLUSION

Over the past decade, we have seen huge changes in technology and business models. New payment platforms and solutions, updated regulations dealing with efficiency and security of payments can - most notably - have higher expectations from traders and consumers.

SEPA allows consumers, businesses and public administrations to make and receive the credit transfers, direct debit payments and credit cards under the same basic conditions. SEPA credit transfer is realized in one banking day. The non-banking competition in payments pressed banks to go further and the result was the implementation of first SEPA instant payment in 2017 realized in max. 10 seconds. The Society for Wordwide Interbank Telecommunication which is one of the most important institutions that accelerated innovations in international payments, offers a new cross border payment system known as SWIFT global payments innovation.

The banking industry has to face a permanent challenge of implementation of new technologies and the payments are one of the most important areas of these innovations.

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IS IT WORTHWHILE TO PLACE BUREAUCRATESE PROCEEDINGS BY AN SME?

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Abstract: *During our former examinations we demonstrated a breast-wheel lifecycle model [1] for SME's. By the help of our lifecycle model we purpose to give a hand for the SMEs to compass how to handle and coordinate the general growth of their lifecycle.*
Purpose of this paper is to give way to such issues in connection with the bureaucratic behaviors or interventions of an SME, which could be either foreshadowing progress or even retroactive by the day-by-day life of a company. We would like to explain, when the bureaucratic attitude of mind puts in an appearance at first by an SME from our point of view. Some other lifecycle models regard the presence of a bureaucratic period as decadence of the company on the lifecycle, but should be actually all of the bureaucratese proceedings naysayer? In the paper, we introduced some real example from a Hungarian medium-sized company's life, where the decision makers adopted some bureaucratic elements by the leading procedures. Was it worthwhile?

Keywords: *bureaucratese proceeding, SME, lifecycle*

1. INTRODUCTION

The meaning and definition of bureaucracy can be interpreted and defined in almost all manner of ways; as in other scientific examinations, in the present case the interpretation depends mainly on the environment in which we perform our analyzes. Usually, in the first hearing, people involves a negative emotional relationship with the word; which is likely to be justified by the life situations arising from the social environment and the deepening of stereotypes in daily life. For example, an online concept-determining dictionary interprets the concept of bureaucratic processes as: *"needlessly time-consuming processes"* [2].

The moment of the appearance of bureaucratic elements is due to the increase in company size according to many people, which may be true for a non-SME corporate segment, but we can be sure that the phenomenon is by all means closely connected with the size of the company as well? In order to gain a better insight into the possible roots of problems affecting the topic, in my opinion, it is worth considering some of the related concepts that are discussed in the next chapter.

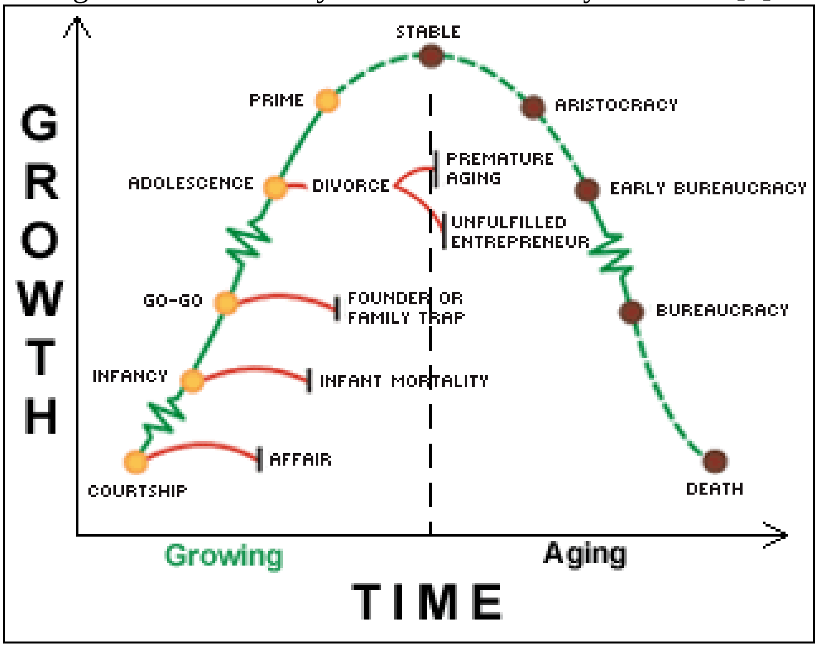
2. RELATED PARADIGMS

In the field of corporate lifecycle management analysis, we can see that the appearance of bureaucratic features is almost always present in the downturn phase of the corporate career. According to Adizes's model [3], one of the most well-known corporate life cycle models, early bureaucracy and bureaucracy are the first to appear in the ages of entrepreneurship.
According to Adizes *"the Bureaucratic organization":*

- *Have many systems and rules and runs on ritual, not reason.*
- *Have leaders who feel little sense of control.*

- *Is internally disassociated.*
- *Creates obstacles to reduce disruptions from its external environment.*
- *Forces its customers to develop elaborate approaches to bypass roadblocks.*" [4]

Figure 1: Bureaucracy at the Adizes Lifecycle Model [8]



The concept of bureaucracy also appears in many other lifecycle models – as in the Greiner [5], Hisrich-Peters [6] or even de Gaus [7] models – although they no longer take a sharp stand for the features as the Adizes model.

The subject of bureaucracy is not only found in lifecycle models but also in other disciplines of management sciences, which can also be significant influencing factors. Among them, the factors to be highlighted are management styles, organizational structure, corporate communications, strategic management and strategic planning [9], external market and political environment and increasingly predictable corporate IT systems.

Considering of leadership styles, for example, the atmosphere is sharply different by a directive leadership (autocratic) business or by a participative leadership or supportive leadership [10] company. In some cases, the organizational structure predetermines the daily presence of bureaucratic features, if the individual decision-making, management or liability paths of the company are in such way designed. The corporate communications rule system can also provide a sprawling interface for bureaucratic elements; in the case of companies typically targeting formal communication channels, the number of bureaucratic functions increases in size by the size of the company. But beyond internal factors, the commitment of the external market and political environment to bureaucratic operating principles may also be decisive.

3. EMERGENCE OF BUREAUCRATIC ELEMENTS

After that, would you be frightened as an SME business owner if any bureaucratic attribution appears in your business life or not? In my opinion this depends on the introduction of a new concept: the level of bureaucracy.

This level may depend on how the aforementioned management instructions and the organizational structure by the company work, and, of course, many other small but unique factors that are difficult to identify homogenously due to the diverse world of the SME sector.

As we can see, the level of bureaucracy itself is what sets the flexibility of the business itself: the relationship cannot be described either directly or inversely proportionally, but depending on how efficiently the bureaucracy is managed by the management in favor of gaining business benefits. Therefore, it is believed that the most obvious solution to balance is the use of corporate policies that are able to define standardized procedures for specific processes in certain corporate processes.

The need for continuous monitoring, as well as the need for a more complete recording of the data of individual business processes or events, is becoming increasingly important for SMEs.

Some company owners therefore identify high level of bureaucracy with the presence of high operating costs. That is why, generally, if the leader considers the level of bureaucracy to be high during some operational process, it is likely to reduce or relieve it by introducing some automation. And here comes the emergence of IT disposals as well, even among the SME sector: we can read almost every day about a revolutionary new hardware or software solution – or even an advertisement – that can provide breakthrough answer to even for our own business.

4. BIG DATA AND BUREAUCRACY

With increasingly emerging innovations in industry 4.0 and digital transformation, modern technology solutions are already embedded in the SME sector and can even start from technological startups. Behind the applied technologies, however, they have often bureaucratic frames: in manufacturing processes, the aim is to provide all devices and equipment with data acquisition sensors; monitoring the workflow of human resources is also a priority for maximizing efficiency and complying with production standards; the production machinery and instruments are also connected to networks, as far as possible in an automated way and communicating with each other, to provide continuous insight into every aspect of the production; as regards quality control processes, more and more measurement and test data are collected from raw material testing, including manufacturing control processes, through the full quality control of finished products; and we could still give more examples.

This results in the fact that not only multinational companies, but also the SMEs are accumulating a wealth of data, and the concept of big data also appears in their lives. The biggest challenge for SMEs is to properly select data and create targeted inventories from the big databases, that is, to decide what data can best be used for.

There is a phenomenon of controversial interest: on the one hand, the more data we collect, the more bureaucratic criteria prevail. However, with the high efficiency of the many data, we can get information that can gain competitive advantages, whether it is to increase productivity, research, or improve quality.

5. CASE STUDIES FROM SMEs

In the following, three examples of SMEs's will be presented, where bureaucratic evolution has not come back as a retreat but has led to the emergence of positive benefits. To make the impact of change more transparent, each case study is presented in three phases: the preliminary state, the performed interventions and the final result.

5.1. A CASE STUDY FROM LOGISTICS

The preliminary state: The case study company is a 7-person SME, whose main activity is the supply of 19 liters balloon mineral water to house and businesses and the provision of water dispensing machines. The company operates close to 600 water dispensers and, on average, supplies more than 8,000 balloons of mineral water per month. Orders are recorded in a central software system, which is mainly received by phone call and online orders. The main problem is that customers cannot predict how many rechargeable empty balloons can be sent back to the new orders so the balloon storage can be difficult to trace.

The performed interventions: The Company attached NFC-tags to all of the balloons that were connected to the customers by mobile phone application on delivery of the mineral waters. The empty balloons will be scanned at all times when returned as well.

The final result: Although a new bureaucratic administrative method has been introduced, the company has an up-to-date information database on the current balloon inventory. With the help of the new system, not only stock management but customer-level consumption patterns could be measured, which could have added further benefits to the company. The NFC system's operation and manual data capture processes are very fast and economical, and because the collection of information are made by automated algorithms, the system gives almost instantaneously results for the decision-makers.

5.2. A CASE STUDY FROM MANUFACTURING

The preliminary state: In the present case study, there is a company with 60 employees manufacturing steel structures. There are computer-controlled (CNC) parts manufacturing machines available, but welding processes are performed by qualified welding colleagues with manual work. Workflows and work instructions are issued to so-called worksheets for physical workers. The main challenge is that the actual time requirements of the projects and the traceability of the production are very complicated if there are many simultaneous orders, and the timeliness of the related manufacturing processes is not always met.

The performed interventions: The management has placed terminals on the entire site of the plant and provided products with bar-coded product card identifiers. Physical workers also have their own bar code identifier, and the start and end times of each workflow are recorded at the terminals. For welders, a barcode registering unit was installed in each welding machine, so for them there is no need to use the terminals at all. The CNC machines have also been switched into the local network, so the operations performed on the machines are automatically recorded.

The final result: In this case, too, a number of new data capture processes, but all the operating times associated with the products, have become apparent and analyzable for the enterprise. With some automated analytical systems, there is still a way to intervene during the running production to further optimize each process. Since the data collection is also digitalized, it can be said in this case, that the amount of administrative time is dwarfed by the value of information gained by the data.

5.3. A CASE STUDY FROM THE FIELD OF MANAGEMENT

The preliminary state: The third company operates with its more than 50 members on the field of production as well. With the growth of the company, the owners couldn't serve the management functions only by themselves anymore; therefore they had to open up to classical delegation solutions.

The performed interventions: The owners have set up a new corporate hierarchy system, where a business leader has been appointed. The hierarchy system was divided into groups of resource allocation and management units familiar to the multinational companies, and middle level managers were also nominated for each new group (each group consists of up to eight people). Owners manage their management and control functions through the business leader and the hierarchy system, so it is enough for them to communicate via the business leader. The business leader leads the tasks of the company's employees through regulated workflows and established standards by the occasion of the middle management meeting.

The final result: Through the introduction of the new management hierarchy system, the owners' time to acquire new business has increased. However, the speed of enterprise communication through the introduction of new bureaucratic elements (such as standards, policies, and control points) has not diminished as the flow of information through the owner, business leader and middle management axis does not interfere with any obstacle.

6. SUMMARY

As it can be seen from the case studies above, if newer bureaucratic elements are introduced to an enterprise at an appropriate or flexible burst level, coupled with the opportunities offered by modern facilities, they can appear not only as a retreat, but also as positive externalities during their daily business life.

Returning to the original question: is it worthwhile to place bureaucratic proceedings by an SME?

With the words of one wise teacher: it depends on... Depends on many factors. However, if the bureaucratic elements are introduced in proper time and are adequately attenuated by the possibilities of our digital world today, a number of beneficial situations can result from it.

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STOCHASTIC FORECASTING ANALYSIS OF INVESTMENT FUNDS - CASE OF ALBANIA

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Abstract: *Investment funds are financial institutions that make it possible for investors (people or businesses) to invest in their savings (or profits). The creation of investment funds is a phenomenon of the development of the financial markets of the 20th century, and nowadays. The greater the development of these funds, the more developed it is the capital market of a country. In this study we have analyzed the investment funds in Albania, represented by Raiffeisen Invest Euro. The Monte Carlo simulations of Brownian motion were used to forecast the risk return of this fund. The stochastic process techniques and the VaR model are applied to each finding of the study. Investment funds in Albania, as a new investment alternative, are not generating attractive returns for different investors. In addition to the fact that investment funds are in the start-up phase it results that their quotes have a high risk and low return. This indicates the lack of diversification and the high operating costs of the fund.*

Keywords: *Investment fund, Brownian motion simulation, VaR.*

Introduction

Investment funds in Albania are sum of financial assets which are managed from certificated union by Financial Supervisory Authority. All of these money together form the fund assets, are invested in financial markets in Albania or in other countries, in treasury bills, treasury bonds and other financial instruments. Although it is a new form of investment, individuals are "replacing" bank deposits versus participation in investment funds. Currently on the market of investment funds in Albania, funds to carry out their activities are in the form of mutual funds. We can mention several investment funds: Raiffeisen Prestige; Raiffeisen Invest Euro; Raiffeisen Vision; and Credins Invest. The first investment fund in Albania was opened by Raiffeisen Invest in 2012 and other funds were opened later. This shows that this is a new financial investment market for the financial system in Albania. However, the interest of individuals to invest their funds is growing. In Albania there is no liquid financial market yet (stock exchanges, in function) and the alternatives of investment of money savings of individuals and businesses are limited only in some forms:

a. *Bank deposits*. This is the classical form of investment for individual investors in Albania, while businesses prefer to reinvest money into business plans than in bank deposits.
b. *Government Instruments*. This form of investment focuses on investing in treasury bills and treasury bonds. Treasury bills have a maturity up to one years, while bonds have a maturity of up to 10 years. The advantage of investing in government instruments is the fact that all government securities are guaranteed by the risk of credibility.

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c. *Investment funds.* Investment funds in Albania are mutual funds, which are managed by a licensed financial company. These companies are licensed by the Financial Supervisory Authority. The amount invested and the times of investment are flexible.
d. *"Stock exchange on-line "*. Currently, many businesses or individual investors are analyzing investment in abroad stock exchanges as an opportunity to increase their savings. These transactions are made by specialized financial companies in Albania. Some of these companies are: FX Lider, Easy Invest, etc. which are not licensed by the Bank of Albania and the Financial Supervisory Authority. These investment forms have a high bankruptcy risk (total loss of invested funds).
e. *Real estate assets*. This form of investment is an alternative that is used by individual investors with large savings and by businesses. The main feature of investment in real estate is the protection against inflation.

This study analyzes and forecasts the performance of the investment fund Raiffeisen Invest in Euros in Albania. This investment fund is the earliest and represents the largest share of investment funds market in Albania. In order to make analyzes and conclusions to be as current, we have analyzed the 268 days of 2018.Using the Monte Carlo simulation techniques of Brownian motion and VaR (Value at Risk) model, we have analyzed the risk and return of the investment fund. We emphasize that the results of this paper should be applied for short-term decisions and help investors understand (currently) how the risk and return is in the investment fund.

Literature review

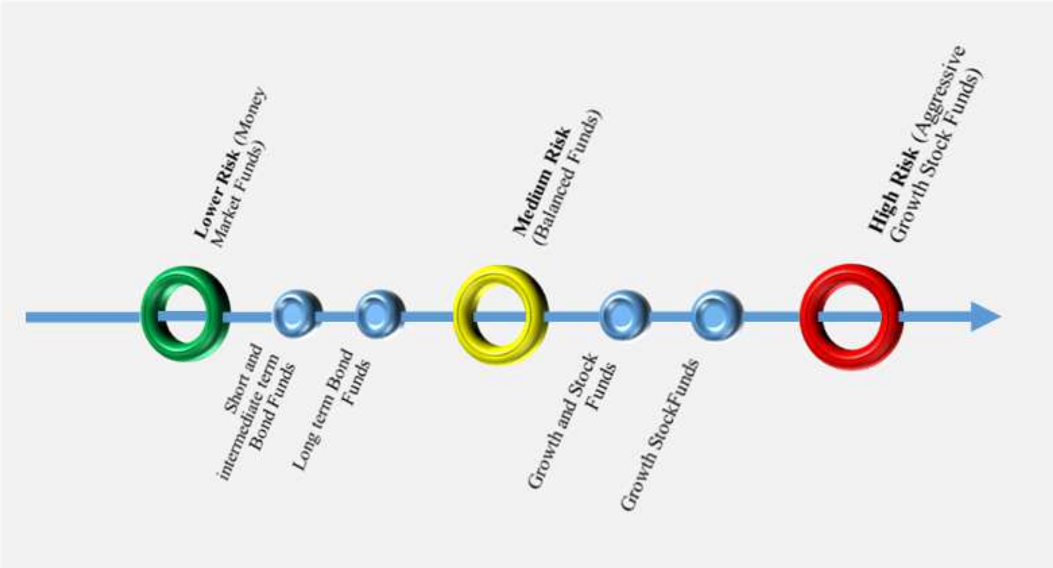
There is no doubt that investment funds (the simplest forms of them: mutual funds) are one of the most successful financial innovations of the 20th century. Nowadays, investment funds have become a very important investment alternative of investor's savings, in developed financial markets worldwide. Due to the lack of parity rate of return in financial markets, the demand for mutual funds is essential for the development of capital markets (Lobão and Gomes, 2015).

Simple investment funds (mutual funds) have some common qualities that make them a different investment alternative from other forms for each investor (U.S. Securities and Exchange Commission, 2016). These features are:
- Professional management (professionally managed in financial terms);
- Diversification (Funds are diversified in the efficient way of risk-return);
- Low minimum investment (require a minimum investment for an investor to become part of the fund units);
- Liquidity and trading convenience;
- Costs despite negative returns;
- Lack of control (the investor does not affect the investment of financial securities);
- Potential price uncertainty (depends on the price of the financial securities where the fund is invested).

Generating revenue from investment funds depends on how funds are invested, in specific industries, or as diversified funds, Boudoukh, McAllister, Richardson and Whitelaw (2003). In the same conclusion, Goetzmann, Ingersoll and Ross (2003), have concluded that the flow of capital into the fund (and thus the growth rate of the assets) depends on changes in the fund's value and other characteristics of the fund. Thus the change in the fund's net asset value (Chevalier and Ellison, 1997). But it is not the only characteristic that changes the flow of capital into the fund, because growth rate of the assets depends on: fund size (Sirri and Tufano, 1998), age of fund (Chevalier and Ellison, 1997), and fund type (Bergstresser and Poterba, 2002).

Investment funds are: from the simplest to the trusted ones, to the more specific ones, that are invested in specific industries of the economy or indexed on specific equity markets. As with any financial activity, investment funds are an institutional investment form where risk management is very important to them (Deloitte 2016). How the risk is managed in the investment fund? This depends on the financial structure of the fund (investment portfolio in the securities market). In a theoretical illustration, this is shown in the figure no. 1 below:

Figure no. 1. The investment fund and its dimension of risk



Fund performance is affected by investment strategies that are related to the well-known momentum effect in equity prices, the firm size effect, and the value premium (Engström, 2004). Investment funds are not only an investment alternative of different inventors but also develop on the financial capital market. The ability of the investment fund to achieve this great financial success depends directly on the management capability of funds. In these cases, the fund is not simply a portfolio of investments but a strategic investment fund for the financial demands of a country's capital market (Halland, Nowl, Tordo and Kloper-Owens, 2016).

Methodology of study

The data that are taken in analysis are time series (daily quotation) for 268 days of 2018. These data are based on one of the most important investment funds in Albania, the first one created in this country. The analysis included in this study is based on Monte Carlo simulations of Brownian motion, and construction of the VaR (value of risk) estimation model for the Raiffeisen Invest Fund in Euro, in Albania, applied to Microsoft Excel 2013. According to the Brownian motion simulation, the quote S is random walk with the characteristics:

(1) For each $0 = t_0 < t_1 < ...< t_n$, martingals: $S_{t1} – S_{t0}$, $S_{t2} – S_{t1}$, ..., $S_{tn-1} – S_{tn}$ are independents.
(2) Mathematical expectation $E[S_{t,i} – S_{t,i+1}] = 0$ and variance $V[S_{t,i} – S_{t,i+1}] = t_{i+1} – t_i$.

Quotas are non-negative, so exponential forms of exponential functions are used to analyze the price change (or return), while the technique used in this study to measure the fund's risk is the

VaR model. VaR (value at risk) measure the value of lowest expected loss in conditions of normal distribution market trend, for the specific interval of time and specific confidence level. How much can you lose with an x% probability? The answer of this question is given by VaR (the lowest quartile of potential loses that might occur in one portfolio during a specific time.

VaR has a very substantial meaning in portfolios estimates when analyzing quantitative data with normal distribution. Based on the central limit theorem (and the law of large numbers) our data complete this feature after 268 days /observations in the analysis. If the initial investment is S0 and R return on investment, then the value of the maturity at the end of the investment holding period was by equation: $S_1 = S_0*(1 + R)$. VaR (relative loss vs. average) in relative terms this expected return R* is analyzed as it deviates from the historical average, this estimate will be according to the equation $VaR = S_0*(E[R] - \mu)$, while in absolute terms: $VaR = S_1 - S^*$. Where S* is the minimum value of the invested portfolio or quartile of probabilistic distribution, under it we are at risk. If we note f(s) the probability distribution of the future value of the portfolio, VaR for defined confidence levels *k*, computes this minimum value S* (i.e. so that the probability does not exceed the confidence level *k*) by equation: $\mathrm{k} = \int_{S^*}^{+\infty} f(s)\,ds$ or it calculates for this minimum level, the probability $p = (s \leq S^*)$ and $1 – k$ is:

$$1 - k = \int_{-\infty}^{S^*} f(s)\,ds$$

A general introduction to VaR can be found in Linsmeier and Pearson (1996) and Jorion (1997). The lognormal distribution is a more reasonable distribution for many asset prices (which cannot become negative) than the normal distribution. Suppose that the return [return = log (price relative)] on the portfolio is normally distributed with annual mean μ and annual standard deviation σ and the current value of the portfolio is S_0. The logarithm of the portfolio value at time *T*, S_T, is normally distributed:

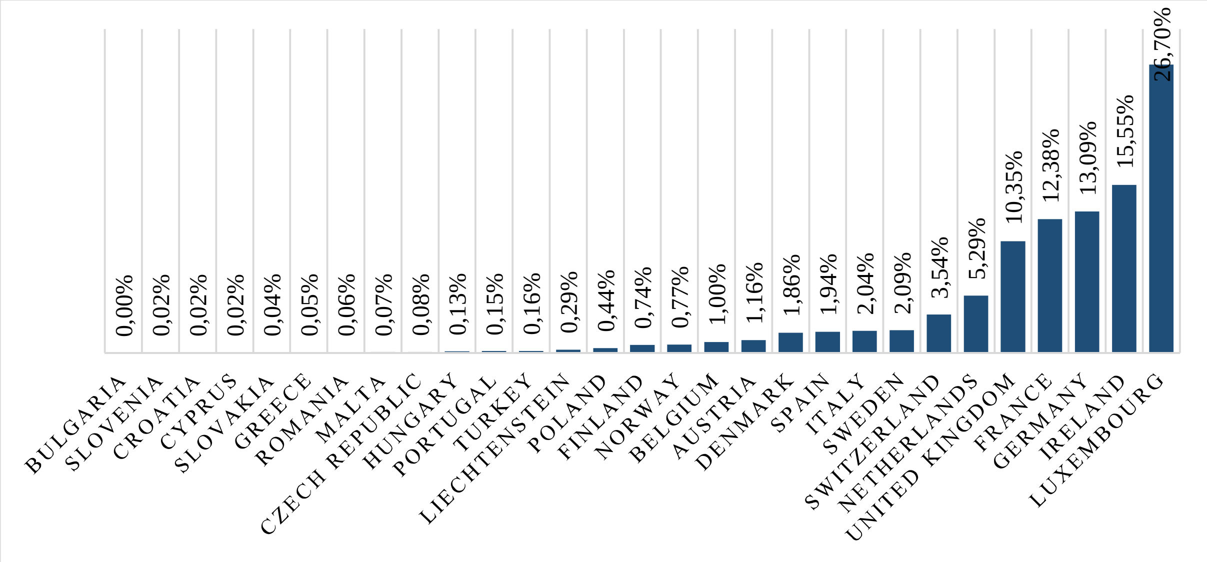
$$\ln\left(\frac{S_T}{S_{T-1}}\right) \sim N\left[\left(\mu - \frac{\sigma^2}{2}\right); \sigma\sqrt{T}\right]$$

In portfolio management the VaR calculations are interested in losses of portfolio values over a short time period (typically several days or weeks). The formula VaR above is used over any horizon of time period. T in formula is measured in annual terms and the daily VaR corresponds to T = 1/360, but in our analysis observations are measured in daily terms, so and T is 1.

Analysis and results

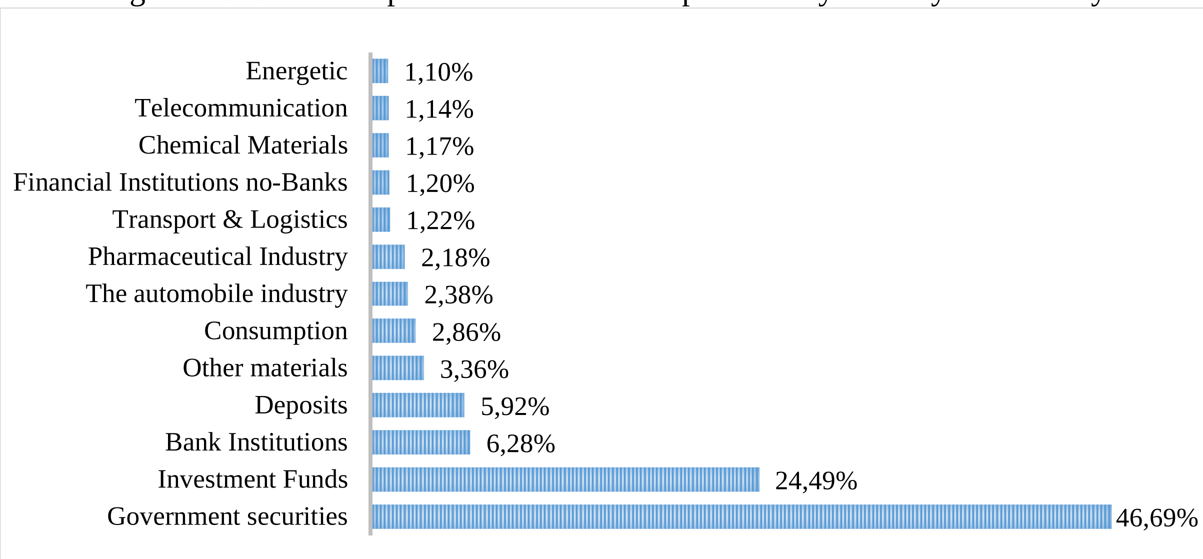
In developed European countries, investment funds are highly developed, increasing the financial performance of capital markets. However, the differences from one country to another are obvious when we analyze the capital invested in these funds. Total net assets of European investment funds decreased by 0.5% to EUR 15,541 billion at the end of Q1 2018. Net Assets of the European Investment Fund Industry by countries (in% of total):

Figure no. 2. EFAMA Quarterly Statistical Release N° 73 (Q1, 2018)



As we have said above, investment funds in Albania are a part of the financial market at their start-up stage. The largest and the earliest capital investment fund in the market is Raiffeisen Invest Euro. The minimum amount that can be invested in this fund is 250 euro's. The Fund has a portfolio focused mainly on debt securities issued by the Government of the Republic of Albania, other governments and international corporations. The Fund has also invested in investment fund quotas or shares of investment companies as another form of diversification. Fund data on 31.08.2018 (Raiffeisen Invest, 2018) show a net asset value of about 94 million euro's and the number of investors is about 4000, with annual return -0.38% (period 31.08.2017 - 31.08.2018). In figure no. 3 we show how the invested capital is distributed according to the industries of the economy.

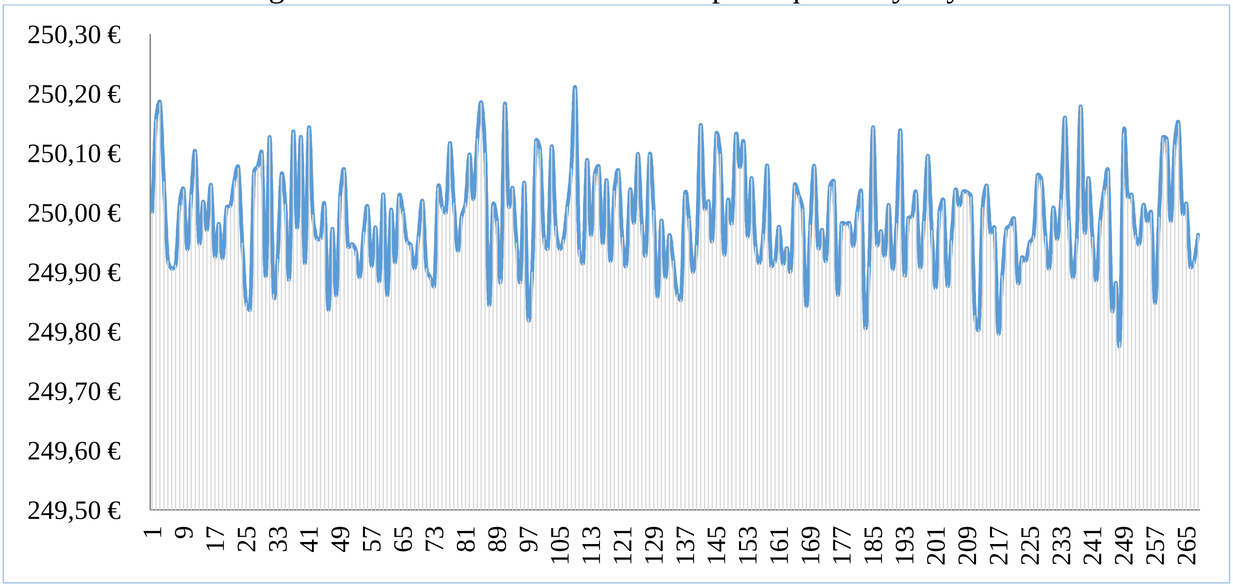
Figure no. 3. The composition of investment portfolio by industry of economy



This graph shows a focus on investing funds in Government securities or other investment funds. This indicates that the level of diversification in the economy sector continues to be low, making the fund not have active diversification. In this aspect, the aim is the sustainability of quotations (a controllable and low risk), this has caused the fund to have a low return, as a result of the decrease in government securities yields. Therefore the average annual return rate of the fund was -0.38%.

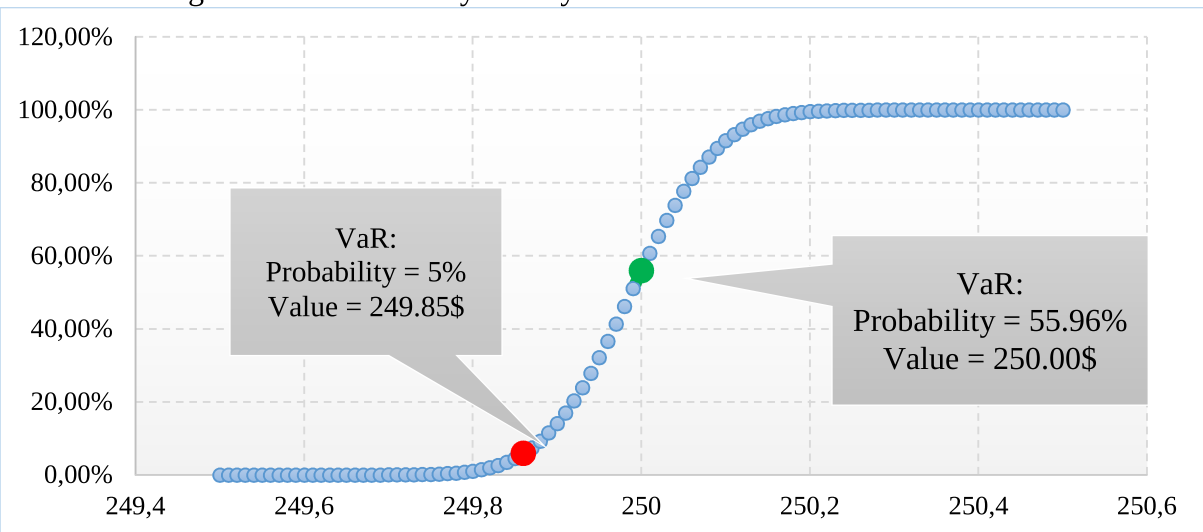
Based on the historical quotations of the Raiffeisen Invest Euro, we have assumed that an investor invests the minimum amount allowed, 250 euro's. Using the Monte Carlo simulation method of Brownian motion, we forecasted the performance of quotas for 268 days in the future. The simulated performance of fund quotes for the forecasted days is shown in figure no. 4:

Figure no. 4. The simulated trend of price quotes by days



In order to explain the level of investment fund risk, diversification and risk-return potential for investors, we have used the VaR model in this paper. The results of the analysis are shown in the figure no. 5, below:

Figure no. 5. Probability density function of the fund and VaR model



Loss of daily value (with probability 5%) is at least 0.06% or as geometric average 24.10% is annual decreased return. This means that from the beginning of the year with the value of the fund S_0 = 250 euro's, at the end of the year will be 189.75 euro's or the value of the risk will be 60.25 euro's. Looking at the chart above, 55.96% is the probability that the investment in the fund will save the initial investment value without loss. This explains that this investment alternative is very risky. This high risk makes investors not to invest their savings in funds, but continue to invest in deposits. Investment portfolio management and financial policies of fund are positioned at a high risk that does not justify return on investment.

Conclusions

The financial market in Albania is limited in terms of investment alternatives. However, in the last 5 years there are start-ups of investment funds (mutual funds). Thus, the savings of people and businesses in Albania have a new investment option. According to the financial principles it is scientifically tested that the greater the development of these funds, the more developed it is the capital market of a country itself. High interest rates on loans and very low deposit interest rates show that there is no return rate parity in Albania, therefore the development of financial investment alternatives, different from classical methods with banks is the need of the domestic market.

In this study we have analyzed the investment funds in Albania, represented by Raiffeisen Invest Euro. The daily historical quotations of 268 days of 2018 were taken into consideration. Then Monte Carlo simulations of Brownian motion were used to predict the risk return of this fund. The stochastic process techniques and the VaR model are used for each finding of the study. The study shows a short-term forecast of quotations for next 268 days.
Investment funds in Albania are in the start-up phase, instead of being characterized by high returns, they are very low, even negative, and with very high risk. The level of diversification of their portfolio is not good because they are slightly distributed in the real economy sector; they are generally supported in fixed income financial titles. The continued decrease of government debt instruments yields and the high operating costs of the fund have resulted in an average annual return rate of -0.38%. This decrease of returns is also linked to the high level of liquidity in Euros that Raiffeisen Bank has in its deposits. By VaR technique, with a probability of 5% risk, the daily loss of quotas is 0.06% and if this loss persists, it will cause a decrease in quotas 24% (compared to the initial value at the beginning of the year). About 56% is the probability that the value at the beginning of the year in this investment fund will be the value at the beginning of the year (zero return). These are the reasons why Albanian investors begin to trust their savings (or profits) investment in bank deposits.

We recommend that investment funds must not simply be 'trusted' but must be diversified into international capital markets, reducing the share of investment in government debt instruments. On the other hand, by the economy of scale should aim to reduce the operational costs of the funds. In this way, the funds can generate satisfactory return rates for investors (especially for people) and increase their potential of development.

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ASPECTS OF THE HISTORICAL GENESIS OF THE ENERGY SECTOR OF REPUBLIC OF MACEDONIA AND THE CHANLLENGES OF ITS DEVELOPMENT

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Abstract: *Energy is a key topic of our time, something that is not at all surprising if we take into account the fact that energy lies in the basis of the development of the overall modern civilization. However, the time we live in adds new aspects and contexts to this topic, making the role of energy more essential, and energy planning more complex.*
The question that arises as the basis of this paper is how the development of the power system takes place on the territory of the Republic of Macedonia? Has Macedonia timely followed the new achievements in the electricity sector and has it developed sufficiently to influence the development of the economy? Is Macedonia ready to adapt its legislation to the European one? This paper aims to briefly answer the questions thus asked. The goal is to summarize in one place all the theoretical and empirical aspects of the emergence and development of electro energetics in the Republic of Macedonia. Although the realization of this goal is of great importance to the power sector as one of the most significant in each country, it especially adds weight, having in mind its functional connection with the development of the overall economic standard in one state.
From here, the energy sector is on the pedestal in an economic entirety, and its development is essential for the overall progress of a state, as well as for improving the living standard of citizens.

Keywords: *energy sector, Macedonia, development*

Introduction

The Electricity represents a specific, characteristic phenomenon of itself, which is considered one of the most important inventions of mankind and serves exactly to the mankind or to satisfy human needs. Electricity is used as the main source of energy worldwide; hence the existence of developed capacities for generating electricity, as well as an efficient transmission and distribution network is of great importance. The construction of the first DC power station in Paris in 1880, which served to illuminate a limited area in the city, was a real boom in the field of electricity in the last two decades of the 19th century. Further development continued with the construction of the Edison Power Plant in New York in 1881, in London in 1882, in Berlin in 1883. [204]In 1886 the first AC power station was built in Rome.[205] The development of the field of electricity does not stop here. What follows was a period of ingenious inventions by Nikola Tesla. Inspired by Tesla's patents, in 1895 in Niagara, the United States, the first hydroelectric power plant was built and this power station distributed electricity at a distance of 35 km to the city of Buffalo, where it was used by the aluminum industry.[206] The very construction and beginning of work of this hydroelectric power plant

[204] povijest.hr/nadanasnjidan/prva-edisonova-elektricna-mreza-u-new-yorku-1882/
[205] ibid
[206] http://www.tesla.org.rs/locations/hidroelektrana-na-nijagarinim-vodopadima

represents the beginning of the revolution of the electrification of the world. At this point the need that arisen was the need for legal regulation in this area and establishment of certain rules and principles according to which the energy sector of a country will function, and all of this was to be directed in context of a progress and development of the energy sector, energy capacities and energy law. The energy sector as a segment of every country is the leading force of every industry, and therefore the development of the energy sector is of great importance for every society. As a dynamic branch of the energy sector, the development of the electricity market is one of the main factors for successful established energy sector, and in general, on a global level, every state is working hard on continuous development and advancement of the electricity market.

As an issue that has arisen in recent years, and has been questioned since the beginning of the 1990s until today, is the question of the development of the energy sector in Macedonia. In order to give a clear picture of the extent to which the energy sector of Macedonia has been developed and the level of success it is at, it is necessary to give a historical overview of the events that mark the electrification of the world, mark the development of the energy, the energy sector, and certainly the electricity market. What the electrical power system of Macedonia represents today is mainly due to the accomplished development of the system, starting from the liberation of Macedonia until today. Most certainly, this is a very long period, but it is very important to emphasize all that has been achieved in the development of the system because its development is essential for the overall progress of the country, as well as for improving the living standard of the citizens.

1. Electrification of Republic of Macedonia

1.1. The beginnings of electrification in Republic of Macedonia

The supply with electricity of Macedonia as a dynamic process began to occur in the period between 1909 and 1944. The first lamp in Macedonia was lit in 1909 in Skopje when the first steam electric power station was built, and in that period Macedonia was still part of the Turkish Empire. Interesting fact is that the small diesel power plant that enabled all this, supplied a pumping station for the city water supply, illuminated the City Hall, one street and the mansion of the Turkish Governor (vali).[207] Furthermore, the electrification was implemented in other cities and it was carried out independently and separately. The need of legal regulation of the energy field has emerged since this period. Therefore, one of the more important problems that the then-city municipal administration was dealing with was the lighting of the city. A document from that time states that on the basis of Article 254 of the Law on Punishments, the Skopje municipality made several decisions and resolutions aimed at better resolving of the issue of city lighting.[208] On March 29, 1871, the City Municipality of Skopje adopted a Decision, obliging all pilgrims to light their inns all night, and as a consequence of non-compliance with this decision, the Municipality applied Article 254 of the Law on Penalties which foresaw a penalty of one up to five Turkish coins"[209] Therefore we can conclude that the energy as a complex branch needed to be regulated legally in order to be used properly. Following the supply with electricity of Skopje, the electrification of the second city, Bitola, took place, but much later i.e. in 1924.[210] Further, by 1930, Tetovo, Veles, Kumanovo, Shtip, Kriva Palanka, Gevgelija, Vinica and Kocani were supplied with electricity. In the period from

[207] 60 years electrification of Skopje (Skopje, Electro-Macedonia –generation and distribution plant Skopje)
[208] 60 years electrification of Skopje (Skopje, Electro-Macedonia –generation and distribution plant Skopje)
[209] ibid
[210] Bushi, Lazo, The Electrical Power in Republic of Macedonia, Struga, 2004, pp. 134-135

1931 to 1935, Prilep, Kicevo and Demir Kapija were supplied with electricity, and from 1936 to 1940, Gostivar, Ohrid, Strumica and Probistip were supplied with electricity. That period is characterized by the fact that electricity was generated in small hydro power plants, but there were also coal and diesel power plants. The main reasons behind the slow electrification of these parts of the world were the feeble economic growth, underdeveloped industry, and it should be noted that, at the time, Macedonia was not an autonomous state, but a merely a province of foreign kingdoms and empires. In the period before World War II, the most important generating facilities that were built were: HPP "Pena" built in 1927, Diesel Power Plant in Skopje built in 1933 and HPP "Matka" built in 1938.[211]

1.2. Period after the World War II

The development of the electric power system continues in the period from 1945-2005, which begins immediately after the end of World War II when the "Federal Power Supply Company" (FEP) was established for Macedonia and it managed all the power supply resources in the country. Unlike the previous period when each city experienced its own independent and separate power supply development, FEP for Macedonia operated as a sole company for the entire territory of Macedonia within Federal Yugoslavia. As time passed, the Company’s names changed: “FEP for Macedonia" until 1954, "Power Supply Community of Macedonia" until 1966, "Electro Macedonia” until 1990, "PE Power Supply Company of Macedonia” until 2005 and, following the separation and the rebranding the name "EVN Macedonia AD"- Skopje came into use.[212]

In fact, as such established company marked the beginning of the "Power Supply Company of Macedonia", whose continuity, through various organizational forms, has been kept to this day. In order to implement the electrification, a Department for Electrification was formed in the then Ministry of Industry of the Federal government of at that time Democratic Federal Republic of Yugoslavia.[213]

In the post-war period, the Republic of Macedonia functioned as an integral part of the former Yugoslav Federation and that marked the second developmental phase in the electricity sector. The connections in the field of the energy sector were mainly directed towards the former Yugoslav republics and provinces, and at the central level, the government negotiated connections for exchange, import-export of electricity with the neighbors who at that time were bordering the Socialist Republic of Macedonia, namely Bulgaria, Greece and Albania.

The period after the war was a renewal period of the electric power facilities that were badly damaged or destroyed in the war and this became a primary and comprehensive task that was successfully implemented with the assistance of the state and the citizens in the post-war period in Macedonia. The electrification of Macedonia was almost completely realized and the electricity became part of an everyday life in almost all cities and villages throughout the country. The construction of the entire distribution grid, transformer stations and new energy facilities that had the capacity to meet the electricity needs of households and the growing industry took systematic and strenuous efforts.
Due to the fact that during this period from 1945 to 1990, Macedonia's power supply system was an integral part of the former Yugoslavia's power supply system, its development took place as part of the development of the entire power supply system of the former Yugoslavia.

[211] Ibid pp.135
[212] 60 years electrification of Skopje (Skopje, Electro-Macedonia –generation and distribution plant Skopje)
[213] Bushi, Lazo, The Electrical Power in Republic of Macedonia, Struga, 2004, pp.139

The most important generating facilities of electricity that were built during this period are: TPP Madzari (1949), HPP Mavrovo (1957), HEC Tikvesh (1968), HPP Globochica (1965), HPP Spilje (1969).[214] At the end of the 70's, the following thermal power stations were built: TPP Negotino (1978), and two years later MEC Oslomej (1980), as well as successively the three thermal plants in MEC Bitola (1982), and the construction of the last plant ended in 1988. Interesting fact is that even today, the largest thermal power plant in Macedonia is TPP Bitola.

2. Development of contemporary electric power system

The Macedonian Power Supply Company began the establishment of a modern power supply system sometime in the beginning of the eighth decade of the previous century and this process continues to this day. When the Former Yugoslavia broke apart and Macedonia gained its independence, the country was disconnected from the high-voltage grid of the rest of SFRY. As a result, the Macedonian power supply system itself became autonomous as well and despite all of the hardships it faced, it managed to avoid any major difficulties in supplying electricity to the customers.

Until then, the single company "AD Power Supply Company of Macedonia" in 2005 split into three companies, namely "AD ELEM" – a company which was intended for power generating; "AD MEPSO" – a company whose main activity was the power transmission and "ESM AD" – a company that operated the power distribution.

The transformation of the company "AD Power Supply Company of Macedonia" Joint Stock Company for power generating, transmission and distribution, in state ownership, meant its reconstruction. The reconstruction of "AD Power Supply Company of Macedonia" and the process of privatization of AD ESM and / or the companies established by it, was performed on the basis of a previously adopted decision, i.e. other acts related to the process of transformation, enacted by the Government of the Republic of Macedonia and based on the principles of transparency, non-discrimination, objectivity and in accordance with market conditions, and in reference to the Law on Transformation of Power Supply Company of Macedonia, Joint Stock Company for power generating, transmission and distribution in state ownership.[215]

3. Establishment and development of ELEM

The company AD ELEM was created by a Decision of the Government of Republic of Macedonia registered under No. 19-2626/ 1 dated June 30, 2005, for restructuring of the Power Supply Company of Macedonia, Joint Stock Company for Power Generating, Transmission and Distribution, in state ownership, Skopje, with the establishment of a new company for the power generating. [216] This company is part of the Power Supply Company of Macedonia, Joint Stock Company for power generating, distribution and supply in state-ownership. In the context of this, the company operated and participated in legal transactions under a company title: JP Power Plants of Macedonia, state-owned, Skopje or abbreviated: AD ELEM. The main activity performed by AD ELEM is power generating.

[214] Bushi, Lazo, The Electrical Power in Republic of Macedonia, Struga, 2004, pp.141
[215] Law on transformation of Power Supply Company of Macedonia, Joint Stock Company for power generating, transmission and distribution in state ownership, Official Gazette of RM 19/2004
[216] Bushi Lazo, The Perspectives of the electric power in Republic of Macedonia, Struga 2005, pp.100

ELEM is inextricably linked to the development of the energy sector in the Republic of Macedonia, especially from the aspect of the development of power generating in Macedonia. Its operation and its generating facilities date from the beginning of the 20th century, in 1909, when the first light in Skopje was lit.[217] Its role in power generating is related to the construction of generating facilities. In the period prior to its independence, ELEM implemented a Project for revitalization of hydroelectric power plants in the Republic of Macedonia, which project took place in two phases. The first phase covered the period from 1998-2004, while the second phase covered the period 2010-2014. The benefits that were expected from this Project were as follows: increase of installed capacity, increase of hydro production, reduction of operating costs and reduction of occurrence of power outages.

For the purpose of performing the energy activity: power generating, on 18 November 2005, the Energy Regulatory Commission of the Republic of Macedonia adopted a decision granting ELEM a license to perform the energy activity: power generating.

3.1. Establishment and development of MEPSO

According with the Law on Transformation of the Power Supply Company of Macedonia from 2004, MEPSO or Macedonian Electricity Transmission System operator AD was established by a decision of the Government of the Republic of Macedonia and it was established as a trading company that acts as an operator of the electricity transmission system in the Republic of Macedonia.

MEPSO manages the transmission grid with a total length of 2 091 km and thus our transmission system is connected to the electrical transmission systems of the Republic of Bulgaria, the Republic of Greece and the Republic of Serbia.[218] It is important to note that MEPSO is a member of the European Association of System Operators ENTSO-E.

The trade company MEPSO was registered in the Trade Register of the competent court in Skopje on December 31, 2004, and with its registration, the transformation of Power Supply Company of Macedonia and the process of liberalization of the power system in the Republic of Macedonia was officially and formally started. MEPSO is established as a state-owned company and the Government of the Republic of Macedonia is the founder and sole shareholder. [219] With the establishment of MEPSO and the division of the activities into electricity transmission and control of the electricity transmission system by ESM, the process of liberalization of the power system of the Republic of Macedonia started to be implemented in practice, and this happened because by division of those public activities. The monopoly of ESM on all activities in the power system of our country ceased to exist. At the establishment of this company, all the organizational units that were united in “Power Transmission”, the National Dispatch Center (NDC) of "Power Supply Company" (ESM), as well as the services for development, investments and realization of projects for upgrading of the transmission grid, became part of this company.[220] The function of "Power Transmission" was to unite the business operations for maintenance, modernization, planning and expansion of the transmission grid, and NDC managed the national power system. Through the unification of these units, MEPSO provided the continuity of Power Transmission - a company for electricity

[217] http://www.elem.com.mk/?page_id=318
[218] http://mepso.com.mk/
[219] Bushi Lazo, The Perspectives of the electric power in Republic of Macedonia, Struga 2005
[220] http://mepso.com.mk/

transmission and transformation, a company established by the Decision of the Executive Council of SR Macedonia on December 31, 1958 under the name "Electro Jug".

Main activity of the MEPSO's operation is provision of unobstructed transmission of electricity through the transmission and management of electric power system, all of which would enable reliable supply of consumers with quality electricity. MEPSO owns two licenses issued by the Energy Regulatory Commission, one for the Transmission System Operator and the other for the Electricity Market Operator.

MEPSO has constantly been developing through the years as a company that performs activities of public interest-transmission of electricity and organization and management of the electricity market in the Republic of Macedonia, and as such company it is constantly working to optimize its capacities and resources in order to provide quality public service for all users and citizens in general.

Therefore, MEPSO constantly worked on developing the activity in terms of legal regulations, continuous improvement of all processes and monitoring of the satisfaction of its users, creation and maintenance of working atmosphere, constant and planned education and training, constant improvement of the relationship and development of partnerships with associates, risk assessment and opportunities in their business, etc. In fact, the electricity market in the Republic of Macedonia has been established by MEPSO.

More specifically, the Electric Power Market Operator (EMO), as a working unit of MEPSO, in accordance with the Energy Law and the license for organizing and managing the electricity market, is responsible for organizing and management of the electricity market in accordance with the principles of publicity, transparency, non-discrimination and competitiveness.

3.2. Establishment and development of ESM AD

ESM AD was established with the Decision for division of the State Power Supply Company "Power Supply Company of Macedonia", Skopje, No.23-3343 / 1 dated 27.09.2004 adopted by the Government of the Republic of Macedonia, on the basis of the Law on Transformation of the Power Supply Company of Macedonia.[221] In fact, this company was one of the legal successors of "JP Power Supply Company" in state ownership, Skopje, and the same in the legal circulation participated and worked under a company: Power Supply Company of Macedonia, Joint Stock Company for Distribution and Supply of Electricity, in state ownership, Skopje or abbreviated AD ESM.

With the Sale Purchase agreement in April 2006, "ESM AD" became the property of the EVN AG group from Austria, and with the rebranding in 2008 this company received its final name "EVN Macedonia AD Skopje."
The privatization of this sector arises from the well-known notion that the private capital in a market circumstances, allocates more efficiently the resources which lead to a cheaper market price of the product. Certainly, it took a while in order for this to happen.

With the independence of the Republic of Macedonia and the collapse of the centralized electricity market, the country has shown aspirations towards the EU and thereof the country

[221] Bushi Lazo, The Perspectives of the electric power in Republic of Macedonia, Struga 2005

had to reach gradually to a certain level of modernization of all aspects that encompass the energy sector.

More than certain, the experience was drawn from the European countries, that is, from countries that were already EU members and in one way or another, their legislation in reference to energy was harmonized to EU standards. In March 2006, the privatization of "ESM distribution" was completed.

With the entry of EVN in Macedonia, the country stepped forward to the EU integration. The entering of the company EVN on the Macedonian market opened many opportunities for entering of other investments in the country.

The sale of ESM went through a process of opposition, skepticism and disagreement by citizens and experts, but the final outcome was to achieve development of the energy sector of the Republic of Macedonia. The sale of ESM was one of the most controversial processes and it was conducted through a public announcement, at which several companies applied and at the end of the election, the number was reduced to 3 companies: ENEL from Italy, CEZ from Czech Republic and EVN from Austria. The Austrian company EVN was the one that bided over the competitors and won the battle for the purchase of the Macedonian Power Supply Company.

In 2006, immediately after the privatization of EVN Macedonia, EVN AG followed a process of complete reorganization of the company, which until then was in a bad state. This bad situation meant fee collection problems, electricity losses, poor quality of infrastructure, poor financial results, and a number of other negative indicators that began to be changed thoroughly and systematically after the privatization. Much attention has been paid to the financial investments, modern organizational and management layout, structure and the use of the latest technological advancements in the power industry. Following these measures, the image of the company, as well as the results of the work, changed completely.

With successful reorganization and transformation, EVN Macedonia has created a solid basis for accomplishment of the set goals and management of all the challenges in the future. EVN's goal was to improve the conditions and service for consumers, and then improve the supply. By separating the sector of generating, the sector of distribution faced the most difficult task-to discipline the consumers to pay regularly their duties, to suppress the illegal consumers of electricity and to reduce commercial losses.

EVN Macedonia is a company whose main activity is distribution and supply of electricity in the Republic of Macedonia.

4. Power Generating capacities in Republic of Macedonia

The Republic of Macedonia, as a country that has long been going through a transition period, a period in which energy resources, both in terms of generating and in terms of electricity transmission, were at a centralized level, has constantly been working on the improvement of the energy sector and the electricity market. For that purpose, hydropower plants, thermal power plants, and even lately, wind power plants were built.

The larger part of the existing energy infrastructure in Macedonia was built during the second-half of the last century.[222]Although new facilities have been opened in the last two decades, still they were not enough to meet the growing demand for energy or to strengthen Macedonia's energy position in the region of south-eastern Europe.

However, from the aspect of a successful economy, one should take into account the most efficient way of power generating. Although the thermal power plants are the largest and most suitable for the most power generating, for the Republic of Macedonia this mode of power generating is more inconvenient than the production of electricity through hydropower plants.

This is due to the fact that the power generating through thermal power plants is more difficult to control and it is necessary to plan in advance the amount of electricity required to be generated, something that is difficult to predict in a country like Republic of Macedonia, because in conditions in which the energy sector is still underdeveloped, Macedonia cannot afford to suffer losses.

Talking about the method of power generating, windmills as a way of producing electricity in the Republic of Macedonia is considered to be unsuitable method, primarily because there is no wind in the Republic of Macedonia, but it is also necessary to pay attention to many other factors on which the success of such a large investment depends on. The factors that the success of such an investment will depend on are: the legislative framework that needs to regulate this area, further development of the infrastructure that implies building of new roads to reach the windmills, facilities that will maintain the windmills, etc. In the Republic of Macedonia there are only two windmills, one of which is located in Bogdanci, and the other is located in Ovche Pole.

The forecasts are that according to the listed factors, this investment of the Republic of Macedonia will be profitable for the country after 20 years, which period is quite long. Both the hydro and thermal power plants built in the last century are the skeleton of the system for power generating and the core of the Macedonian energy stability. However, in the last 20 years, the level of investment in power generating facilities has fallen sharply. The last important investment that was made in this sector was the construction of the Kozjak hydroelectric power plant, released for use in 2004, and whose construction lasted 10 years.[223] Since then, there are no new investments for the construction of hydro, nor for the construction of thermal power plants. Unlike the power generating system, in the last few years large investments have been made in the power transmission system, which investments are parts of the broader scheme for regional connection of the power systems from the countries in south-eastern Europe.

5. Republic of Macedonia as part of the European Energy Community

In accordance with the European trends and developments, Republic of Macedonia has always strived to reach the level of development of the energy sector and worked on its continuous improvement. The Republic of Macedonia became a signatory of the Energy Community Treaty, which came into force in July 2007. Republic of Macedonia moved one step forward and made an important step with the ratification of the CEFTA membership agreement in May. The progress that has been achieved with regard to the security and stability of energy supply is certified by the Energy Law, which was adopted in May 2006 and it envisaged the preparation and designing of a Strategy for long-term development of the energy sector. The ratification of

[222] Forum Analitika, September, 2009
[223] Analitika, September, 2009

the Treaty establishing the Energy Community paved the way for progress to be made regarding the internal energy market. In the context of this progress, and according to the (at that time) Energy Law, the energy policy, the regulatory body, the construction of new facilities, the electricity market, the natural gas market, the oil and oil derivatives market, the issuance of licenses, energy efficiency and renewable sources of energy, were regulated.

Although the Republic of Macedonia has made significant progress in parts of the energy sector, especially with regard to the legislation on the internal energy market, yet the whole process of energy sector development was very slow and there was a need of additional adoption of by-laws, which by-laws had to be harmonized with the Law on energy and new trends. Most of the processes happened because of the signing and ratification of the Energy Community Treaty for the Republic of Macedonia that required meeting of certain obligations.

The Republic of Macedonia has consistently worked to promote and reform its energy sector as well as those sectors related to the energy sector and to meet the requirements arising from the Energy Community. The Energy Community Secretariat, as the only permanent institution of the Energy Community, reviews the implementation of the Treaty by the contracting parties and prepares an Annual Report that gives a realistic picture of the progress that has been made in this area. In case of certain non-compliance by one Contracting Party based on the legislation of the Energy Community, there is a possibility the non-complying Contracting Party to be brought in front of the Council of Ministers. In this context, several cases have been raised against the Republic of Macedonia on several occasions that have tackled the field of energy law. Regarding cases of non-compliance, Macedonia had the first case in 2008 in the field of electricity that was closed after the adoption of the new Energy Law in 2011, which managed to remedy the situation.

The second case, which is very important for the development of the energy sector, is the case of electricity from 2015, and it concerns the delaying of the full opening of the electricity market, which means for small businesses and households. The long-awaited full liberalization of the electricity market was suddenly postponed and small businesses and households were deprived of the opportunity to buy electricity directly from the supplier who they would choose by themselves.

6. Chronology of the Law on Energy

It seemed that the legal and economic reforms in the country could not keep up with the development of the energy sector, since they were in constant competition to comply with the number of investments in the Macedonian energy sector. The first Law on Energy of the Republic of Macedonia was adopted on September 10, 1997, that was later amended and complemented several times. Then, on May 11, 2006, the second Law on Energy was adopted, but as a consequence of the reforms in the field of energy and the need to adjust the Macedonian legislation with the European legislation the adoption of a new Law on Energy happened on February 3, 2011, and finally as a consequence of the tendency for liberalization of the electricity market a new Law on Energy was enacted on May 21, 2018. Thus the energy sector of Republic of Macedonia continues to develop but this development needs to be carried out very carefully, as if there would not be another unsuccessful attempt to liberalize the electricity market.

Conclusion

As a summary from the points presented herein, it can be concluded that Republic of Macedonia has undergone a long process of development of the energy sector, constantly following the example of the European countries. There is no doubt that this is a matter that deserves a wide elaboration and which, without a doubt, represents a complex framework. It is obvious that Macedonia has worked a lot on reforming its energy sector, developing energy law and related areas in order to comply with the legislation of the Energy Community. In this regard, the fact that Macedonia has made progress is obvious, but the identified problems show that there is still a lot of work to do. There are many challenges that the country should overcome before it meets the standards of the Energy Community and thus improve the standard of living of its citizens.

In this context, it must be noted that the energy law and its legal framework must show a certain amount of flexibility and rationality, in order to be able to adapt to the upcoming trends and innovative solutions. None of the markets is perfect, and therefore neither the electricity market, so that is why it constantly needs to be developed and be responsive to the arising needs. Therefore, it is necessary to work constantly on the promotion and development of the market.

Legal and economic reforms in the country seem as not being able to follow the development of the energy sector, so this is why when we are talking about the energy market; we need good, transparent legislation and a regulatory framework, which will incorporate European standards that must be functional and implemented. A serious approach to the protection of foreign investors is required, as well as simplification of procedures for issuing work permits and real opening of the markets for electricity and natural gas. The central problem remains to be the efficiency of the public administration, whose capacity needs to be improved by introducing continuous trainings, but there is also a need of building of an electronic database and connection of all institutions to a single electronic network and related.

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ANALYSIS OF COSTS FOR ENVIRONMENTAL PROTECTION IN SR

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Abstract: *Today's society is increasingly aware that the damaged and polluted environment has a negative impact on the quality of life of the population. Environmental protection is considered to be a broad spectrum activity. Economic and social activities should be planned and implemented in the framework of environmental and sustainability principles. A significant impact on improving the quality of the environment is the implementation of these principles in the economic activities of both businesses and individual municipalities. The growing importance of environmental protection has an impact on all business activities, not only in the Slovak Republic, but also in all the advanced world economies. Businesses need to adjust to this new trend if they want to achieve competitiveness in the field of sustainable production and environmentally sound production of their products and services on a domestic and, in particular, globalized foreign market. The aim of the paper is to analyze the costs incurred for the protection of the environment in SR conditions.*

Keywords: *environment, environmental protection costs, businesses, municipalities, financing of protection*

1. INTRODUCTION

Humanity has undergone different phases in its development, and in each of them has also influenced the quality and state of the environment. In the first phase - agricultural, first there were simple interventions in the nature (soil cultivation), then later (the grazing of forests and the like), but still the basic condition of man's existence on earth was its coexistence with nature. However, the decisive impact on the quality of the environment was the second phase of the development of the stage of human development, namely industrialization and its consequences, which have been signed under the negative state of the environment. At present, man is not using the environment rationally, too. For reasons of environmental damage in the context of global trends, we primarily consider the causes of development and socio-economic causes. [6]
However causes which are conditional upon development are:

- population growth (linked to the increasing need for food),
- population concentration (migration, problems of large settlements, etc.),
- economic growth (increasing demands of mankind with negative consequences in the primary, secondary and tertiary spheres),

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- technical and economic impacts (changes in production technologies, use of motor vehicles, etc.).

Socio - economic causes derive from the environmental functions of the company's economic system and, at the same time, these causes are associated with the external effects that arise from its over - exploitation.

2. PROTECTION OF THE ENVIRONMENT IN THE SLOVAK REPUBLIC

A prerequisite for preserving the environment and its essential components for future generations in the required quality is environmental care and protection. The aim of the contribution is to evaluate the amount of investment for environmental protection and current environmental protection costs, based on data available from the Statistical Office of the SR (ŠÚ SR) for the period 2010-2016. The nature protection is considered by the Slovak Government to be an essential area for the overall development of society. The protection of natural ecosystems and endangered species is ensured through a network of protected areas (7 national parks, 16 protected landscape areas, 584 nature reserves, 260 protected areas and 274 natural sites). The Government of the Slovak Republic, in its Program Declaration for 2016-2020, has committed itself to devoting increased attention to environmental care and creating the conditions for the transition to the economy. A favorable environment is not only the basic right of every citizen of the state, given by the Constitution of the Slovak Republic, but it is also a rare value that has a positive impact on population health and overall sustainable economic growth.

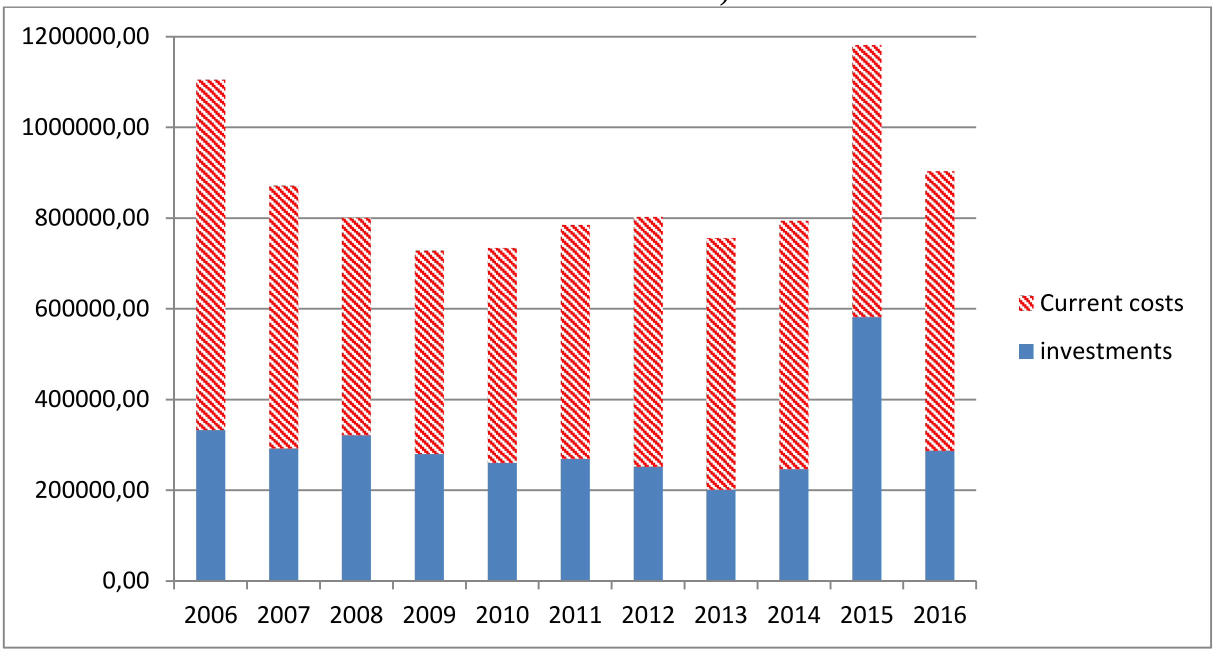
The Program Statement of the Government of the Slovak Republic 2016-2020 also states that the sector of policies for reducing social and regional disparities, the continuous improvement of the quality of life of citizens of the Slovak Republic and the growth of their living standards will be supported. The government will support a transition to a circulating economy ensuring resource efficiency, energy efficiency and reducing environmental impacts. In the field of environmental policy implementation, the government is committed to developing a new environmental strategy based on the principles of sustainable development. The biggest environmental challenges in Slovakia, based on international comparison, are waste management, air quality and forests. For example, municipal waste recycling is one of the worst countries in the EU, and the long-standing problem is the persistent high rate of landfill. Slovakia achieves higher concentrations than the EU average for PM2,5, PM10, ground-level ozone as well as nitric oxide.

Environmental protection costs consist of investment to protect the environment and current costs. Environmental investments (investment costs) are funds spent in the period under review for the construction, purchase or acquisition of capital goods used to protect the environment. Investments can be made by the organizational unit from its own or state resources (special-purpose subsidies and low-level loans) as well as from abroad, through specialized funds (Operational Program Environment, Operational Program Basic Infrastructure), provided loans, grants and subsidies from governmental or non-governmental sources. Current environmental costs are non-investment costs incurred for activities related to environmental protection. Under normal costs, internal organizational costs (in particular wage costs) and costs incurred by the organization for other environmental services are covered by the organization.

3. ANALYSIS OF FUNDING FOR ENVIRONMENTAL PROTECTION IN THE SR, FOR 2006-2016

Environmental expenditures in Slovakia are comparable to those of the V3 countries (Czech Republic, Hungary, Poland) and the EU. More than two-thirds of all expenditures of the Ministry of the Environment of the Slovak Republic and the Environmental Fund come mainly from EU sources, including co-financing (70%), state budget (18%) and State Environmental Fund (10%). Out of the budget of the Ministry of the Environment, the capital expenditures (investments) amount to almost 75%, mainly realized with the support of EU funds. [10] Financial indicators of environmental protection are systematically monitored in the SR by the Statistical Office of the Slovak Republic (SR) for enterprises with a number of employees of 20 or more and for municipalities. The total cost of environmental protection and revenue generated by the sale of products, devices, components and technologies designed to protect the environment are evaluated.

Figure 1: Development of costs of environmental protection in Slovakia in 2006 - 2016 (in thousands of EUR)



Source: Statistical Office of the SR, www.statistics.sk

Environmental costs have a fluctuating trend. In 2016, they reached the amount of CZK 903,800 thousand EUR (of which EUR 287 702 thousand, and current costs EUR 616 098 thousand). Compared to 2006, they decreased by 18.22%, down 23.49% compared to the previous year. The interim environmental review report shows that spending on nature and landscape conservation has reached some 116 million euro's in recent years in Slovakia. Major nature conservation activities have so far been funded by the Structural Funds. [10]

Table 1: Share of costs of enterprises and municipalities in total environmental protection costs (%), 2006-2016

year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
business	86,8	83,0	79,8	76,8	74,5	72,7	71,6	73,0	74,2	81,6	78,3
village	13,2	17,0	20,2	23,2	25,5	27,3	28,4	27,0	25,8	18,4	21,7

Source: Ministry of Environment of the Slovak Republic, www.minzp.sk

The share of corporate costs in total environmental costs decreased from 2006 to 2012, but has been on the rise since 2013. The share of municipal costs increased from 2006 to 2011, reaching a peak of 28.4% in 2012 and a fluctuating trend from that period. The costs of environmental protection in agriculture in 2016 reached 2 298 thousand, and decreased compared to 2010. Costs increased by 45.8% compared to the previous year. The cost of environmental protection in the mining of minerals in 2016 reached 3 689 thousand, and increased compared to 2010. Costs grew by 81.8% compared to the previous year. The costs of environmental protection in industrial production in 2016 reached 189,055 thousand, and decreased compared to 2010. Costs declined by 22.1% compared to the previous year. The costs of environmental protection in the production of electricity, gas and water in 2016 reached 283 816 thousand, and increased compared to 2010. Costs declined by 40.7% compared to the previous year. The costs of environmental protection for specialized producers in 2016 reached 206,332 thousand, and increased compared to 2010. Costs were down by 4.2% compared to the previous year. The cost of environmental protection for other activities in 2016 reached 22 536 thousand, and decreased compared to 2010. Costs declined by 5.1% compared to the previous year.

Table 2**:** Share of Environmental Protection Costs by Economic Activity in Total Corporate Expenditures (%)

years	2010	2011	2012	2013	2014	2015	2016
agriculture	0,9	0,9	0,5	0,3	0,4	0,2	0,3
mining of minerals	0,3	0,6	0,3	0,3	0,4	0,2	0,5
industrial production	41,0	36,1	34,7	37,5	33,7	25,2	26,7
production of electricity, gas and water	32,4	29,7	31,6	27,4	36,6	49,6	40,1
specialized manufacturers	17,3	21,4	24,3	25,2	24,7	22,3	29,2
other activities	8,2	11,3	8,6	9,2	4,1	2,5	3,2

Source: Statistical Office of the SR, www.statistics.sk

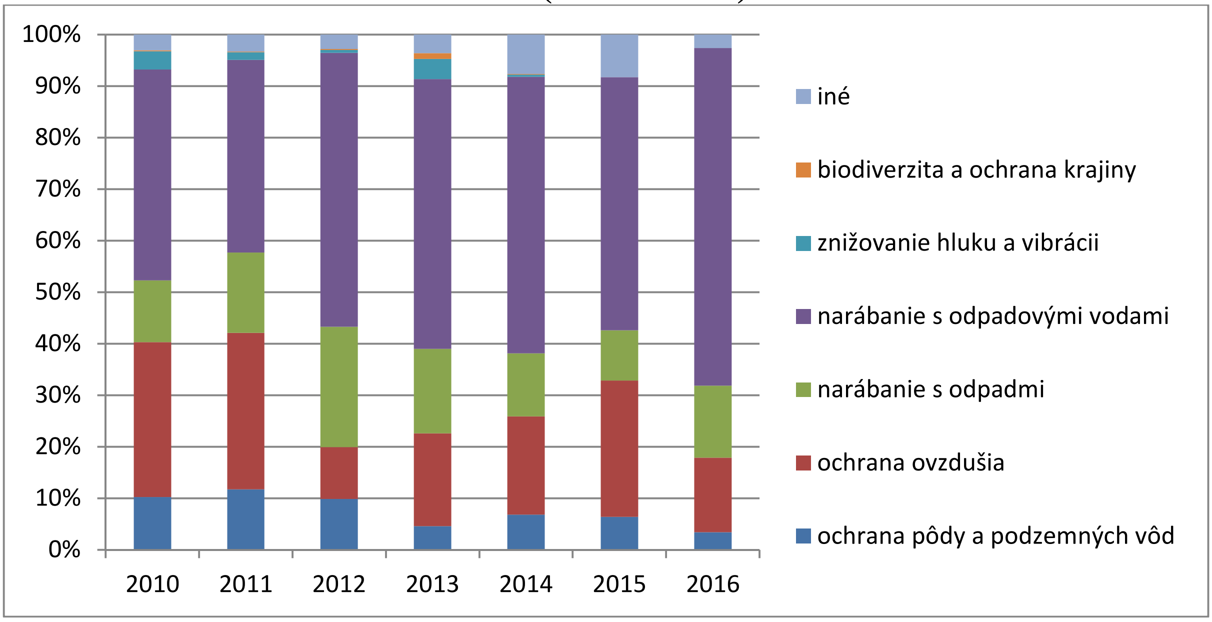
As Table 2 shows in the period under review, the cost of environmental protection decreased by 10% between 2012 and 2013, which was a decrease of CZK 9,774 thousand. €. The largest increase in spending of environmental protection by 14% occurred between 2010 and 2011, representing an increase of € 8,256.

The cost of environmental protection in the area of soil and groundwater protection in 2016 reached 37 797 thousand € and decreased by 22.8% compared to 2009. Costs declined by 37.7%

compared to the previous year. The cost of environmental protection in the area of air protection in 2016 reached 75,336,000, and decreased by 40.5% compared to 2009.

Costs declined by 25.8% compared to the previous year. Environmental costs for noise and vibration reduction and biodiversity and landscape protection were zero. Environmental costs in the area elsewhere in 2016 reached 27,148,000, and increased by 0.8% compared to 2009. Costs declined by 59.3% compared to the previous year.

Figure 2: Development of Environmental Protection Costs in Slovakia by Region in 2010 - 2016 (in thousands €)



Source: Statistical Office of the SR, www.statistics.sk

In 2016, the highest share of total environmental costs was spent on waste management (52%), waste water management (32%) and air protection (8.3%). The highest share of environmental protection costs was spent on waste management (42.4%), wastewater management (39.2%) and air protection (9.2%). The highest share of municipal environmental protection costs went to waste management (87%), waste water management (6.3%) and air protection (5.1%). [11]

4. CONCLUSION

The cost of environmental protection in the Slovak Republic in the period under review has a fluctuating trend. Costs in 2016 increased by 158.3% compared to 2000. There was a year-on-year decrease in environmental protection costs of 23.5%.

The share of the costs of the enterprises in the total costs of environmental protection decreases in the period under review and the share of municipal costs increases. However, the share of the costs of the enterprises is considerably above the cost of the municipalities. In 2016, the share of enterprise costs was 78.3% and the share of municipal costs was 21.7%. The highest share of environmental costs is in the waste management area, with a share of 52% in 2016 (41% in 2009). In the paper, we evaluated the amount of costs that businesses and municipalities spent in a certain period of time (2000 - 2016) to ensure environmental protection, respectively, to eliminate damage or to prevent damage to the environment. Analyzing and evaluating environmental spending can help us to better assess the policies in the area. This expenditure is mainly spent on reducing and eliminating environmental pollution as well as on prevention itself. Environmental Protection is an area that is integrated into many policies that pursue one common goal of achieving sustainable development.

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CHARACTERISTICS OF THE FINANCIAL LEASING MARKET IN ALBANIA AND ITS FINANCIAL COSTS

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Abstract: *The financial leasing is a widely used financing tool all over the world and has seen a significant growth especially in developing countries during recent years. Currently, in the Albanian market, there are nine financial institutions no-banks that offer financial leasing, and about 80% of all the financial leasing market is focused on the activity of three main companies. Although the financial lease has begun to operate since 2001, in the case of Albania this product has had its difficulties in being recognized from the public, still constituting an alternative of untapped funding to a highly reduced market.*
Financial leasing has a lot of unused potential and provides many opportunities for future use, especially for small and medium-sized enterprises, which are the form of business organization having the greatest external financing needs and difficulties. In the case of Albania, SMEs comprise 99.9% of Albanian businesses and leasing can be the right financing solution for many of them. This article aims to provide through literature review on the financial leasing and through a theoretical and analytical study of the market, an overview of the characteristics and performance of the financial leasing in Albania until March 2018. Except analyzing the latest data of the leasing industry the article will make a comparison of its financial costs compared with bank loans to better understand why this form of financing is still in its first steps in Albania after 17 years.

Keywords: *financial leasing, financial costs, small and medium enterprises, portfolio, assets.*

INTRODUCTION AND LITERATURE REVIEW ON FINANCIAL LEASING

One of the biggest challenges for a small and medium enterprise that has recently accessed the market remains its ability to find financial support, especially during the first years of life. Inability to finance is one of the most affected and discussed topics in the business world nowadays (CGAP 2013, IMF 2013, and IFC 2009) and is the primary source for their sustainability. Especially in emerging economies and businesses that have just started their activity, access to funding opportunities, remains a key element for their survival and further empowerment. Financial leasing is a form of financing that is being used more and more especially in developed countries by becoming a real financing alternative for new businesses. Based on the lease contract, the lessee may use an asset (s) owned by the lessor. The lessor relies on the tenant's ability to generate sufficient income to pay the lease installments (rather than the tenant's balance sheet or his credit history). The financial lease enables borrowers who do not have a strong borrowing history or do not own collateral to access the use of capital equipment, which is also the case when those businesses are not qualified to obtain traditional lending (Gallardo, 1997; Berger and Udell, 2005). IFC (2009) further

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elaborated the definition of financial lease as a medium-term financial instrument used mainly for the procurement of machinery, equipment, tools and / or property.

The most used definition of financial leasing from a European point of view (used as definition by Leaseeurope) is the one provided by the international accounting standard IAS17 where the lease is defined as an agreement under which the lessor conveys to the lessee the right to use an asset for an agreed period of time in exchange for a payment or series of payments. So simply leasing enables the use of facilities by people who do not own it, thus increasing the ability especially for small and medium-sized businesses with more limited funding opportunities to have more access to short and medium term funding. On the other hand, if we look at Albania in terms of leasing treatment, for the first time in Albanian legislation the financial lease is mentioned in the "Civil Code of the Republic of Albania" and more precisely in Article 849 "Leasing". It states that with the financial lease contract, one party is obliged to make available to the other party for a certain period a movable or immovable asset toward a periodic payment determined in relation to the value of the asset, with the duration of the contract and with other elements defined under the agreement of the parties. Also the asset should have been acquired or constructed by the owner according to the lessor wish that has the right to acquire ownership of the asset at the end of the contract.

Based on empirical studies, it has been studied (Beck, Demirguç-Kunt and Maksimovic) and found that lack of access to external funding is the main obstacle to enterprise growth, especially in the case of small and medium-sized businesses. In many developing countries, the capital market is still underdeveloped, although the case of our country where a finite stock is still lacking, banks in these cases do not want or are unable to take risks when they make loans. Financial institutions prefer in these cases to give loans to larger firms that have a consolidated credit history and significant assets making it even more difficult to find external financing for small and medium-sized businesses especially in the early stages of their creation when the need for external financing is even greater. A number of studies (Schiffer and Weder, 2001, Beck, Demigruc-Kunt, 2006), based on data collected by the firm, have shown that small and medium-sized businesses not only perceive access to external financial resources and cost of credit as the biggest obstacles in relation to large firms but see these factors as barrier factors affecting their performance. Based on a review of the above literature, we can say that the financial lease is a medium-term financing form that will be used especially for small and medium enterprises in the early stages of development, especially in developing countries where alternatives to funding they are even more likely to be found.

FINANCIAL LEASING ACTIVITY IN ALBANIA

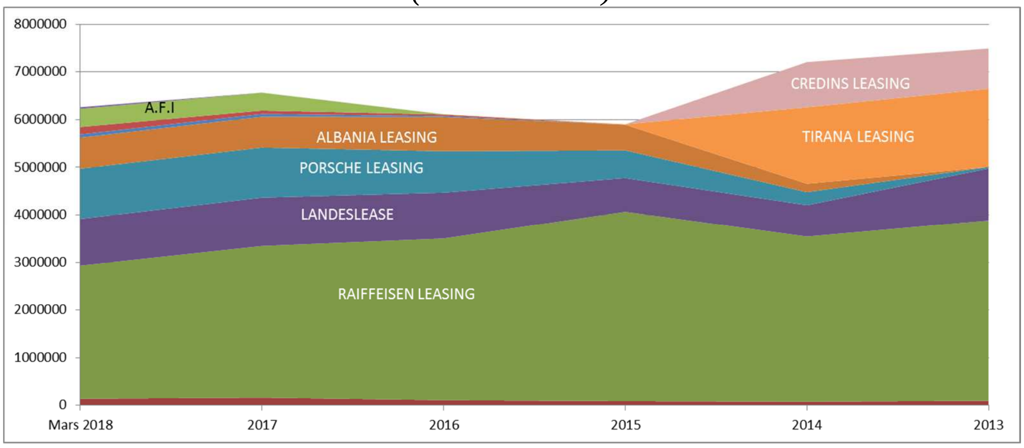
The structure of the banking and financial system at the end of 2017 in Albania consisted of: 16 banks; 31 non-bank financial institutions; 426 foreign exchanges; 13 savings and loan associations; and 1 union of savings and loan associations. The Bank of Albania, based on the Law "On Banks in the Republic of Albania", has the authority to license and supervise banks, non-bank financial institutions, savings and loan associations and their unions, foreign exchange bureaus and banks' representation foreign offices. Since 2001, the Bank of Albania has licensed 13 non-bank financial institutions to engage in financial leasing activity as a single activity, or together with other activities. At present, Albania has about nine financial entities that do not provide banks with financial leases and until December 2017 the total assets of non-banks are not 1% of the total assets of the banking system, indicating that the financial lease is a very limited source of funds; unused for the Albanian market.

In March 2018, gross financial leasing portfolio in Albania for non-bank financial institutions amounted to lek 6.26 billion (approximately Euro 50 million). The subject that dominates the market for years is "Raiffeisen Leasing", which accounts for a total of about 45% of the financial leasing market for non-bank financial institutions, with a considerable distance from other entities that are ranked behind it (Porsche Leasing - 17% and Landeslease -16%). All three of these entities together own 78% of the financial leasing market in Albania for non-bank financial institutions.

The total number of clients of financial leasing entities in March 2018 amounts to 10,000, which is significantly increased by a single entity "FINAL", which has the crushing number of customers who finance leasing about 70% of the market. The total number of clients of financial leasing for financial institutions not banks without this entity drops to 2,800 clients. FINAL has an insignificant weight in the market and offers much lower average funding compared to other competitors (around 20,000 lek). If we can see the annual financial leasing market in Albania is limited to as many as 3000 clients per year.

In the chart below we can see more specifically the performance of the financial leasing portfolio of different subjects starting from 2013 (data / 000 lek). From 2013 to 2015 we see a contraction of the financial leasing market in Albania and then from 2015 to 2018 portfolio performance values are played at very low rates. Based on the chart below, the Albanian lending market walks at extremely low rates.

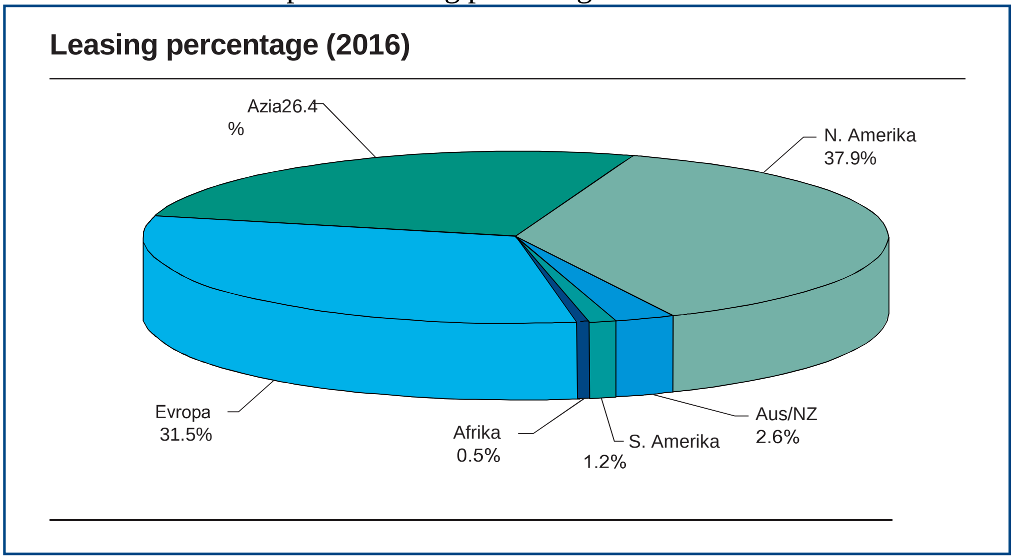
Table 1. Financial lease portfolio performance in 000 ALL for the period 2013-March 2018 (in ALL billion)



Data processed by the author.

If we see a broader picture of leasing industry across the world, according to the data collected by White Clarke Group in the Annual Lease Report in the Report of 2017, this is the sixth consecutive year after the global financial crisis that the leasing industry has seen growth in new businesses, sales volume and further lease development expectations remain very optimistic. But this is a reality that defines especially the developed countries. If we look further at the pace of financial leasing in the developing countries, the use of this form of financing remains at very low levels and the development of the industry leaves to be desired.

Graph 2. Leasing percentage in 2016



As can be seen in countries like Africa the percentage of leasing use for the year 2016 has fallen to the leasing market from 1% to only 0.5% of the world's leasing market (White Clarke Group Global Leasing Report 2017).

In many developing countries, leasing is mostly used by fast growing small and medium-sized businesses that need further funding. (Ayadi 2009).

What is happening in Albania especially in recent years has to do with a reduction in the use of financial leasing, which has always been characterized by a limited market both in the number of clients (about 3000 per year) and in funds funded through leasing. Having much potential and providing untapped opportunities, especially for small and medium-sized businesses that are also the forms of business organization that have the greatest external financing needs and difficulties, leasing can be the right choice for many Albanian businesses.

Those questions that arise naturally after analyzing the financial leasing activity in Albania relate to the reasons for its non-utilization, where unlike other developed countries in Europe and the world leasing has grown in use. On the one hand, bearing in mind the characteristics of the average Albanian businessman also related to the specific historical reasons in which the Albanian business was developed and the connection he has with the idea of being the owner of the property he owns even after 1997 where of pyramid schemes many individuals and businesses lost their properties, we can see that a link between mistrust in the use of leasing since ownership and use of the object in the concrete case are divided. On the other hand, to understand even more clearly the situation and the reasons for the lack of leasing in relation to other forms of financing, we see the leasing financing costs compared to banking lending and which of these forms of financing is more expensive for similar assets being that a higher cost in the leasing case would make it clear at least one of the reasons for its non-use.

The table below summarizes the aggregate interest rate values for all types of subjects, currencies and sectors for bank lending by comparing the latter with the interest rate of financial leasing as a weighted average for the three main entities not banks offering financial leasing in Albania: Raiffeisen Leasing, Porche Leasing and Landelese, which together cover almost 80% of the entire Albanian lending market in non-bank financial institutions and have a sufficient share of the leasing market in Albania to be accurate in our comparative analysis. The table shows a comparison between the weighted average credit values for durable goods compared to the financial lease starting from 2013 until March 2018.

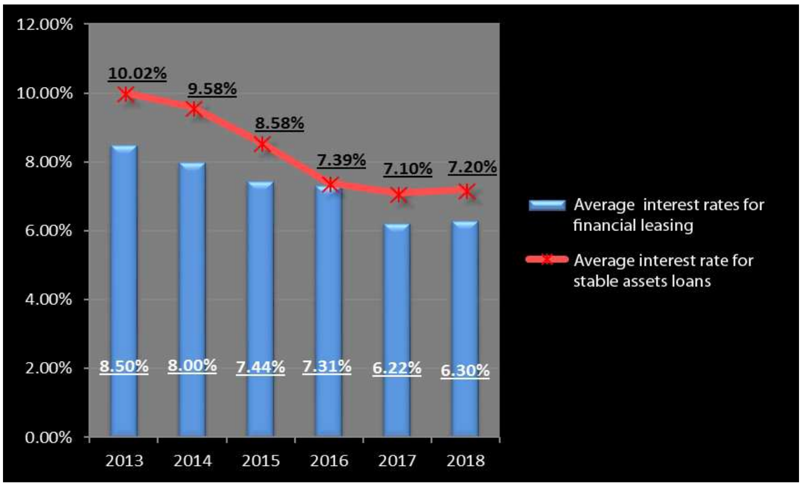
Table 2. Comparison of interest rates between financial leasing and bank credit for durable goods.

Year	2013	2014	2015	2016	2017	2018
Average lease cost	8.50%	8.00%	7.44%	7.31%	6.22%	6.30%
Average loan cost for durable goods	10.02%	9.58%	8.58%	7.39%	7.10%	7.20%

Data processed by the author.

The table data are also shown in the graph below where there is a clear difference between the leasing costs and the bank credit in favor of leasing. The analysis is apparently taking into account those products which are also generally used for financial leasing, which are mainly machines and machineries that are categorized differently as commodity wagers. As we can see graphically from the comparison of the interest rate, leasing is more likely than bank credit to be offered for similar products as the commodities are.

Graph 2. Comparison of interest rates between financial leasing and bank credit for stable assets.



Data processed by the author.

In the table below, the analysis extends even more widely, taking into account interest rates on loans divided into seven different products such as: home loans, durable goods loans, non-durable goods loans, activity loans, loans for individuals and consumer credit, and comparing the latter with the cost of financial leasing where as a benchmark basis are taken the interest rates for the three leading leasing companies in Albania for non-bank institutions that account for 80% of the financial lending market for these institutions. As we can see from the table, the results of the comparisons regarding the comparison of the leasing costs with bank credit apply in almost all cases to all types of creditworthy goods, except for the case of loans to the house, where the rate the interest in this case is lower than the lease cost. From the following analysis and also based on the study results for the first lease we can say that the average cost of financial leasing is lower than the bank credit. Relying on the literature review and analysis of cost comparison, we see that financial leasing is cheaper than credit despite the ease of application, lack of collateral, and non-registration as debt in accounting books.

Table 3. Comparison between the financial loan costs for different categories of goods and financial costs of leasing represented by the three main companies in the market

Year	Average interest ra	Durable goods	Non durable goods	Mortag	Business loans	Individ loans	Consum mer loans	Average financial leasing costs of the three main financial non banks institution that offer leasing
2013	8.33	13.31	10.02	6.79	13.01	9.51	11.94	8.5
2014	7.53	10.79	9.58	5.71	10.94	8.61	10.62	8
2015	6.7	9.39	8.58	4.84	8.36	7.58	9.37	7.44
2016	6.36	7.94	7.39	3.74	7.74	7.29	8.05	7.31
2017	5.76	7.7	7.1	3.61	7.88	7.28	7.9	6.22
2018 (T1)	5.71	7.54	7.2	3.38	8.12	7.49	8.02	6.3

Data are gathered and processed by the author

CONCLUSIONS

The financial leasing activity in Albania is having a period of stagnation and seems to be as a not fully explored opportunity of financing. As we can see in the paper during the analysis of the literature review and of the leasing market:

1. Financial leasing is a medium-term financing form that will be used especially for small and medium enterprises in the early stages of development, especially in emerging economies, whereby alternatives to financing are more and more likely to be found.
2. The financial leasing market in Albania remains limited to a small number of customers, around 10,000 a year, despite the recent developments that this form of financing has received since 2007 in the world.
3. Small and medium enterprises that represent about 99.9% of the enterprises in the Albanian market would be the one benefiting the most from the use of the financial leasing as an alternative way of financing their business.
4. The level of financing through leasing in Albania shown by the number of clients that use leasing in one year and also by the value of assets that financial institutions no banks do have, illustrates an unused potential, with an inconsiderable financing level toward the banking system.
5. The financing through leasing in Albania, in comparison to the banking loan, is characterized by a lower (interest rate) cost than the banking lending for similar products and in the case of leasing there is no need for collateral.
6. Strengthening the enforceability of the legal framework and the revival of economic activity is expected to bring a positive impact on the development of financial leasing activity too.
7. Enhancing SMEs' awareness of this type of funding and benefits resulting from it will have positive effects on the number of companies using the financial leasing.

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THE EFFECT OF MARKET ORIENTATION ON FINANCIAL VS. NON-FINANCIAL INDICATORS OF BUSINESS PERFORMANCE – COMPARISON OF MARKOR AND MKTOR APPROACH

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Abstract: *The paper deals with the issue of relationship between market orientation and business performance. Market orientation is considered as an established concept of marketing theory whose implementation within the business is regarded as the key to achieving competitive advantage and prosperity. The claim that market orientation has a positive impact on business performance is well documented in scholarly research. Although a few studies report a negative or non-significant relationship, predominant evidence shows a positive relationship between market orientation and business performance. Both concepts occupy the interest of scientists for decades and there exist studies worldwide presenting and confirming their dependences. Since in Slovakia there was research gap in this field we decided to examine this issue on the representative sample of 230 companies operating in Slovakia with various sizes (small, middle-sized, large) from different industries and regions. We applied established MKTOR and MARKOR methodology. The main aim was to examine relationship between market orientation measured via two different methods (MARKOR vs. MKTOR) and business performance measured through financial and non-financial indicators and to compare their results. In our hypothesis we assumed that market orientation has higher impact on non-financial indicators than on financial indicators of business performance in case of both methods. Our results confirmed this assumption and we found out that there is middle-strong positive correlation in the linkage to non-financial indicators and slightly lower correlation in the linkage to financial indicators. These findings may be used for managerial implications and successful implementation of marketing management concept into the practice of the businesses.*

Keywords: *market orientation, business performance, MARKOR, MKTOR, financial and non-financial indicators*

1. INTRODUCTION

Despite the presence of *market orientation* concept in marketing literature for decades there is still unclear understanding of basis of market-oriented business. Also, Narver and Slater (1998) in their research notes wrote about inconsistency of market orientation elaboration in different fields. The essence of being market-oriented is well documented in marketing literature, however in management literature still continue debates about what does it mean to be market-oriented. They propose that this problem has occurred because scholars are talking about two separate management philosophies. They differ between the first, being "customer-led", short-term philosophy in which businesses respond to customers expressed needs and the second, being "market-oriented", long-term philosophy of

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commitment to understanding customers expressed and latent needs, and to producing superior customer value through the developing innovative solutions. Market-oriented businesses are committed to understand not only their customers, but also the capabilities and plans of their competitors. In order to understand both customers and competitors, market-oriented businesses systematically acquire and evaluate market information. Market-oriented businesses use the same traditional techniques of market research as customer-led businesses, but they combine these with the other to discover customers' latent needs and to drive generative learning. These businesses search for unserved markets representing potential customers, which are together with new products catalysts for organizational renewal in the market-oriented business.

Measurement of *business performance* through the *financial indicators* represents the most common way how to determine whether business achieves its objectives. Even if the financial indicators have several shortcomings, such as conditionality of data reliability from financial statements, they are indispensable when managers assess the business performance. Their advantages mainly consist in simplicity of getting data which are publicly available and their versatility what bring an opportunity to compare indicators within the business and also among businesses to each other. Financial indicators can be calculated from the available documents, such as financial statements or annual reports (Marinič, 2008). Lesáková (2004) states that businesses operating in Slovakia analyze predominantly profit as an evaluation criterion. Exceptionally, profitability indicators ROE and ROS are used. Other option is to focus on the achievement of several objectives, which may be equal or may be arranged in a hierarchical system. However, in the business there are issues that cannot be expressed through the financial indicators but affect the final results. *Non-financial indicators* will often appear to be more appropriate for defining the strategy and objectives of the business than financial ratios. Dubovická and Varcholová (2011) argue that to reach target financial ratios it is needed to achieve the value of non-financial indicators while both types of indicators are important aspects of business performance and lead to its long-term success. Financial and non-financial indicators relate to each other and in terms of strategic management complete the picture of the future situation in the business and bring the options to solve it.

2. METHODOLOGY

The main aim of our paper was to examine relationship between market orientation measured via two different methods (MARKOR vs. MKTOR) and business performance measured through financial and non-financial indicators and compare their results. In our hypothesis we assumed that market orientation has higher impact on non-financial indicators than on financial indicators of business performance in case of both methods.[231] Firstly, we investigated market orientation among companies; secondly we studied their business performance measured through financial and non-financial indicators; thirdly we studied relationship between market orientation and particular financial and non-financial indicators; and finally we compared results based on these two different methods. Since in Slovakia there was a research gap in this field we decided to examine this issue on the representative sample of 230 companies operating in Slovakia with various sizes (small, middle-sized, large) from different industries and regions. To study market orientation we applied established MKTOR and MARKOR methodology. MKTOR represents *cultural approach* towards market orientation measurement and was developed by Narver and Slater in 1990. It consists of 20 statements divided into three groups

[231] The topic is part of the research project VEGA 1/0686/16 Marketing orientation of businesses as a tool of increasing business competitiveness and performance, 2016-2018, project coordinator: Janka Taborecka-Petrovicova, doc. Ing. PhD.

– intelligence generation, intelligence dissemination, and responsiveness. The other common approach was *behavioral one*, where MARKOR method is used (Kohli, Jaworski, 1990), consisting of 14 items divided into three groups – customer orientation, competitor orientation, and inter-functional coordination.

It is obvious that conceptualizations, Kohli and Jaworski's behavioral perspective and Narver and Slater's cultural perspective, are characterized by different components and offer to researchers various ways how to examine market orientation. Despite of this there are significant overlaps between these conceptualizations. Cadogan and Diamantopoulos (1995) compared these conceptualizations and analyzed overlaps on a conceptual and operational basis. Conceptual overlaps consist in common features in market orientation definitions and operational overlaps are represented by similarities in measuring instruments. These scholars studied both conceptualizations in detail and compared each component to detect common features.

Based on the work of Kohli and Jaworski (1990, pp. 257-269), we decided to measure the *performance of businesses* through four groups of indicators which are impacted by market orientation. Three indicators represent *non-financial performance*: *the organizational commitment of employees, "esprit de corps"* and *customer satisfaction*. The other group of statements focuses on the performance using *financial ratios*. We selected indicators based on the work of many authors (Narver, Slater, 1990; Kohli, Jaworski, 1993 Avlonitis, Gounaris, 1997, Matsuno et al., 2002; Cervera et al., 2001; Puledran et al., 2003; Rojas -Méndez, Rod, 2012) and we selected those that were *most frequently used* in their researches and we tried to incorporate those indicators that Slovak businesses monitor and measure (Lesáková, 2004). In comparison with original studies, we decided to involve additionally some *modern indicators*, such as economic and market financial ratios (Kabát et al, 2013), and those that *combine financial and non-financial indicators*, especially Balanced Scorecard.

We decided to examine the growth of individual indicators during last three years. Our decision is supported by results of structuralized interviews when respondents expressed their opinion that businesses could have problems with fulfilling the questions about business performance requiring concrete numbers. Thus, we decided to examine business performance through subjective measures based on Likert-scales items which have positive or negative character. Negative formulation is used as a control tool for sustaining attention of respondent. We used only 7-point Likert-scale items because of the better comparability and interpretation. Here we followed the studies of several authors who used this approach (Narver, Slater, 1990; Pitt et al., 1996; Puledran a kol., 2003; Hooley et al., 2003).

3. RESULTS

In our hypothesis we assumed that market orientation has higher impact on non-financial indicators than on financial indicators of business performance. We realized correlation analysis to identify the impact of market orientation on various indicators. The p-value lower than significance level 0.01 or 0.05 means that there is significant correlation between market orientation and business performance indicators. Outputs from statistical program are shown in table 1 and table 2. Statistical testing confirmed significant correlation between market orientation measured through various methods and *all tested non-financial indicators*. Spearman's rho speaks about the middle-strong positive correlation in the linkage to employees commitment (MARKOR: +0.476, MKTOR: +0.488), esprit de corps (MARKOR: +0.418, MKTOR: +0.450), and customer satisfaction (MARKOR: +0.369, MKTOR: +0.388).

Relationship between market orientation measured through MKTOR method and all non-financial indicators was stronger than in case of MARKOR method.

Table 1: The Effect of Market Orientation on Non-financial Performance Indicators

	MARKOR		MKTOR	
	p-value	Spearman's rho	p-value	Spearman's rho
Employees Commitment	0.000	0.476	0.000	0.488
Esprit de Corps	0.000	0.418	0.000	0.450
Customer Satisfaction	0.000	0.369	0.000	0.388

The results of correlation analysis between market orientation and financial business performance indicators are shown in table 2. As we can see, there is statistically significant positive dependence between market orientation and *all financial indicators*. But we can also see that in prevailing cases stronger relationship between market orientation and business performance was in case of MARKOR method (exception represent ROA, ROI, ROE and ROMI).

Table 2: The Effect of Market Orientation on Financial Performance Indicators

	MARKOR		MKTOR	
	p-value	Spearman's rho	p-value	Spearman's rho
Overall Performance	0.000	0.359	0.000	0.341
Market Share	0.000	0.282	0.001	0.233
Profit	0.000	0.313	0.000	0.290
Sales	0.000	0.386	0.000	0.348
Sales Generated by New Products	0.000	0.291	0.000	0.286
Return on Sales (ROS)	0.000	0.386	0.000	0.380
Return on Assets (ROA)	0.000	0.285	0.000	0.296
Return on Investment (ROI)	0.000	0.293	0.000	0.349
Return on Equity (ROE)	0.001	0.231	0.000	0.291
Return on Marketing Investment (ROMI)	0.017	0.197	0.005	0.231
Net Present Value (NPV)	0.000	0.421	0.000	0.407
Economic Value Added (EVA)	0.000	0.399	0.000	0.344
Cash Flow Return on Investment (CFROI)	0.000	0.282	0.025	0.177
Market Value Added (MVA)	0.000	0.340	0.013	0.208
Balanced Scorecard	0.000	0.391	0.000	0.329

The intensity of dependence expressed through the Spearman's rho is *slightly lower* in case of financial indicators than in linkage to non-financial indicators. According to the values of Spearman's rho we can conclude that market orientation has *higher impact on non-financial than on financial indicators*. Thus, we confirmed our hypothesis.

Gauzente (1999) compared MARKOR and MKTOR method and found out that MARKOR expects the organizational view on market orientation and develop the assessment of business' opportunities. Contrary, MKTOR is more oriented on customer and represents some kind of check list (In: Rojas-Méndez, Rod, 2012). Narver and Slater (1990), as the authors of MKTOR, claim that this method is stronger associated with business performance than MARKOR, because is fully represented by serving the added value to customer and increasing the business performance. In our research this corresponds to all non-financial indicators and selected financial indicators: return on assets (ROA), return on investment (ROI), return on equity (ROE) and return on marketing investment (ROMI). On the other side, findings of other researches support the premise that dependence between market orientation and business performance tend to be stronger when the MARKOR method is used for market orientation measurement (In: Vieira, 2010). This is in accordance with our research results in case of prevailing number of financial indicators, namely: overall performance, market share, profit, sales, sales generated by new products, return on sales (ROS), net present value (NPV), economic value added (EVA), cash flow return on investment (CFROI), market value added (MVA) and balanced scorecard (although BSC is specific as it combines both financial and non-financial dimension).

Many scholars (Deshpandé and Farley, 1998; Dobni and Luffman, 2000; Langerak, 2001) also used modified methods or their combination in their studies. Both methods argue that the degree to which a business demonstrates its market orientation influences effectiveness with which the marketing concept is implemented in a business and at the same time the degree by which business performance is affected (Kohli and Jaworski, 1990; Narver and Slater, 1990, Reukert, 1992). Mavondo and Farrell (2000) note that both cultural and behavioral perspectives share the idea that customer is a cornerstone of market orientation and agree that stakeholders try to shape consumer needs and expectations. Rojas-Méndez and Rod (2012) state that both conceptualizations correspond in notion, that the degree to which a business indicates the market orientation influences the effectiveness of marketing concept implementation and the degree to which business performance is affected.

4. CONCLUSIONS

In business practice, we can very often observe an imbalance between the perception of the relationship between market orientation and business performance. Financial managers perceive the marketing outcomes from the different point of view in comparison to marketing managers. The main problem with the investments to marketing activities is that it is difficult to quantify the immediate financial outcomes resulting from their implementation. Most of the financial managers do not consider the fulfillment of marketing objectives as sufficient and they require its reflection in financial outcomes. More intensive usage of the marketing performance indicators was caused by the requirements of managers who want to declare the effect of financial sources invested in marketing. Especially, managers try to identify which marketing costs contribute to the financial performance of business. There are always two different points of view. However, we could ask the question if the business with unsatisfied customers can achieve high profit from the long-term point of view. We think that ignoring the marketing indicators with non-financial character and use only traditional financial indicators would be incorrect. From the long-term point of view it is necessary to assess the business objectives as a whole. Simply said, assessing the business performance through the financial indicators is important, but it is not enough. We think that managers should use those methods which include financial and also non-financial indicators. For example, the tool Balanced Scorecard contains four different perspectives which cover both financial and non-financial outcomes. Moreover, thanks to our research results also more financially oriented managers can see that it is worth to pay attention to activities that enhance market orientation as this effort is reflected in improved, not only financial but also non-financial area.

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GLOBAL DIVERSITIES IN FINANCIAL REPORTING: COMPARATIVE ANALYSIS OF INVENTORY VALUATION METHODS IN RELATION TO US GAAP AND IFRS

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Abstract: *Financial statements are one of the fundamental methods in which information is provided about the company, its shareholders, potential investors and other stakeholders. The loss of credibility of these reports resulted from the collapse of several large companies and expanded, through the process of globalization, across national borders and became an international problem. Research has shown that misleading financial reporting is always the result of a combined effect of bad business, management and financial reporting. Since financial reporting is a national but also an international issue, in order to protect investors, a number of studies have been launched at both levels to identify the main causes of the loss of credibility of the reporting and take steps towards its raising. Although the reporting framework in which companies operate is primarily national, international steps are necessary to ensure harmonization in financial reporting.*

Although as a result of discussions about diversity in accounting and auditing, there are already extensive studies, research works and numerous official bodies that address these issues, both national and international, that fact do not cease the need to continue to explore ways to achieve greater harmonization in standards and principles relevant for financial reporting, which include both accounting standards and principles and financial reporting standards. The advantages of harmonizing these principles have long been known, and in the first place involve the possibility of investing beyond national borders, which would exclude the necessary revisions of financial reports according to the standards of the other country in which they want to invest. The major global harmonization in accounting exists in the harmonization between US GAAP and IFRS (International Financial Reporting Standards). Great progress has already been achieved in the harmonization of the principles, primarily in the domain of Mergers and Acquisitions (M&A). Although the differences between these two concepts are extensive, primarily in the methodology itself and the nature of the principles, one of the main ten differences, and also the main stumbling block in harmonization, belongs to the category of inventories. Many of the IFRS principles have been adopted or mitigated in GAAP, but the fact that the LIFO inventory management method is permitted in GAAP, but not in the IFRS, remains one of the main issues of harmonization. The work of the authors wants to present the LIFO method, once again, as a good alternative to inventory management, which should be reviewed in IFRS, since the IFRS principles are prepared exclusively for stable or deflating economies, which is often not the case in view of the financial crisis. The paper includes a comparative analysis of the main allowed methods of inventory management and the LIFO method, from the aspect of financial result, the amount of the inventory end-value, the profit tax and the main financial indicators in the conditions of inflation. The main results of the analysis explain the reasons for defending the application of the LIFO method in inflationary conditions, and consider that the global accounting principles, which are the ultimate goal of general

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harmonization, include this method as permitted, since, as the research intends to show, it corresponds more to the inflationary conditions.

Keywords: *International financial reporting, global harmonization of accounting, inventory, LIFO method in valuation of inventory, GAAP, IFRS*

INTRODUCTION

International Financial Reporting Standards (IFRS) is the accounting method that's used in many countries across the world. It has some key differences from the Generally Accepted Accounting Principles (GAAP) implemented in the United States. There are numerous differences between IFRS and GAAP, like IFRS is a globally accepted standard for accounting, and is used in more than 120 countries. On the other hand, GAAP is exclusively used within the United States. Furthermore, IFRS is principle-based, but GAAP is rule-based. Under GAAP, a company is allowed to use the Last In, First Out (LIFO) method for inventory estimates. However, under IFRS, the LIFO method for inventory is not allowed. Although, there are a great number of differences, this research will focus on differences related to Inventory methods.

International Accounting Standard 2-The inventory was published by the International Accounting Standards Committee in December 1993. When it comes to amendments to IAS 2 for the method of calculating the end value of inventories, they are processed in IAS 2 BC (BC - Basis for Conclusion) in paragraphs BC 9 to BC 21. BC (Basis for Conclusion) are not official parts of IAS, but only more detailed explanations of the IAS, i.e. changes made in the standard.

LIFO method gives the Income Statement, measured by newer up-to-date values, but also the Balance Sheet, measured by old outdated prices. All BC are parts of IAS 2 BC, i.e. the paragraphs outlining the reasons for abandoning the LIFO method. The list of reasons is not a complete list and this research will select those reasons that correspond with the aspects that will be used in the research, in order to link the aspects and remarks contained in the BC.

Within the scope of IAS 2 BC 12, it is suggested that the use of LIFO method in financial reporting is often governed by tax policy, perhaps most often, because it leads to the cost of sold goods being calculated, using the latest prices that are deducted from revenue when determining the gross margin. LIFO method reduces (increases) the profit in a way that reflects the effect that the increased (reduced) prices would have on the costs of replacing the sold stock to others. However, the Board considered that the effect depends on the relationship between the prices of the latest stock purchases and end-of-term replacement costs, and that it is not really a systematic method for determining the effect of changes in prices in relation to profit. The committee was sent to more than 160 letters to support the LIFO method (we will remind that the method is allowed in the US, and that there was an intent of harmonization between US GAAP and IFRS), mostly due to tax effects for using this method. Afterwards, the Board pointed out that it is known that in some jurisdictions, the use of LIFO method for taxation purposes is possible only if that method is used for accounting purposes (the so-called LIFO conformity rule, stipulated in the United States). However, it was concluded that tax issues do not provide the appropriate conceptual basis for the selection of an adequate accounting procedure, and it is unacceptable to allow a less appropriate accounting procedure, just because of tax regulations and tax advantages in certain legislations. Nevertheless, the local tax authorities were urged to address this issue. For this reason, a comparative analysis will include the aspect of profit tax, although it is based on the analysis from the aspect of the impact on the financial result in a certain way. We believe that there is no need to further emphasize the importance of tax regulations and their impact on the management of corporate governance in business.

What is perhaps the most important part of the BC about IAS 2- Inventory, in BC 13, is that the application of LIFO method leads to inventories in Balance Sheet, being recorded at amounts that have little to do with recent levels of purchase value/cost price of inventories, which is absolutely correct, especially if the assumption of inflation is introduced, which IAS do not use. On the other hand, it gives a correct picture of profit or loss. According to BC 13, it is much more important to give a realistic picture of the value of the inventories than the result, i.e. it should not be allowed to use the method which leads to the measurement of profit or loss for a given period that is not in accordance with the measurement of inventory values for the needs of the Balance Sheet. However, as the results of the research will show, it is completely opposite. In this regard, we will present a comparative analysis from the aspect of the impact on the financial result, from the aspect of the business ratio analysis, and of course from the aspect of the end value of inventories and LIFO reserves (which occurs when using LIFO method and which is cited as another negative consequence of using this method).

SUMMARY REVIEW OF RESEARCH RESULTS AND CONCLUSIONS

Below is a summary of the results of the research given according to the aspects, defined in the research methodology:

Table 1: Summary of research results

Selected criteria	*Method of calculation of inventory value*		
	LIFO(Last In First Out)	*FIFO(First In First Out)*	*AC (Average cost method)*
Financial result	Lowest in inflation, Highest in deflation conditions	Average level	Highest in inflation, Lowest in deflation conditions
LIFO reserve	*Lower costs in the conditions of monetary stability and deflation* - the purchase value of goods sold *Higher costs in inflation conditions*	*Higher costs in the conditions of monetary stability and deflation* - the purchase value of goods sold *Lower costs in inflation conditions*	-
The end-value of inventories	*The lowest level of inventories in inflation conditions*	*The highest level of inventory value*	-
Income tax	*Higher in the conditions of deflation, lower in conditions of inflation*	*Lower in the conditions of deflation, higher in conditions of inflation*	Average results
Performance indicators (ratio analysis) in conditions of inflation			
Selected criteria	*Method of calculation of inventory value*		

	LIFO(Last In First Out)	*FIFO(First In First Out)*	*AC (Average cost method)*
Business efficiency	*Best results*	*Worst results*	*Average results*
Profitability	*Worst results*	*Best results*	*Average results*
Solvency	*Worst results*	*Best results*	*Average results*
Liquidity	*Worst results*	*Best results*	*Average results*

Source: Research of authors

Conclusions of the research- comparative analysis of methods of inventory valuation in terms of the impact on the financial result

So, as we can see, in conditions of inflation, the result will be the lowest in the case of a periodic LIFO method, while it will be the highest in the case of a permanent AC method. None of the methods allow representing, in the best possible way, the value of the inventories, as well as the amount of the cost of goods sold (expenses), at the same time.

If the circumstances are such that none of the methods available cannot fulfill both objectives at the same time (real value of assets and result), then a method that prevents overestimation of the periodic result must be chosen, regardless of the consequence that the value of the assets will be underestimated. The effect of underestimation of assets corresponds to the principle of caution, but leads to the formation of latent reserves. When choosing one method, there is an obligation, in accordance with the principle of continuity, that the chosen method is applied continuously, in a series of successive periods, in order to ensure the comparability of the financial statements. These conclusions are in contradiction with the conclusions of BC 13, according to which it is more important to give a realistic picture of the inventory value than the result.

The lowest financial result may be ostensibly unattractive for users of financial reports, both internal and external, especially in terms of inflation, but only the objectively measured result may correspond to business goals, and what is very important that it must not lead to outflow of assets from the company, based on distribution of dividends, payment of tax duties, and other similar obligations. Management should not be guided by attractive results, but the most objective one, because otherwise, in the future, because of the outflow of funds, and those resources that do not exist in reality, the company could have very unattractive results.

1. *Conclusions of the research- comparative analysis of methods of inventory valuation in terms of the end value of inventories and LIFO reserve*

When it comes to the formation of LIFO reserve and the end value of the inventories, the results indicate that the end value of inventory is always higher by FIFO method, which contradicts the principle of lower value, expenses are lower by FIFO method, and the result by this method is higher than by using LIFO method, which also contradicts the principle of caution. The amount of LIFO reserves contained in the end value of inventory will be resolved when selling the goods containing this reserve, and in the same time, income will be made, on this basis, which will cover the expenses.

Under inflationary conditions, the application of LIFO method is actually preferred, because the value of the used inventory will be calculated at the prices closest to the current market prices, which means that the expenses in the Income Statement will be calculated in real terms.

Of course, the value of inventories in the Balance Sheet will then be calculated at the prices of the first purchases, which are lower than the current market prices, so in the inflationary conditions, the application of this method will cause the underestimation of inventories and the creation of latent reserves in value of inventories. This is one of the reasons why LIFO method has been challenged, with the assertion that it is inadmissible to underestimate the value of inventory in the Balance Sheet, with LIFO method having such an effect. This argument can be immediately contradicted by the fact that some other methods also lead to underestimation of property, such as a digressive method in the write-off of fixed assets, and yet no one is disputing the application of the digressive write-off method. There is another, much stronger argument, that is, if one should choose between the real income statement, that is, the real calculated periodic result and the real value of the inventory, then it is certainly necessary to choose a realistic calculated periodic result, because from the existence of latent reserves, i.e. the fact that the inventory value is underestimated, companies are not at any kind of risk. There is no risk in underestimation of inventory, but the risks become serious, when it comes to expressing an overestimated result.

2. *Conclusions of the research - comparative analysis of methods of inventory valuation in terms of income tax*

Conclusion related to the level of income tax, depending on the use of different methods of calculating the end value of inventories, could be carried out in the direction that LIFO method would achieve numerous savings in tax payments in condition of inflation, which would significantly improve the company's liquidity position and reduce cash outflows. Not only does a lower tax base mean lower tax payments, it also means the refusal to competition entering a particular branch to which the company belongs. Professional managers and financial analysts, using LIFO method to calculate the value of inventories, (if that was allowed through the IAS in financial accounting), would reduce the tax base, without resorting to any inventory fraud or blurring and counterfeiting of the Balance Sheet over the value of inventories, which became very common, because these are very difficult to reveal in the inventory audit process, both internal audits and external audits.

3. *Conclusions of the research- comparative analysis of methods of inventory valuation in terms of financial ratio analysis (performance indicators)*

When it comes to business performance indicators, LIFO method gives us the best results in business efficiency, followed by AC method and, finally, FIFO method. Conversely, in terms of profitability, LIFO method yields the worst results, due to the lowest net profit it produces, followed by AC method, and the best results of profitability are, therefore, given by FIFO method. The table also showed us results obtained by analyzing the company's solvency (long term liquidity). LIFO method, again, gives the worst results, followed by AC method and the best results of solvency gives FIFO method. Since solvency measures the protection of creditors and those who have placed their assets in the long run in the company, the company managers will take advantage of this fact, (that the best results of solvency are given by FIFO method), and will always rather select this method, as the results by this method will attract more long-term investors and creditors. LIFO method would give the worst results in solvency indicators, and it would be uninteresting for managers, no matter that it actually gives the most realistic results.

We can expect the highest liquidity when applying FIFO method, then with AC method, and the lowest liquidity is expected by LIFO method. Again, the most realistic inventory method in terms of results, but not the level of inventory, gives the worst liquidity. This is exactly the effect of a careful measurement of the inventory value and result. On the other hand, given that liquidity means the ability of the company to pay its due liabilities, while maintaining the required level and structure of working capital, the worst credit rating will be shown by the company applying LIFO method, and apparently the best credit rating will be shown by the company applying FIFO method.

In other words, all the indicators, with the exception of business efficiency indicators, show the worst results using LIFO method, and the best with FIFO method. Managers and financial managers will therefore always rather select FIFO method of valuation of inventories and show unrealistic and higher result and values of assets and, consequently, seemingly better profitability, liquidity and solvency rates, to attract creditors and investors or to blur the financial success and position of the company, and thereby mislead both existing owners and other interested public.

4. Conclusions on the effect of inflation on inventories and the impact of using valuation methods on the comparability of financial statements

The effect of inflation on inventory can be neutralized using LIFO method. By applying this method, the effects of inflation on the company's result are eliminated, and in those economies where companies operate in conditions of monetary instability, the management of the company should reach for this method in order to determine the distributable periodic result. As already demonstrated, FIFO method (permitted by IAS 2) under inflationary conditions can cause serious difficulties, as in the estimation of inventories, the prices of previous purchases will be used, which are lower than the current market prices, and in inventory will remain material or goods that are presented in the prices closest to the current market. Under the inflationary conditions, the application of this method will lead to overestimation of the periodic result, while the inventories will be assessed in real terms, bearing in mind that the prices of the latest procurements will be used for their evaluation. The consequences that overestimation of the result may have are huge for the company, which means an increased volume of outflows from the company, through the distribution of such result. If, in the inflationary conditions, FIFO method is applied, than at least, at the distribution of the result, it must be taken into account, that the distributed result, should not include the result that it is not actually the result, i.e., that the inflationary component of the result is calculated and that its distribution is disabled. This method was proclaimed by the IAS as a basic method, along with the average cost method (AC), and LIFO method (which was an alternative method) was abolished because the economy is operating or should operate in relatively stable conditions. In the light of the latest developments in the economy, recession and the global economic crisis, this starting hypothesis is questionable. Therefore, FIFO method should be used in those economies that feature deflation, as a monetary phenomenon, i.e. where there is a strengthening of the domestic currency, because only in such circumstances the application of FIFO method can provide a real periodic result.

This is because the value of the used inventory is determined at the prices of the first purchases, which prevents overestimation of the result, and inventories are estimated at the prices of the last purchases. For us, who live in an inflationary environment, where there are only differences in the level of inflation, it's strange that FIFO method is taken as a normal procedure.

If there is a high turnover inventory ratio, if the structure of inventories is constantly changing, if the value of inventories in total assets is not high, then the bad effects of FIFO method will be somewhat alleviated, in the conditions of price growth.

The application of AC method will give the real value of inventories and result, but only in the conditions of monetary stability. In situations where prices are slightly rising and falling, oscillating around an average, then the application of AC method will give just relatively realistic value of inventories and expenses.

CONCLUSION

As already demonstrated, FIFO method (permitted by IAS 2) under inflationary conditions can cause serious difficulties, because the application of this method will lead to overestimation of the periodic result, while the inventories will be assessed in real terms. The consequences that overestimation of the result may have are huge for the company, which means an increased volume of outflows from the company, through the distribution of such result.

The effect of inflation on inventory is neutralized using LIFO method. By applying this method, the effects of inflation on the company's result are eliminated, and in those economies where companies operate in conditions of monetary instability, the management of the company should reach for this method in order to determine the distributable periodic result.

Therefore, if one should choose between the real Income Statement, that is, the real calculated periodic result and the real value of the inventory, then it is certainly necessary to choose a realistic calculated periodic result, because from the existence of latent reserves, i.e. the fact that the inventory value is underestimated, companies are not at any kind of risk. There is no risk in underestimation of inventory, but risks become serious, when it comes to expressing an overestimated result.

Since, in the inflationary conditions there is no method that can provide a real Income Statement and a real Balance Sheet, the choice should always be made in the method that will not allow overestimation of the result, while accepting the fact that the application of this method will lead to underestimation of the company's assets. This is the reason for defending the application of LIFO method in financial reporting. As a major advantage of this method, it is considered that, the incomes generated in the current accounting period are opposed to expenses that are calculated at current market prices. In this way, it is possible to provide income and expenses in monetary units, at least approximately, of equal purchasing power. As a consequence, a realistic calculated periodic result is obtained.

Standpoints of professional world associations, dealing with standardization in accounting, are changing with regard to the application of methods meant to neutralize the impact of inflation on the Balance Sheet. Many authors consider that the applications of these methods are demanding and very costly. For this purpose, the application of historical values in the financial statements, in inflation conditions, would be lessen by the use of LIFO method of inventory valuation, especially in those companies that have high percentage of inventory in relation to current and total assets.

This topic, in general, is only one of many insufficiently investigated issues, whose professional processing is one of the priority requirements in order to determine the effects of the development of International Accounting Standards and professional regulations, to define necessary activities in direction of increasing the level of harmonization with GAAP and thus improving this matter in our literature, science and practice.

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EXPLORING THE RELATIONSHIP BETWEEN GOVERNANCE VERSUS AUDITING AND REPORTING STANDARDS

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Abstract: *The aim of this paper is to investigate the extent to which good governance has an impact on strength of auditing and reporting standards. Previous studies have shown there are some certain determinant factors for the strength of auditing and reporting standards such as legal framework, corporate governance, financial market and education. The goal of this cross-country investigation is to continue developing the idea of previous studies, trying to identify if there is any influence of the quality of governance on auditing and financial reporting standards. Using an approach from two perspectives such as the geographical regions and income group classification, the findings show the influence of the governance clusters on the strength of auditing and reporting standards is not quite uniform. Thus, while voice and accountability, political stability and government effectiveness are most significant for countries from Europe, Central and North America, the others governance indicators such as regulatory quality, rule of law and control of corruption are also significant for countries from South America and Asia. Countries from Africa seems to be least affected by all these six governance clusters. Speaking from the perspective of income group classification, the results show the influence of governance quality is particularly highlighted for countries included in upper middle income and high income OECD.*

Keywords: *Auditing standards, financial reporting standards, governance, rule of law, control of corruption.*

1. INTRODUCTION

As other academics [1] - [2] remarked, the international auditing standards (ISAs) and international financial reporting standards (IFRSs) continue to be implemented worldwide, but this process is far from being homogenous, due to various influencing factors such as political, legislative, cultural, economic and educational. According to some authors [1], there is a complex of relevant factors that influence in one way or another the accounting and auditing rules and practices of a country, and among them it could be mentioned legal framework, characteristics of accounting and audit regulatory process, financial market, education, policies for enhancing the shareholder protection and governance environment. In this context, for a country to have a good strength of auditing and reporting standards environment has to be able to ensure effective functioning of the capital market, an idea also emphasized by other scholarships ([3] and [4] cited by [1]).

Starting from the previous academic theoretical and empirical literature that underlines the idea of the relationship between the quality of governance and the strength of auditing and reporting standards, this paper aims to explore whether it is proved empirically that quality of governance

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measured through those six governance indicators developed by World Bank has a relevant impact on the strength of auditing and reporting standards, following to develop this empirical analyzis, from two perspectives, first is by using the geographical classification and second is by using the classification of economies of all countries divided on income groups. The premise of this empirical analyzis is that governance clusters positively influences the strength of auditing and reporting standards, even if this impact might be felt differently.

The remainder of this study is organized as follows. The next section includes a literature review of studies in the area of audit and accounting standards implementing process. Section 3 discusses the research design and data used for developing this empirical survey. The empirical results and findings are presented and analyzed in Section 4 and finally Section 5 contains the concluding section where there are presented the main conclusions and offers perspectives for further research hoping that this study will provide, the necessary context for developing constructive debates about the real impact of the governance environment on the strength of auditing and reporting standards.

2. THE INFLUENCE OF GOVERNANCE' DIMENSIONS ON ACCOUNTING AND AUDITING STANDARD-SETTING - BACKGROUND LITERATURE

How important is the effective governance for economic environment, including for accounting and auditing standards-setting process? This is one of the questions that this paper is trying to find some reliable answers.

Previous academic theoretical and empirical literature stressed the idea of positive relations between country-level governance and different business and economic development indicators. The study of [5] argued that the role of governance for the business environment is proved by starting from the idea that an economy with a moderate level of bureaucracy, a high concern for law compliance and controlling the corruption is expected to create and develop a business environment favorable to economic performance, same idea being also shared by other authors such as [6] - [7]. Even more, the effectiveness of government materialized in one of its outputs – efficiency of public administration might be considered as one of the determining factors for economic recession, in the vision of other specialists like [8] - [11]. But a major research question still needs well-argued answers: which is the impact of governance on the accounting and auditing implementation process?

The difficulties generated by the implementation processes of both financial reporting standards and auditing standards had been widely explored in the previous scholarship literature, but few are addressing the effect of country-level governance's quality on the strength of auditing and reporting standards. One general consensus in the international academic literature seems to be that the rise and the implementation of both ISAs and IFRSs vary from one country to another, being influenced by various factors that determined researchers from various interdisciplinary accounting fields to look for potential explanations of this problematic process [12] - [21]. Even more, as some author [12] admits the research interest for determining factors that influence the accounting harmonization go beyond the accounting literature to the wider areas of social and political sciences in order to understand how country-level governance could have an impact on the accounting and auditing standards-setting processes [12], [18], [22] - [26].
A review of main findings of various research studies focused on the relationship between global economic governance and accounting and auditing standards-setting process are disclosed within the Table 1.

Table 1: A synthesis of main findings related to the impact of governance on auditing and accounting standards-setting process

Source	Findings
[12]	This study uses the approach of analyzing the influence of political and economical dimensions on the relationship between the rise of international accounting standards and the dynamics generated by *"late 20th century capitalism"* in the context of East Asia Crisis. The study's conclusions support the idea that the rise of international accounting and auditing standards should also be analyzed in terms of economic, political and institutional perspective, taking in consideration that the developments in accounting history were influenced by the evolution within the global political economy
[13]	Their paper explores the effect of standards setters in the standards-setting process, particularly for Financial Accounting Standards Board (FASB) members, highlighting the role of FASB regulators in the process of accounting standards-setting.
[2]	This study explores the impact of different determinant factors on the strength of auditing and reporting standards in 41 European countries, providing empirical evidence that support the idea that judicial independence and the efficiency of the legal framework, ethical behavior of firms, efficacy of corporate boards and characteristics of stock market are significant for the auditing and financial reporting standards-setting process.
[1]	Their paper develop a model in order to evaluate the strength of auditing and reporting standards in individual countries from geographical region of sub-Saharan Africa, using data from 28 countries. Among the variables used within this predictive model, six major determinants of the auditing and reporting standards are analyzed such as: legal framework, corporate governance, financial market framework, higher education, and foreign market influence and shareholder regimes. This study also suggests the potential influence on the auditing and financial reporting standards of other factors, such as educational, cultural and legal ones.
[27]	His study analyzes three important regulatory developments in 2009 for accounting systems by private entities in Europe, highlighting the influence of factors such as rule of law, regulation for the accounting systems and practices.
[15]	By using the case of Germany, this study provides empirical evidences that suggest that the accounting system and practices, including the successful adoption of financial reporting standards are strongly influenced by the various factors such as social, political and economic environment.
[28]	Their study presents a synthesis of the main obstacles that might influence the implementation of international auditing standards, and offering a perspective on what should be done in order to ensure a successful implementation of International Auditing Standards based on the comparative analysis. In their vision, one of the factor that influenced the development and the enforcement of auditing and reporting standards is the great amount of financial scandals from the latest years, and the absolutely need to rebuild the confidence in the accounting and auditing fields.

[18]	In his study, the author starts from the idea of approaching the process of governance as a regulatory network of interacting bodies, which influences the standard-setting processes in many countries. His major objective is to analyze the impact of this regulatory network impact on the accounting and auditing standards-setting in the context of Canada. His findings show that *"standard-setting is embedded in a network structure that allows for multiple influences"*. Also, the connections between various accounting firms and regulatory bodies need to be better researched and documented.
[19]	Their paper analyzes the effect of country-level legal, extra-legal and political institutions on auditing quality, using the average audit fee as a variable of audit knowledge and specialty, providing empirical evidence that prove the effect of country-level institutional strength on the demand for higher audit quality and knowledge.
[29]	The researcher develops a content analysis of the accounting standards of three countries: South Africa, Mauritius and Tanzania and IFRS providing empirical evidences that suggest the link between legal system characteristics and accounting systems and standards-setting process.
[21]	This paper develops a detailed analysis of the main obstacles to global financial reporting at a high level of quality, by discussing two relevant aspects such as comparability and convergence. Also, the influence of politics on the accounting standards-setting process is discussed. His concluding remarks require more rigorous enforcement mechanisms for the national accounting standards in order to consolidate the effort to ensure the compliance with IFRS.
[30]	In their study, they use two variables at country level in order to investigate the impact on auditing and reporting standards, such as judicial independence and the efficiency of the legal framework, and both factors were found to be statistically relevant.
[31]	On behalf of World Bank, their report emphasizes the challenges to the successful implementation of international accounting and auditing standards, underlying in the same time the significant impediments that had been generated difficulties for the successful implementations of auditing and financial reporting standards. Some of the most significant factors that influence the accounting and auditing standards-setting process are at least: legal framework; lack of appropriate linkages between general purpose of financial reporting and regulatory reporting; the mismatch between accounting and auditing requirements and their ability to comply and the market demands; but also the effectiveness of regulatory bodies in the monitoring and enforcement of accounting and auditing standards
[32]	By using a sample of 31 countries, their study analyze if financial reporting is more transparent and if national accounting standards require accrual based reporting in countries with stronger investor protection. Their findings suggest that corporate governance is a relevant determinant factor and higher quality financial reporting standards and the compliance with them through higher quality auditing activities are more likely to exist in countries characterized through a strong investor protection.
[33]	Having as a starting point the existing literature that suggests a large number of factors that might determine the international differences in financial reporting, this study proposes to study the influences on financial and

	accounting systems from the perspective of one model which includes two variables: the strength of equity markets and the degree of cultural dominance.
[34]	By developing a cross-study across 49 countries, their study highlights that legal rules and framework differ in content from one country to another, and even more they are determinant factors for the quality of financial reporting in that country.
[35]	Their research study stressed the idea of the existing a direct influence of legal systems on the accounting systems and practices of a country.

Source: the authors' projection based on relevant literature review

As we can observe from the synthesis of the relevant literature review presented above, the influence of various factors on the auditing and accounting standards-setting process was largely discussed within the academic literature. But, at least from our knowledge, there are too few papers that aim to investigate the impact of various governance indicators on the process of implementation and application of auditing and accounting standards. In our opinion, the influence of factors such as rule of law, political stability, government effectiveness, regulatory quality and control of corruption cannot be neglected. Unlike the rest of the literature, then, our article aims to empirically investigate the relationship between the good governance clusters as they are defined by World Bank and the strength of auditing and financial reporting standards, trying to provide empirically evidence that might confirm or infirm the potential impact of governance dimensions on the auditing and financial reporting standards-setting process.

3. RESEARCH DESIGN AND DATA USED

The main purpose of this empirical survey refers to whether the quality of governance has a positively influence on the strength of auditing and reporting standards, following to construct this empirical analysis from two perspectives such as: first is from the perspective of geographical location, second is from the perspective of classification of world economies by income groups. The regression analysis within this paper is based on two major dataset including indicators of governance quality developed by World Bank and the ranking assigned to the strength of auditing and reporting standards measured for 144 countries by World Economic Forum.

The data referring to the indicators of governance refer to the year 2016 and were available from the report issued by World Bank within the project "*The Worldwide Governance Indicators*" which is based on information provided by more than 40 data sources provided by over 30 various organizations worldwide and is being updated on an annual basis since 2002 [36]. Considering the methodology developed by Kaufmann [37] - [38] this long-term project developed by World Bank aims to measure the quality of governance through six governance aggregate indicators such as: 1.Voice and Accountability; 2.Political Stability and Absence of Violence; 3.Government Effectiveness; 4.Regulatory Quality; 5.Rule of Law and 6.Control of Corruption. All these six aggregate indicators are developed based on the methodology described in their previous companion paper "*Aggregating Governance Indicators*" [38] by using an unobserved components model, which are similar to six relevant characteristics for the concept of governance like:

- ***Voice and accountability*** – contains various aspects of the political process, civil liberties and political rights, measuring the extent to which citizens are able to take part in the selection of their governments.

-Political stability and absence of violence **–** combines several indicators which measure the potential likelihood that the government in exercise could be replaced through unconstitutional or violent methods.

-Government effectiveness **–** measures the perception over the inputs necessary for effective governance, such as the quality of public service provision, the competence of civil servants, the level of bureaucracy, and the independence of the civil services from political influences and the credibility of government.

-Regulatory burden (changed later in next reports in '***Regulatory quality***') **–** captures the effects of the policies which are felt as market-unfriendly such as price controls or inadequate bank supervisions or excessive regulation which might negatively influence business development.

-Rule of law **–** includes some indicators that estimate the extent to which public and citizens have confidence in and abide by the rules of society, containing the effectiveness of the judiciary systems and the security of property rights.

-Graft (also changed later in '***Control of corruption***') **–** summarizes the public's perception about the control of corruption, including various forms of public power exercises for illegally private gains such as "additional payments to get things done", but also its negative influences on the business environment.

Next dataset used was the ranking assigned to the assessment of financial reporting and auditing standards regarding company financial performance from the *Global Competitiveness Report* issued by the World Economic Forum, which contains a range of significant indicators that emphasize significant information about the economic developments and the necessary conditions for ensuring long-term prosperity, being considered as one of the most comprehensive assessment reports on global competitiveness [39]. First version of this report was published in 2004 [40].

The major objective of this report is to determine a global indicator like 'global competitiveness', which includes approximately 115 variables and 12 pillars grouped on three sub indexes *(1.Basic requirements sub index; 2.Efficiency enhancers sub index; 3.Innovation and sophistication factors sub index)* that influence the level of competitiveness at each country-level [39]. The indicator used – **'strength of auditing and reporting standards'** is a component of the *1st pillar: Institutions* presented within this report.

Next dataset used in our survey was determined by the classification of the economies of all countries with population of more than 30,000 citizens divided on income groups such as low income, lower middle income, upper middle income, high income non OECD, high income OECD reported in the World Bank report '*Country and Lending Groups'* issued in July 2016 [41]. The experts from World Bank classified the economies using as main criterion the gross national income (GNI) per capita. These income classifications are set each year on July 1, starting from the premise of establishing the validity of this official classification during the World Bank's fiscal year (which ends on June 30). So that, it was used the World Bank's classification set on July 1, 2012 which remains in effect until 1 July 2017 and within this classification, economies are divided according to 2016 GNI per capita, determined using the World Bank Atlas method. The data sources for all variables used in this empirical study are summarized in Table 2.

Table 2: Description of variables and data sources

Variable Name	Source	Description	No. of countries
1.Voice and accountability *2.Political Stability and Absence of Violence* *3.Government effectiveness* *4.Regulatory quality* *5.Rule of law* *6.Control of corruption'*	[36]	It ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance)	215 countries
Strength of auditing and reporting standards	[39]	It ranges from approximately from 1 = extremely weak to 7 = extremely strong	144 countries
Income classifications	[41]	Economies are divided according to 2016 GNI per capita, using the World Bank Atlas Method, resulting the following groups: ***** *low income* - $1.025 or less (33 countries); ***** *lower middle income*, $1.026 - $4.035 (52 countries); ***** *upper middle income*, $4.036 - $12.475 (49 countries); ***** *high income*, $12.476 or more, classified also in non-OECD (16 countries) and OECD members (31 countries).	181 countries

Given the objective of this study, the exploring the influence of governance quality on strength of auditing and reporting standards, from the above mentioned reports and datasets there were extracted data for the selected variables and the multiple regression statistical method was applied trying to obtain empirical evidence in order to validate/invalidate the next research hypothesis: *H: All these six indicators of governance (1.Voice and Accountability; 2. Political Stability and Absence of violence; 3.Government effectiveness; 4. Regulatory Quality; 5.Rule of Law; 6. Control of Corruption) have a positive influence on strength of auditing and reporting standards for each country (as it is measured by World Economic Forum).*

4. EMPIRICAL RESULTS AND DISCUSSIONS

Given all these datasets included in our survey as there were mentioned before, the final sample used for achieving this cross-country analysis included 144 countries, for which all the necessary information was available in all reports considered within our study. From the perspective of geographical regions, the multiple regression results are displayed in Table 3 and 4, where the dependent variable is the strength of auditing and reporting standards as it was measured by World Economic Forum for 144 countries, and the independent variables are represented by all six governance clusters as they are defined and evaluated by World Bank in its reports. Regarding the countries from Europe and Central and North America, the findings confirm the intuition set out at the beginning of this paper, namely that governance dimensions have a statistically significance for the strength of auditing and financial reporting standards, while for countries from South America and Asia, only four of these six governance indicators seems to have a relevant impact on accounting and auditing standards-setting process, such as *'government effectiveness'*, *'regulatory quality'*, *'rule of law'* and *'control of corruption'*. Strong differences emerge between countries from Africa and the other continents, when the ranking assigned to the strength of auditing and reporting standards is regressed on each of the six governance indicators, one at a time. In case of Africa, our research hypothesis has to be rejected, because of our findings that show that all these six governance clusters do not have a significant influence on the strength of auditing and reporting standards.

Table 3: Regression of the strength of auditing and reporting standards on first three governance indicators

Continent	**Voice and accountability**			**Political Stability**			**Government effectiveness**		
	(Constant)	**Slope**	**R^2**	**(Constant)**	**Slope**	**R^2**	**(Constant)**	**Slope**	**R^2**
Europe	4.043	0.951	**0.675**	4.400	0.859	**0.550**	4.249	0.734	**0.774**
	(34.101)*	(8.652)		(40.713)*	(6.635)		(52.863)*	(11.105)	
Central and North America	4.346	0.999	**0.544**	4.627	1.142	**0.537**	4.612	0.811	**0.624**
	(24.376)*	(3.935)		(28.479)*	(3.880)		(31.488)*	(4.646)	
South America	4.339	0.404	0.244	4.471	0.201	0.086	4.452	0.424	**0.310**
	(28.257)	(1.606)		(24.481)	(0.870)		(30.772)*	(1.896)	
Africa	4.324	0.354	0.087	4.377	0.517	0.253	4.627	0.836	0.284
	(27.545)	(1.796)		(32.758)	(3.392)		(27.117)	(3.668)	
Asia	4.781	0.201	0.034	4.812	0.362	0.212	4.593	0.758	**0.624**
	(30.712)	(1.140)		(39.472)	(3.154)		(57.758)*	(7.843)	

*Note: Number in parentheses are t-statistics; *statistically significant at 1% level.*
Source: own calculations based on the datasets presented above

Table 4: Regression of the strength of auditing and reporting standards on last three governance indicators

Continent	**Regulatory quality**			**Rule of law**			**Control of corruption**		
	(Constant)	**Slope**	**R^2**	**(Constant)**	**Slope**	**R^2**	**(Constant)**	**Slope**	**R^2**
Europe	4.012	0.932	**0.736**	4.270	0.718	**0.754**	4.425	0.606	**0.740**
	(37.741)*	(10.030)		(51.409)*	(10.499)		(58.489)*	(10.126)	
Central and North America	4.314	1.025	**0.618**	4.746	0.730	**0.577**	4.693	0.701	**0.463**
	(26.240)*	(4.583)		(30.252)*	(4.214)		(26.761)*	(3.348)	
South America	4.460	0.438	**0.592**	4.543	0.360	**0.401**	4.438	0.343	**0.362**
	(40.328)*	(3.410)		(31.112)*	(2.314)		(32.221)*	(2.132)	
Africa	4.509	0.731	0.221	4.539	0.693	0.234	4.441	0.612	0.179
	(27.613)	(3.105)		(27.316)	(3.225)		(27.835)	(2.719)	
Asia	4.613	0.732	**0.533**	4.737	0.780	**0.655**	4.797	0.686	**0.587**
	(52.148)*	(6.493)		(62.484)*	(8.388)		(56.947)*	(7.256)	

*Note: Number in parentheses are t-statistics; *statistically significant at 1% level.*
Source: own calculations based on the datasets presented above

Considering the same variables, but applying the multiple regression analysis from the perspective of the World Bank income group's classification, the results displayed in Table 5 and 6 are somewhat surprising due to the fact that the influence of governance indicators are most emphasized, from statistically point of view for the countries included in *high income OECD* and *upper middle income* categories, while for countries classified in *high income non OECD* category, only two governance clusters like '*rule of law'* and *'control of corruption'* seem to have a relevant influence on the strength of auditing and reporting standards.

Surprisingly, the *'political stability'* which contains certain indicators which express the potential likelihood that the government in exercise could be replaced by using unconstitutional methods, seems to be the governance cluster that affect the least the strength of auditing and reporting standards, while only for the countries classified in *upper middle income* category it is highlighted somewhat a relevant influence on the auditing and accounting standards. On the other side, the most determinant governance dimension on the strength of auditing and financial reporting standards seems to be *'rule of law'* which confirms the results obtained by previous researchers, when it is stressed the idea of a relevant influence of the effectiveness of the judiciary and legislative systems on the successful implementation of accounting and auditing standards.

Table 5: Regression of the strength of auditing and reporting standards on first three governance indicators

Income category	**Voice and accountability**			**Political Stability**			**Government effectiveness**		
	(Constant)	**Slope**	**R^2**	**(Constant)**	**Slope**	**R^2**	**(Constant)**	**Slope**	**R^2**
Low income	3.740	-0.198	0.025	4.101	0.295	0.087	4.279	0.514	0.098
	(18.227)	(-0.785)		(21.148)	(1.510)		(15.290)	(1.614)	
Lower middle income	4.189	0.117	0.015	4.122	-0.049	0.005	4.440	0.619	**0.210**
	(33.645)	(0.632)		(31.695)	(-0.351)		(30.645)*	(2.676)	
Upper middle income	4.599	0.342	**0.159**	4.645	0.341	**0.158**	4.578	0.766	**0.380**
	(49.319)*	(2.680)		(48.629)*	(2.667)		(57.197)*	(4.830)	
High income: non OECD	5.347	-0.170	0.057	5.295	0.153	0.017	5.094	0.370	0.157
	(29.617)	(-0.853)		(19.948)	(0.459)		(19.905)	(1.493)	
High income: OECD	3.580	1.390	**0.429**	5.002	0.360	0.102	3.909	0.992	**0.596**
	(9.495)*	(4.671)		(25.718)	(1.811)		(17.464)*	(6.543)	

*Note: Number in parentheses are t-statistics; *statistically significant at 1% level.*
Source: own calculations based on the datasets presented above

Table 6: Regression of the strength of auditing and reporting standards on last three governance indicators

Income category	Regulatory quality			Rule of law			Control of corruption		
	(Constant)	**Slope**	**R^2**	**(Constant)**	**Slope**	**R^2**	**(Constant)**	**Slope**	**R^2**
Low income	3.854	-0.024	0.000	4.112	0.284	0.034	4.179	0.412	0.071
	(16.541)	(-0.079)		(14.211)	(0.925)		(16.220)	(1.355)	
Lower middle income	4.294	0.492	0.127	4.540	0.670	**0.230**	4.285	0.244	0.034
	(34.515)	(1.982)		(27.198)*	(2.842)		(24.345)	(0.973)	
Upper middle income	4.556	0.540	**0.323**	4.669	0.531	**0.264**	4.666	0.442	**0.193**
	(54.273)*	(4.263)		(52.001)*	(3.688)		(49.266)*	(3.018)	
High income: non OECD	5.049	0.421	0.147	4.900	0.699	**0.332**	5.070	0.486	**0.309**
	(17.612)	(1.439)		(19.809)*	(2.443)		(25.070)*	(2.317)	
High income: OECD	3.776	1.143	**0.599**	3.937	0.969	**0.549**	4.483	0.598	**0.554**
	(15.620)*	(6.579)		(16.340)*	(5.942)		(28.916)*	(5.997)	

*Note: Number in parentheses are t-statistics; *statistically significant at 1% level.*
Source: own calculations based on the datasets presented above

5. CONCLUSIONS

The cross-country survey presented within this paper show that the most influencing governance dimensions on the strength of auditing and reporting standards are the ones that express the effectiveness of government to formulate and effectively implement sound policies *('government effectiveness', 'regulatory quality')*, but also the confidence that public and citizens have in the rules of society and the effectiveness of the judiciary system *('rule of law' and 'control of corruption')*. Because the impact of governance clusters on the strength of auditing and reporting standards is felt differently by high income and upper middle income economies compared with low and lower income countries, the conclusion of this study is that our findings partially support the research hypothesis issued above, that governance indicators have a statistically significant influence on the strength of auditing and financial reporting standards. Also, the authors admit that additional investigation is required to further analyze the influence of the governance dimensions that have been emphasized as being significant, and probably a challenge of the future will be to look for potential solutions that might have a contribution to the overcoming of the obstacles that might negatively affect the process of successful implementation of financial reporting and auditing standards.

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DETERMINANTS OF AUDIT FEES: EMPIRICAL EVIDENCES FROM ROMANIAN PUBLIC-INTEREST ENTITIES

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Abstract: *In the field of audit pricing, there are a lot of previous research studies, but a significant part of them has focused on the US, New Zeeland and Australia markets and too less have been focused on the emerging markets. This study aims to elaborate an empirical analysis of various determinant factors on audit fees for an emerging market such as Romania. The purpose of this paper is to contribute at identifying some of the most relevant determinants of audit pricing, in the case of Romanian 55 public-interest entities (PIEs) listed at Bucharest Stock Exchange, for 2009-2011 period. In order to test the working hypotheses we have employed panel data methods. Two models were finally used in the analysis that proved to be the most consistent. The difference between the two models consists in the fact that shareholders equity is used once in its natural form (as scale variable) and once as a dummy variable, assessing only if the company has positive or negative shareholders equity. The use of both forms in the same models would have caused serious multicollinearity problems. The outcomes of panel data analysis highlights that, regardless of the model specified, the same three variables are highly significant in both cases. The findings revealed that audit pricing for Romanian public-interest entities are significantly influenced by the annual turnover of the company, the number of employees and the importance of the auditor (whether it is a Big4 auditor or not).*

Keywords: *audit fee, Big 4 auditor, auditees' size, public-interest entities, panel data analysis.*

1. INTRODUCTION

Every financial crisis that have shuddered the financial markets in the last century has strongly affected the public confidence in the auditors' professionalism and independence, therefore the audit pricing and audit quality has received much attention, especially in the light of the recent global economic crisis [1] - [2]. Prior theoretical and empirical research in audit pricing has paid a considerable attention to the developed economies while too fewer studies were focused on examining the audit quality [3] - [4], auditor independence and audit pricing determinants for emerging countries [5] - [7]. In 2006, a meta-study presented the possible determinants for the audit fee in the previous 25 years (1997-2002). Out of 88 research paper, just 6 papers presented auditing activity in emerging countries, and 45 studied the United States of America's market [8].

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Since October 2010, the European Commission stated in the green paper entitled ‘‘Audit policy: Lessons from the crises’’, with regard to statutory audits in the European Union that needs to be improved. It has touched many subjects, but one of the most important for strengthening the auditor independence, is a proposition for a regulatory change to the European audit market where the assignment, remuneration, should be determined by a third involved party like a governmental institution or a professional body [9]. Immediately the accounting profession started to pay more attention to the determinants of the audit fees, trying to identify which are more important, more influent and subsequently the one to be regarded as mandatory to consider when negotiating a fee. According to recent data for the US Market [10], shows that “2015 audit fee increases”, taking into consideration the size and type of company being audited, for US Market a median of 3,2% in 2015 over the previous year for SEC filers.

The purpose of this paper is to contribute at the developing of audit pricing research in the emerging economies such as Romania. The analysis involves using of panel data analysis to explain the contribution of various determinant factors for audit fees in a sample of 55 public-interest entities operating on Bucharest Stock Exchange. Audit and financial information was gathered for 2009-2011 period from annual and financial reports available on companies’ websites.

The Romanian profession of financial audit is coordinated by Chamber of Financial Auditors (CAFR), a professional organization. According to the information published on CAFR’s website, the main objective of this professional organization is to “*build on a solid ground, the identity and the public recognition of the financial audit profession in Romania, having as a main objective the sustainable development of the profession and its strengthening, in accordance with the Auditing Standards and with the Code of Ethics and professional conduct, by fully assimilating the International Standards on Auditing and the Code of Ethics issued by the International federation of Accountants (IFAC), that will allow the Romanian financial auditors to provide high quality services, for the public interest, in general, and for the business community, in special”*.

The Romania audit profession started its development after 1990 and more strongly from the beginning of the 21st century, due to the criteria and conditions required on Romania’s accession by the EU, continuous developing of businesses and the diversification of trade and business relations.

There are too few studies focused on researching the impact of various variables on audit fees in emerging countries such as Romania. No doubt, more research efforts are needed in East European countries in the field of audit pricing, but undertaking this type of studies demands an adequate transparency in disclosure of audit fees. In the context of Romania, companies listed on Bucharest Stock Exchange were not required to disclose the audit fees paid to audit firms until 2009 financial year, and this requirement was available particularly for public-interest entities. Therefore, the choice of public-interest companies in our sample was argued by the fact that all these entities should disclose the audit fees in their financial statements. Hence, identifying variables that might influence audit pricing paid by public-interest companies listed on Bucharest Stock Exchange will be a pioneering study since the listed companies on BSE never disclosed audit pricing before.

The remainder of the paper is organized as follows. The next section provides a brief synthesis of the main previous research findings in the field of audit pricing and quality, together with hypotheses development. Section 3 discusses our research methodology and sample. The empirical findings are reported in Section 4, while Section 5 concludes the paper.

2. BACKGROUND LITERATURE AND HYPOTHESES DEVELOPMENT

There is a large amount of academic international literature that has exploring the linkages between audit fees and various corporate characteristics. There were many independent variables tested in relation with audit fees in previous research such as corporate size, profitability, capital's structure, type of auditor (BIG 4 or not), industry type of audit opinion or audit report lag. No doubt, the choice of variables from one study to another was mainly decided by the data availability. There are also behavioral studies realized [11] in what the audit fee is concerned that bring indication, that audit fee's stickiness is present and it does not immediately or fully adjust to changes in their determinants. Next, the main variables considered relevant to this study and the rationale behind their choice in prior studies are presented.

- ***Auditee size***

It is supposed that larger size companies realizes more complex activities and need to be attractive to the investors. Therefore, these companies need to disclose more information and the audit of their financial statements definitely supposes bigger costs, while they have financial resources to select big well-known audit firms. The influence of corporate size on audit pricing was largely investigated in the international academic literature [12] - [22]. Many previous studies have used a regression analysis in order to test the influence of auditee size on audit pricing. As [23] admit a significant proportion of previous studies have used total assets or the logarithm of total assets as a proxy for company size, while other researchers [16] used the logarithm of total sales as a proxy for corporate size. Some authors [23] in their investigation on the role played by various size effects on audit pricing using data from the German market, proposed the using of the logarithm of the number of employees as a better proxy for corporate size than is the more common variable used logarithm of total assets. They also [23] argued that using logarithm of the number of employees is much better justified because it is more constant over time, it is not based on financial statement data and therefore collinear relations to other variables are not expected. So that, the same authors [23] used the logarithm of employees as the corporate size variable, while the robustness of the results were tested by using the logarithm of total assets as well as that of total sales for auditee size.

Therefore, our decision was to use as proxies for company size the total assets, the annual turnover (total sales) of the company and the number of employees, transformed using the natural logarithm. We expect a significant association between auditor size and audit fee in the Romanian market and our first hypothesis predicts:

Hypothesis 1: *Audit fees paid by Romanian public-interest entities listed on Bucharest Stock Exchange are influenced by auditee size (the auditee size measured by using the proxies of total assets, turnover and the number of employees transformed using the natural logarithm).*

- ***Profitability***

Considering the prior research [24] in what the expertise of the Chief Executive Officers in finance, is regarded as direct factor that induces the increase in profitability and reduces the probabilities for firm bankruptcy, other authors [25]:325 find in their recent research that *"auditors' engagement risk decreases when incumbent CEOs possess financial expertise, raising the likelihood that auditors will charge these firms lower fees"*, one direct link between audit fee and corporate profitability.

Previous research studies realized on this topic revealed more frequently a positive linkage between audit fees and corporate profitability [21], [26]. Other specialists [26] found that companies with a high level of profit will manifest a tendency to disclose more information, which will be used by management to strengthen their position on market. On the other hand, these companies most frequently will be the subject of rigorous audit services testing their revenues and expenses [26]. Rigorous audit services suppose more significant audit fees. Various proxies were used by previous researchers in order to measure the profitability such as: net profit or result, return on assets, return on equity, net profit to sales. Consistent with the findings of the most of prior studies, our second hypothesis is formulated as follows:

Hypothesis 2: *Audit fees paid by Romanian public-interest entities listed on Bucharest Stock Exchange are influenced by profitability (net result).*

- ***Capital's structure and shareholders' equity***

Considering prior research studies on this topic, we anticipate a positive impact of audited company's risk on the audit fees. There are recent studies realized by [27] that show that the social capital where the firm is headquartered affects audit fees, namely the social environment where the firm is headquartered is affecting the trusted-relation with auditors and, ultimately, the audit fees. The study implies that *„auditors judge the trustworthiness of their clients based on where the firm is headquartered and charge a premium when they trust the firm less"* [27]:611, the premium is consistently consider among the researchers the difference between a Big N audit fee and what a client could pay for a non-Big N auditor.

In a recent study, conducted in 42 countries [28]:744, it is argued that public firms that *"improve accounting transparency by appointing a Big Four auditor benefit through having a larger fraction of long-term debt in their capital structures, especially in countries that impose better legal institutions"*.

If other authors [29] used exogenous characteristics such as activity sector or endogenous ones such as "risks linked to the audited firm itself" (financial conditions, company growth, financial situation, etc), our decision was to use as proxies for measuring the risks associated with the audited company – capital's structure and shareholders' equity [30]-[31]. Therefore, our third hypothesis predicts:

Hypothesis 3: *Audit fees paid by Romanian public-interest entities listed on Bucharest Stock Exchange are influenced by capital's structure and shareholders' equity.*

- ***Type of auditor***

In the previous academic literature there are some prior studies that have investigated the impact of characteristics of Big 4 (former known as Big 8, Big 5) auditors on audit fees for several international markets [23]. Other author [32] found that international well known auditors earn higher audit fees because their audit services are expected to deliver a higher quality. One author [13] concluded that a Big 8 audit fee is superior when using an Australian sample, while his findings were also supported by other results [33] when investigated a Hong Kong sample.

Analyzing the German audit market, while testing a sample of 2005 data on the German prime standard and GEX (German Entrepreneurial Index), some authors [34] have found that Big 4 auditors have an oligopoly, obtaining 87% of all audit fees, showing in the same time the significance of non-audit fees, which count to 41,9% of total audit fees. Other specialists [35] investigating the audit market in China, by using data from annual reports prepared by publicly traded companies, found evidence of Big 4 premiums for brand name for both statutory and supplementary market. Even more, they argued that Big 4 auditors can earn additional premiums in the statutory market as compared to non-Big 4 audit firms. They also found that non Big 4 audit firms increased their market share particularly for mid- and small-sized entities.

Other authors [23] study the existence of a Big 4 audit fee premium in German market, while prior audit pricing research in Germany has reported Big 4 audit fee premium without analyzing the factors influencing this premium more closely [34]. The findings of [23] confirm the existence of a Big 4 audit fee premium in Germany, but it is strongly affected by the premium of the overall market leader and the audit fee premium is not homogenous among Big 4 auditors. Furthermore, other author [36] find evidence for the Australian market that Big N Premium has augmented *"significantly"* in the two decades (Big 6 to Big 5 and Big 4 periods). Considering prior studies mentioned above our forth hypothesis is formulated as follows:
Hypothesis 4: *Audit fees paid by Romanian public-interest entities listed on Bucharest Stock Exchange are influenced by type of auditor (Big 4 or not).*

- ***Type of audit opinion***

The literature review in this area consists, in early years, in examining the association between client's independence using as indicative the audit opinion (in all its forms: unqualified opinion; qualified opinion; adverse opinion; disclaimer of opinion). The first to study this area were some specialists [37] which have found that auditors are *"less likely to issue a qualified audit opinion to larger clients when warranted"*.

More recently, other authors [38] conducted a research in Norway, a unique environment due to its significantly lower litigation risk (compared to the UK or US Market), for a large sample of private Norwegian firms, they studied whether auditors who receive higher fees are less likely to issue modified opinions, they find no evidence that auditors compromise their independence through fee dependence.

For the US market, other authors [39] find strong support for the debate on whether that higher levels of Non Audit Services fees paid to auditors reduces the frequency of modified audit opinion. Their findings suggest that concerns over the relation between auditor fees and the possible impairment of auditor independence, as reflected in modified audit opinions are supported in the more recent years (2010 and on) for highly distressed clients.

Regarding the influence in forming of the type of audit opinion, it was found that there is no evidence economic dependence cause Big Five auditors to report more favorably for larger clients [40], but that Big Five auditors report more conservatively for larger clients, suggesting that reputation protection dominates audit behavior. Later, other specialists [41] find that a BIG-N audit firm is more likely to issue modified audit opinions and clients in larger offices evidence less aggressive earnings management behavior, they argue that audit quality is higher on average in Big N offices, but makes no claims that audit quality is unacceptably low the other firms. Another opinion relevant in this matter is the one of [42] find that Big N partners do not compromise their independence for large clients, whereas non–Big N partners do.

While the impact of the type of audit opinion on audit fees was less analyzed in previous research studies [43] - [44], for an emerging economy we have not identified any prior study that investigates the influence of audit opinion on audit pricing, therefore, the proposed research hypothesis is:

Hypothesis 5: *Audit fees paid by Romanian public-interest entities listed on Bucharest Stock Exchange are influenced by type of audit opinion.*

3. RESEARCH METHODOLOGY AND DATA CHARACTERISTICS

The goal of the present research is to test the following working hypotheses and evaluate if their significance has changed in time for the most important Romanian companies classified as public-interest entities, listed on Romania Stock Exchange.

3.1. Data

For the purpose of our analysis we have employed data for the most important 55 companies listed at the Romanian Stock Exchange. Audit and financial information was gathered for the 2009 – 2011 period. The last year of analysis is 2011 because starting 2012 Romanian companies are not obliged anymore to publish specific information regarding the annual audit process. Consequently, 2011 was the last year for which data could be publicly found for all 55 public-interest companies. Data was collected from the financial statements of the companies for the period selected.

According to the audit Directive 2014/56/EU on statutory audit amending Directive 2006/43/EC and the Regulation (EU) No 537/2014 on specific requirements regarding statutory audits of public interest entities, disclosed in the Official Journal of the EU on 27 May 2014 and entered into force on 16 June 2014, the definition of public-interest entities (PIEs) in the European Union is given by:

a. *„Entities governed by the law of a Member State whose transferable securities are admitted to trading on a regulated market of any Member State within the meaning of point 14 of Article 4(1) of Directive 2004/39/EC;*
b. *Credit institutions as defined in point 1 of Article 43(1) of Directive 2013/36/EU of the European Parliament and of the Council, other than those referred to in Article 2 of that Directive;*
c. *Insurance undertakings within the meaning of Article 2(1) of Directive 91/674/EEC or;*
d. *Designated by Member States as public-interest entities, for instance undertakings that are of significant public relevance because of the nature of their business, their size or the number of their employees."* (Article 2 point 13) [45].

It was mentioned that this Directive 2014/56/EU on statutory audit has to be transposed into national law of each Member States within 2 years.

Public-interest companies were selected for realizing this present study, because of their significance for Romanian economic environment development, but also due to their transparency (even if required by the legal requirements) about the audit fees paid during the selected period. The relevance of public interest companies is also emphasized by the DIRECTIVE 2006/43/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 May 2006 on statutory audits of annual accounts and consolidated accounts, amending

Council Directives 78/ 660/EEC and 83/349/EEC and repealing Council Directive 84/253/EEC saying that: „*Since public-interest entities have a higher visibility and are economically more important, stricter requirements should apply in the case of a statutory audit of their annual or consolidated accounts” (*art.23) [46].

Quantitative variables were transformed using the natural logarithm. The variables are disclosed in Table 1.

Table 1: Variables used in the analysis

	Symbol	**Variable**	**Type**
Endogenous	Audit pricing	Audit pricing (audit fees)	Scale
Exogenous	T	Turnover	Scale
	Sh_E	Shareholders’ equity	Scale
	Sh_E _DUMMY	Shareholders’ equity (codified: 0 - if negative; 1- if positive)	Dummy
	TA	Total assets	Scale
	EMPL	Number of employees	Scale
	NET_RES	Net results (codified: 0 - if loss; 1- if profit)	Dummy
	BIG4	If the auditor is a Big4 company (codified 0 – if the auditor is not Big4 company; 1- if the auditor is Big4 company)	Dummy
	OPINION	The type of opinion expressed by the auditor (1 – unqualified opinion; 2 – qualified opinion; 3 – adverse opinion) 4 – disclaimer of opinion.	Ordinal
	CAP_STRUCT	Capital structure of the auditee (codified 1 – local capital; 2- foreign capital)	Ordinal

3.2. Methodology

In order to test our hypothesis, we have conducted an empirical study and we have covered most important 55 public-interest companies listed at the Romanian Stock Exchange between 2009 and 2011. We have employed panel data methods. Two models were finally used in the analysis that proved to be the most consistent. The difference between the two models consists in the fact that shareholder’s equity is used once in its natural form (as scale variable) and once as a dummy variable, assessing only if the shareholder’s equity are positive or negative. The use of both forms in the same models would have caused serious multicollinearity problems. We have applied a series of tests to evaluate the type effects present in our panel regression – the Hausman test, the Breusch-Pagan test, the Lagrange Multiplier test and so on. The final models proved to be in the cross-section random effects form, without time effects.

4. RESULTS

After applying all the required steps of the methodology, the most consistent models proved to be the one presented in Table 2. There are two models finally specified, due to the fact that shareholder's equity was once used per se (as values), and once as a dummy variable stating only if the shareholder's equity are positive or negative.

Table 2: Factors affecting audit pricing in Romania – cross-section random effects.

VARIABLE	MODEL 1		MODEL 2	
	Coefficient	**P-value**	**Coefficient**	**P-value**
T	**0.203**	**0.009*** **	**0.204**	**0.009*** **
Sh_E	-0.038	0.621	-	-
Sh_E _DUMMY	-	-	0.032	0.874
TA	0.038	0.700	-0.012	0.863
EMPL	**0.161**	**0.011** **	**0.148**	**0.020** **
NET_RES	-0.075	0.397	-0.069	0.436
BIG4	**0.676**	**0.000*** **	**0.761**	**0.000*** **
OPINION	-0.099	0.354	-0.159	0.128
CAP_STRUCT	0.052	0.487	0.077	0.296
Cons.	0.123	0.863	0.269	0.719
R-sq. – within	0.2817		0.2751	
R-sq. – between	0.4863		0.4914	
R-sq. – overall	0.4640		0.4763	
Wald Chi^2	76.70		77.94	
Prob. > chi^2	0.000		0.0000	
Sigma_u	0.640		.640927	
Sigma_e	0.269		.277670	
Rho	0.850		.84197	

*Significance: *** - 1%, ** - 5%, * - 10%.*

Source: authors' calculations in STATA 9.

Regardless of the model specified, the same three variables are highly significant in both cases. Thusly, we can state that for the analyzed sample of the most important Romanian companies, audit pricing is significantly influenced by the annual turnover of the company, the number of employees and the importance of the auditor (whether it is a Big4 auditor or not). As disclosed in Table 3, one can note that two of the four working hypotheses tested are accepted. Auditee size influences audit pricing in a positive way; larger auditee implies higher audit pricing. This hypothesis is accepted using as proxies for the auditee size both the annual turnover and the number of employees. But we should emphasize the fact that total assets do not influence the size of the audit price.

The second part of H1 goes together with H2 – audit pricing is higher is the auditor is a Big 4 company. The other two working hypotheses are rejected. The net result is not significantly influencing audit pricing, nor does the capital structure of the auditee.

The pre and post-estimation analyses (The Hausman, Breusch – Pagan and Lagrange Multiplier tests for fixed and random effects) all show the presence of cross-section (company) random effects and the lack of time effects. The existence of cross-section random effects is accepted with a probability of 0.214 >> 0.05 by the Hausman test, for example, while the lack of time effects is accepted with a probability of 0.409 >> 0.05.

These results show that audit pricing is strongly influenced by the differences existing between the companies in the analyzed sample, while no significant difference appeared in the level of audit pricing in time. Consequently, no significant changes occurred in the level of audit pricing in Romania from 2009 to 2011 due to the international crisis or other factors influencing economic stability.

Table 3: Acceptation/rejection of working hypotheses

Hypothesis	Accepted/rejected
Hypothesis 1: *Audit fees paid by Romanian public-interest entities listed on Bucharest Stock Exchange are influenced by auditee size (measured by total assets, turnover and the number of employees transformed using the natural logarithm)*	Partially accepted
Hypothesis 2: *Audit fees paid by Romanian public-interest entities listed on Bucharest Stock Exchange are influenced by profitability (net result).*	Rejected
Hypothesis 3: *Audit fees paid by Romanian public-interest entities listed on Bucharest Stock Exchange are influenced by capital's structure and shareholders equity.*	Rejected
Hypothesis 4: *Audit fees paid by Romanian public-interest entities listed on Bucharest Stock Exchange are influenced by type of auditor (Big4).*	Accepted
Hypothesis 5: *Audit fees paid by Romanian public-interest entities listed on Bucharest Stock Exchange are influenced by type of audit opinion.*	Rejected

5. SUMMARY AND CONCLUSIONS

This paper developed a panel data analysis and estimated two models of audit fee determinants from Romanian market capital, in the case of Romanian 55 public-interest entities listed on Romania Stock Exchange, for 2009-2011 period. The difference between the two models consists in the fact that shareholders equity is used once in its natural form (as scale variable) and once as a dummy variable, assessing only if the company has positive or negative shareholders equity. The use of both forms in the same models would have caused serious multicollinearity problems. Our findings highlight that, regardless of the model specified, the same three variables are highly significant in both cases. The findings revealed that audit pricing for Romanian public-interest entities are significantly influenced by the annual turnover of the company, the number of employees and the importance of the auditor (whether it is a Big4 auditor or not).

This study is not without limitations. For instance, some of the standard variables which control the auditee characteristics used in previous studies, such as audit committee independence, corporate complexity, industry type or audit report lag are not included here. Then, the sample used was not such a large one, but this limit was because at the moment of data collection the disclosure of audit fees was not mandatory for all publicly entities, only for public interest companies the disclosure of audit fees was required. Finally, because our sample of entities was not very large, it is possible, despite the significance levels showed by our findings that the sample may be driving to the result. Therefore, an empirical objective for further research will be to expand the sample to a much larger number of entities included, of course in the context of a much more transparency about audit fees in their financial annual reports.

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THE SELECTED ISSUES OF THE CONCEPT OF RESILIENCE AND THE WAY OF ITS APPLICATION IN CRISIS MANAGEMENT OF THE COMPANY

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Abstract: *Each enterprise can be taken as a system of social, economic and other relationships which are connected together and have a serious impact on each other's. An enterprise should have own capacity (resources, knowledge) to flexible reaction on incidents (disruptions, changes) with the impact on its strategy due to the conditions in which the company operates. The realization of business activities in dynamic conditions is not easy. The dynamics of changes is constantly growing; the business surroundings, market conditions, competition of activities, customer demands on the quality of services provided, and many other factors change so quickly that resilience of the company becomes important strategic ability. The paper deals with the concept of resilience, which is the framework for reaction on identified opportunities, threads and risks. In the paper, there are presented different definitions, aspects and approaches of organizational resilience and possibilities of its quantification. It is described also the application of the approach – quantification of organizational resilience. For achieving of main aim of the paper the qualitative (expert estimation) and quantitative methods (multi-criteria analysis) were used. The output of a qualitative assessment of the company's resilience is the design of measures to increase the company's resilience. The output of quantitative assessment of company's resilience is the determination of those areas in which an enterprise needs to increase its resilience.*

Keywords: *resilience, organizational resilience, resilience quantification*

1. INTRODUCTION

Complexity and the uncertainty of the environment in which today's organizations operate determine the search for new approaches to management. Business environment is characterized by growing dynamics, diversity and permanent changes. [1], [2], [3], [4] A system approach to organization (as a socio-economic system) is based on the anticipations of relations to internal and external environments. Nowadays internal and external environments are affected by many factors that cause the behavior of enterprises. An organization with its activities, changes internally, specifically influences external environments and it must have own capacity (resources, knowledge) for a flexible reaction on incidents (disruptions, changes) with the impact on its strategy. A reaction to threats and opportunities is therefore the part of the organizational resilient concept.

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Resilience depends on a sector within an organization is active, on formulated strategy conditional external (economic, political, legislative) conditions as well as risk management strategy. Formulating organizational resilience is not a one-time activity, but a continuous and permanent managerial process.

Every organization is in equilibrium under normal conditions [5], [6] unless there is a disruption by an incident. Incident according to [7] is: "situation that might be, or could lead to, a business disruption, loss, emergency or crisis. Disruption is any expected or unexpected event, whose consequences can disrupt regular products provisions. Efficiency is defined by synergy of measures allocated to different phases. The solution is not the application of restricted measures but substantial is the system approach to security expressed with the term resilience".

In relation with the explained there is possible to formulate some problems that create the content of this paper. Main aim of the paper is focused on evaluation of possibilities, ways and benefits of using the concept of resilience in crisis management of a company and to propose selected issues of its application. In the paper have been used scientific methods and approaches: analysis/synthesis, induction/deduction, quantification and discussion.

2. LITERATURE REVIEW

The fundamental idea of resilience is derived from Ch. Darwin who declares: „Not the strongest or the most intelligent will survive but a one who is the most adaptive". The framework of resilience provides unique and relatively new approach to security.

We can find several definitions of resilience in literature. In [8] is the resilience defined as: „... ability of an organization (system) to hold or to achieve again dynamic stable state, that allow to continue in activity after an incident and/or permanent presence of stress". The other resilience definition according [9] declares: "…ability of an organization to plan and adapt to changes or disruptions via anticipation, protection, reactive capacity and ability of recovery." The author in [10] declares that resilient organization is: "capable to achieve entrepreneurial objectives and achieve opportunities, even in adverse circumstances". According to [11] terminology is resilience ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions. Resilience means the ability to "resile from" or "spring back from" a shock. The resilience of a community in respect to potential hazard events is determined by the degree to which the community has the necessary resources and is capable of organizing itself both prior to and during times of need. Individual resilience is demonstrated by individuals who adapt to extraordinary circumstances achieving positive and unexpected outcomes in the face of adversity [12]. Individual resilience could be understood as personal resistance on physical, emotional and stress factors which are directly connected to incident or disasters. Resilient individuals, however, are able to work through the emotions and effects of stress and painful events and rebuild their lives. The resilience can be seen from the aspect of society and therefore societal resilience is the timely capacity of individuals and groups–family, community, country, and enterprise–to be more generative during times of stability and to adapt, reorganize, and grow in response to any disruption [13]. The official version of American standard [14] declares: Resilience is organizational adaptive capacity in complex and ever changing environment. It is an ability to resist to adverse events or after such event to return to acceptable level of performance in a reasonable time. Resilience is also defined as the ability of a system to hold its structure and functions in changing internal and external conditions or if necessary terminate its activity.

Organizational resilience is defined as the ability of an organization to absorb disturbance and perform changes in functioning in the way to be able to held equal structures and functions as before violation [15]. Organizational resilience can be described e.g. as its ability to: effectively absorb impacts of incident, which potentially threatens its survival, develop specific reaction to an incident and exploit a new opportunity. Other authors are also dealing with organizational resilience generally or specifically – see [16], [17], [18].

The opposite of resilience is the fragility of an organization. The fragile organization is a system that is unable to adapt to unexpected changes and therefore system collapses due to impact of negative, destructive internal and external measures. [19]. Unexpected changes are conditions, events that lead to discontinuity of system behavior. There are a large number of resilience definitions. The spectrum is wide from psychology to crisis management.

From the definitions (see above) we can summarize:

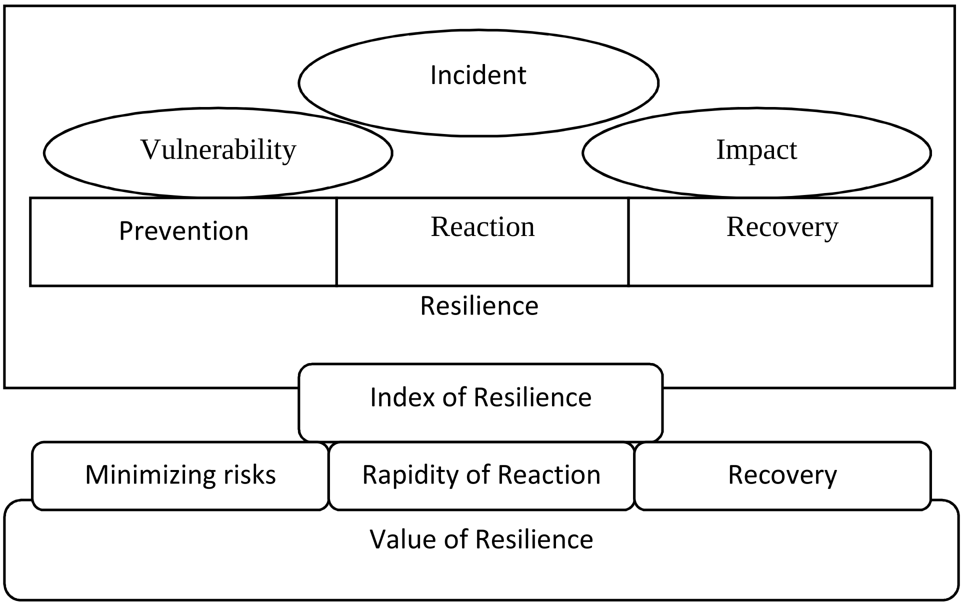
- the resilience concept is a complex approach to security,
- the concept has the ambition to quantify the achieved level of resilience (of an analyzed system),
- as an complex approach integrates all three phases (before, during and after incident) into unique, complex approach to security,
- its more theoretical rather than practical approach; it does not exclude any activities, measures constrained to only one phase; the system approach to security is applied via the presented concept of resilience,
- organizational resilience consists of different relevant aspects; relevancy is based on sectors, objectives.

Concept of resilience is surely a desirable approach. A lot of organizations are aware that sooner or later they will face unexpected events that can put them seriously into risk or failure. Nowadays just a few organizations have implemented the resilience concept into their strategy. Building resilience into the organization is therefore strategically suitable, but potentially it also could be high costly. For example, companies can protect themselves against supply chain disruptions by spreading their purchasing of inputs across multiple suppliers, but this usually entails higher costs. If we imagine organization as a system of components and their bounds, we can also abstract organizational resilience as part of components which is suitable to adopt in organizations. Also the authors or publications [19], [20], [21], [22], [23], [24], [25], [26] and [27] provide their approach to the resilience concept.

3. METHODOLOGICAL APPROCH

If the resilience concept is applied in different sectors, it does not mean that organization are resilient at equal level. There is a need to measure resilience. Based on stated facts and related to paper of [28] we present a possible ways for organizational resilience quantification (Figure 1).

Figure 1 The resilience concept and possibilities of quantification



The presented approach is based on the key assumption – to quantify resilience of an organization dealing with emergencies. The quantification is based on the incident phases and then via multiplication is calculated the final level of an organizational resilience. The value of resilience creates a complex indicator, whose level is determined by quantitative and qualitative features.

The concept of resilience is linked with a possibility (ambition) of its quantification. There are different systems, approaches of evaluation and quantification (see also ([29]). One of the approaches (declares that resilience consists of [30] :

- identification of a current situation (SA),
- management of key agents of vulnerability (KV),
- adaptive capacity (AC).

The value (weight) of specific agents reflects evaluation of current situation. The value of resilience is quantified:

$$VR = \sum SA_i * KV_i * AC_i \tag{1}$$

Where

VR is the value of organizational resilience.

4. RESULTS

In this part of paper we have presented the application of organizational resilience that is focused on an enterprise that description was provided by [9]. An enterprise is a shareholding company that was established in 2008 due to split of the enterprise with 40 years history. Its seat is in Žilina and has organizational branches in 5 towns within Slovakia. The activities cover provision of technical engineering services, business and consulting services. The scope of entrepreneurial activities is the spectrum of geodetic services for state, private organizations as well as private bodies. The enterprise has decreased number of employees. The market pressure and the current state of building sector and its entrepreneurial culture have caused financial (problems with liquidity) and operational problems in a company.

For resilience quantification in enterprise, the simplified additive model of multi-criteria analysis was used to identify three characteristics/factors of resilience:

- adaptive abilities (AB) – eight indicators describing the organization, (see Table1),
- plans and strategies (PS) – five indicators, and
- level of risks – four indicators.

Adaptive abilities	*Plans and strategies*	*Risk rate*
AB1 Internal and External Environment: level of knowledge and monitoring or relations with: suppliers, customers, owners, shareholders and public, state institutions. ***AB2 Engagement of employees:*** level of employees' identification with relation to their jobs, resilience and long term prosperity of the enterprise ***AB3 Communication among departments within the enterprise:*** level of cooperation and communication among them. ***AB4 Interior resources:*** level of economic, financial, technical and human resources to solve a crisis situation in the enterprise. ***AB5 Level of management:*** level of competencies and abilities of effective management of the enterprise before, during and after a crisis situation in the enterprise. ***AB6 Information and knowledge:*** level of employee information about procedures during a crisis situation (fire, accident at work, health problems), availability of documentation and crisis plans, data application, information and knowledge within the enterprise and between cooperating organizations. ***AB7 Innovations and creativity:*** level of support and rewords of innovative and creative solutions of existing or arising problems within the enterprise. ***AB8 Competencies:*** level of delegation of competencies to staff to solve problems at the beginning, level of employees qualification and their specific knowledge and qualification	***PS1*** Planning and Strategies: level of resilience strategy and planning activities. ***PS2*** Practical Training: level of employee preparedness for emergency situations. ***PS3 External resources:*** level of external resources to handle crisis situations, their time and space availability ***PS4 Accuracy:*** level of perception of weak signals in the enterprise before escalation of problems, the ability of an effective response. ***PS5 Continuity:*** level of readiness to continue and run after crossing the crisis.	***RR1 Risk rate of the company's technical and manufacturing processes:*** level of overall risk in the company's production processes, used technologies and plant facilities. ***RR2 Risk rate of enterprise information processes:*** level of overall risk associated with enterprise information systems - hardware, software, networks, data. ***RR3 Risk rate of economic and financial processes:*** level of overall risk associated with the enterprise's economic performance, financial management, internal corporate governance and internal and external financial resources. ***RR4 Risk level of management, organizational and social processes:*** level of overall risk associated with the strategy, management and human resources of the enterprise.

Table1: Factors of resilience, processed according [9]

The procedure was as follows: each indicator was evaluated according to assigned level (expert evaluation). The scale was within 1 – as insufficient, critical resilience to 7 – as complex resilience. For each factor was identified relevant number of indicators. Then was assigned weight for each indicator and scale of this indicator was quantified the impact of each factor. Applying equation (1) – modified according to three factors written above, the value of organizational resilience was:

$$VR = 0,4 * 4,28 + 0,3*3,85 + 0,3*3,55 = 3,932$$

The total organizational resilience is 3,93 what can be interpreted as slightly under averaged resilience. The highest value was achieved adaptive abilities and the lowest level was factor level of risks.

The application of this concept will allow us to forecast the system behavior that is determined e.g. by level of investments, human and financial resources. This approach does allow monitoring trend of organizational resilience of an analyzed organization as well as comparing the achieved results to similar organizations (like benchmarking).

5. CONCLUSION

The concept of resilience can be applied after fulfillment of following conditions:
- to incorporate into the resilient model all relevant activities carried out at all departments at different organizational levels,
- to develop cooperation of private and public sectors,
- takes an applied system for resilience monitoring as a managerial tool,
- to develop theory and its application in practice; apply a model for strategic decisions.

Presented approach (its idea) is a tool that can be implemented in decision making process. The formal structure of composite indicator is determined by its objectives. There are possible (at least) two approaches:
- procedural; when structure of composite indicator is in relation to phases of core activities and its managerial support,
- structural; when composite indicator is based on evaluation of specific aspects.

The evaluation of resilience fulfills the following conditions:
- monitoring a development evaluation (trend),
- comparison of existing system to similar ones (competitors - benchmarking),
- create database for implementation of measures.

Resilient system is reliable and is able to recover with minimum impact after an incident in a relatively short time. From this point of view an application of the resilience concept is interesting and creates new challenges to security research or/and performance and its relations to security.

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INSURTECH: CHALLENGES AND OPPORTUNITIES FOR THE INSURANCE SECTOR

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Abstract: *Technology-driven innovation in the financial sector, or fintech, is becoming more pronounced in the last few years, leading to more efficient and convenient financial services. In a digital environment, the insurance industry is also incessantly evolving in pace with changing needs of customers. Advances in technology shape policyholder's expectations at the same time enable insurance companies to bring innovations to the market. Insurtech refers to the use of technology innovations in the insurance sector aimed to improve customer experience, simplify business processes, develop new products and increase competition. The bearers of this phenomenon are start-up companies that enter the insurance sector taking advances of new technologies and alter the whole insurance value chain. We will explore the potential impact of insurtech on the insurance sector, with a special emphasize on emerging market economies. Along with the rapid growth of venture capital investments they have attracted, insurtech companies have emerged across the geographical regions and lines of insurance business. The aim of the research is to identify challenges and opportunities that the entry of new, technology savvy players into the insurance sector imposes for established insurers. Insurtech companies are generally perceived as posing the risk of disruption in the insurance sector. Flexible business models allow insurtech companies to adapt to rapid technological change, while traditional insurance companies are often regarded as technology laggard. However, insurtech innovations could help insurers to reduce transaction costs, enter new markets and offer more client-tailored coverage. On the other hand, competitive advantages of incumbents are their expertise in risk assessment, customer base and compliance with regulation, all of which is a limiting factor for the expansion of insurtech business. Consequently, a combination of modern technology and experience through partnerships between insurtech companies and conventional insurers is the prerequisite for their mutual survival and development in favor of policyholders.*

Keywords: *insurtech, insurance, start-ups, technology, innovations*

1. INTRODUCTION

Due to its complexity, heavily regulated nature of the industry and the profitability of incumbents, insurance industry lacked innovations over the last 300 years [1]. Declining customer experience indicates that insurers fail to meet rising expectations [2]. However, under the influence of new technologies, insurance business is experiencing an ecosystem 'disruption' nowadays. In this segment of the financial sector, digital revolution began later [3], but even more intensely in relation to the banking sector and capital markets.

'Insurtechs' are technology-led start-ups that enter the insurance market, taking advantage of new technologies to provide coverage to more digitally savvy customers. Rapid expansion of insurtech business over recent years increasingly attracts attention of professionals and

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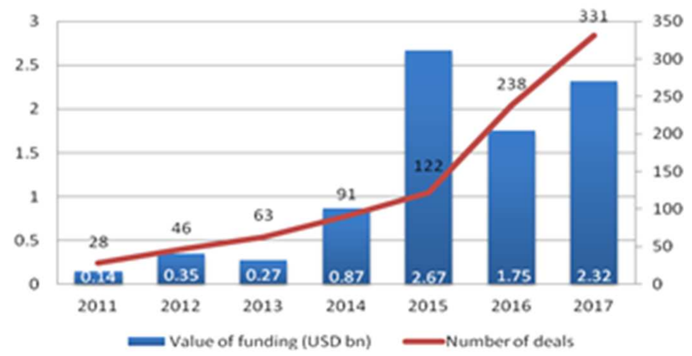
academics in the field of insurance and deepens the debate about its implications [4] - [7]. The paper deals with the potential impact of insurtech on the insurance sector. We consider development of insurtech activities worldwide and main characteristics of the insurtech business model. The aim of the paper is to indentify challenges and opportunities arising for established insurers from the entrance of insurtech innovators. Special emphasis is placed on the insurtech influence in emerging markets as well as on the possible benefits for incumbents from partnering with insurtechs.

2. INSURTECH DEVELOPMENT

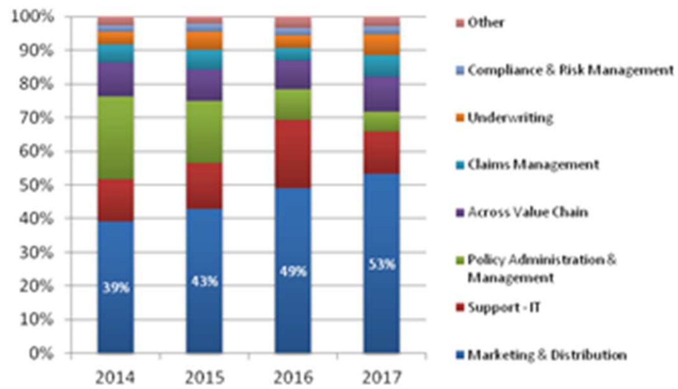
Insurtech business has attracted large venture capital investments in recent years. A record year was 2015 with funding estimated to have reached USD 2.67 billion. More than one third of this amount (USD 931 million) is related to Zhong An, a Chinese first Internet-only insurer founded in 2013 [8]. Although total InsurTech funding varies from year to year due to the irregularity of larger deals, since 2011 it has increased steadily at a compound annual growth rate of 49.4%. Only in 2017 the value of funding rose by 32% compared to 2016 and the number of deals has almost tripled in the last two years.

Figure 1: InsurTech financing trend (2011-2017) [8], [9]



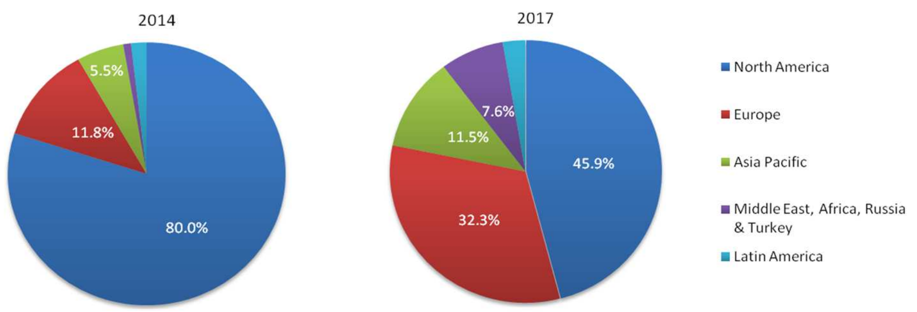
The role of insurance and reinsurance companies as investors in insurtech start-ups is becoming more pronounced. While in 2012 (re)insurers realized just one strategic private tech investment, in 2017 they made 119 start-up investments [9]. They are also forming accelerators and incubators or entering partnerships with insurtech start-ups.

Figure 2: Number of insurtech deals per insurance value chain segments [10]



Although insurtech companies are involved in all major insurance business lines, about 63% of all insurtech deals in 2016 were realized in non-life sector and 78% in personal lines [11]. In terms of the insurance value chain positioning, start-ups targeting marketing and distribution achieve a growing and dominant share (53% in 2017) in the number of deals. Another area with rising start-up activities is claims management. Apparently, start-ups in insurance are oriented towards customers' satisfaction. At the same time, the number of deals in the policy administration and management part of the value chain decreases. This trend can be explained by the dominance of existing platform providers that make new entrants more difficult [10].

Figure 3: Number of insurtech deals per geographic region [10]



The geographical distribution of insurtech activity also changes over time. In 2014 North America accounted for 80% of the world's insurtech deals, but its share fell to 45.9% in 2017. In contrast, the share of Europe rose from 12% to 32% during the same period [10]. Still, in terms of the absolute value of funding invested, the US retains its primacy in world scale, followed by the United Kingdom, India and Germany [12].

3. SPECIFICS OF INSURTECH BUSINESS MODEL

Insurtech companies are mainly start-ups taking advantage of new technologies such as advanced data analytics, Big Data, artificial intelligence and the Internet of Things to lower costs and to provide better tailored insurance coverage. Their business model is characterized by focus on customers, personalized products, full automation of processes and data-driven decision making [13]. Also, they rely on mobile technology and applications to reach a broader coverage of population. Thus, a microinsurer BIMA provides insurance services in less developed markets, where insurance penetration is very low but the mobile penetration is relatively high. Using mobile technology, BIMA sells affordable health insurance to low-income families in 15 countries. Although potential policyholders are initially contacted by agents, their registration and premium payment is performed completely automatically through the proprietary mobile insurance platform [14].

In terms of value drivers, about 40% of insurtech companies are oriented towards finding new ways to grow, through increasing customer experience and introducing new products. Typically, they focus on untapped insurance market segments and single products, whether new or modified existing ones (e.g., telematic insurance) [15]. A primary value proposition of another 22% companies relates to lowering acquisition costs by providing digital interface for the customers. The remaining insurtechs are focused on lowering administrative and claims settlement costs [13]. One of the most comprehensive taxonomies distinguishes between nine categories of insurtechs (Table 1).

Table 1: Insurtech cathegories [12]

Category	Description	Examples
Comparison Portals	Enable online comparisons between different insurance products and providers	Check24 (Germany), Goji, HealthSherpa (U.S.), Policybazaar (India)
Digital Brokers	Offer insurance brokerage services by means of online portals or mobile apps	GetSafe (Germany), Simply Business (U.K.), Coverwallet, Embroker (U.S.)
Insurance Cross Sellers	Offer insurance as complements to products by means of online portals or mobile apps	Snapsure, Virado (Germany), Simplesurance (U.K.), Pablow (U.S.),
Peer-to-peer insurance	Private insurance pools on the basis of social networks for mutual insurance coverage	Friendsurance (Germany), Guevara (U.K.), insPeer (France), Lemonade (U.S.)
On-Demand Insurance	Offer insurance coverage for chosen periods of time	trōv, Metromile, Slice (U.S.) Cuvva (U.K.), Tikkr (Sweden), Qover (Belgium)
Digital Insurers	Offer fully digital insurance products that are accessible via online channels only	Oscar, Clover (U.S.), BIMA (Emerging Markets), ZhongAn (China)
Big Data Analytics & Insurance Software	Provide software solutions allowing insurers to better manage and leverage internal and external data	Logical Glue (U.K.), Praedicat, Vlocity (U.S.), getmeIns (Israel)
Internet of Things	Enable data collection via smart devices (e.g. telematics and drone technology)	Octo, Cocoon (U.K.), Driveway, Sureify (U.S.)
Blockchain & Smart Contracts	Offer solutions for a tamper-proof distributed database system for transactions	Sparkl, Everledger (U.K.), Monax (U.S.), Helperbit (Italy)

Many insurtech companies promote digital ‘peer-to-peer’ insurance (p2p) under which policyholders form small groups and pay premiums into a cashback pool. The pool is used to pay claims, and any remaining amount of money at the end of the year is returned to policyholders without claims. Friendsurance, an insurance broker launched in Germany in 2010, is considered a pioneer of p2p insurance. Similarly, a US based non-life insurer, Lemonade, returns eventual surplus of premiums over claims to policyholders in the form of an annual ‘giveback’ that is donated to charities of their choice. An artificial intelligence application is used to offer susceptive property insurance, as well as to report and settle claims. Thus, p2p insurance emerged under the influence of the sharing economy phenomenon, as a combination of traditional mutual insurance and modern technology solutions.

4. IMPACT ON THE INSURANCE SECTOR

Although still in its infancy, insurtech is beginning to affect the global insurance market. Through the development of innovative, digitally distributed products, new technology savvy players are getting involved into lines of business traditionally dominated by incumbents. However, according to [13], merely 9% of insurtech companies intend to replace the incumbents, while majority of them (61%) are aimed on providing services to insurers through the simplification and digitization of parts of the insurance value chain.

In order to survive in the new digital world, insurance companies are facing the tasks of upgrading customer experience and enhancing business processes. Their suitable response implies offering innovative products through digital channels and digitization of operations. Taking into account the rapid growth of insurtech activities, the incumbents' position on the market in the future will depend on the speed of their adjustment to inevitable changes. Some of the possible strategies are collaborating with, or directly acquiring, an insurtech company. Engaging with insurtechs allows incumbents to learn from their digital expertise in order to digitize faster.

Thus, entrance of insurtech companies poses a competitive threat to incumbents, but also provides potentially valuable opportunities for partnering in ventures. Two key areas of cooperation between traditional insurers and modern insurtechs relate to data and customers [11]. Insurtech innovations can enable incumbents to expand insurance coverage to market segments that were previously underinsured, introduce new products and services, simplify claims management, reduce transaction costs and to deliver enhanced risk identification and measurement. At the same time, the start-ups might benefit from access to insurer's customer base, accumulated capital, expertise in risk assessment and underwriting, recognizable brand and compliance with regulation.

Investing in start-ups by (re)insurers is desirable, but insufficient in order to fully exploit the advantages of new technologies. It is necessary to change corporate culture and to adopt a new business philosophy so that innovations become an integral part of everyday business. Of course, the collaboration itself can be a challenge due to disparity in size, culture, technology and mindset between old and new players.

The impact of new technologies can be particularly high in emerging markets where insurance distribution networks are less developed. The lower the insurance penetration, the faster could market develop based on the new distribution models. Still, in most emerging markets there are specific challenges for digital transformation of financial services, such as low income and financial literacy level, underdeveloped technology and venture capital ecosystems as well as weak infrastructure [16]. Examples from practice show that insurtechs are relatively successful in overcoming these challenges when delivering microinsurance in emerging markets [17]. Although currently focused on improving existing business models, there is a potential of insurtech to improve product design and customer experience in these markets.

Insurance regulators and supervisors play a particularly important role in encouraging innovations. In order for insurers and their customers to benefit from digitization, regulatory processes must permanently adapt to technological and market developments. It is necessary to remove the existing regulatory barriers, but at the same time to provide a high level of policyholders' protection and fair competition [18]. Consumers should be convinced that their interests when buying insurance from insurtech start-ups as from established companies are equally safe. Finally, in parallel with the provision of proper market access for insurtech start-ups, traditional insurers should also have access to supervisory support for the development of innovative products and services.

5. CONCLUSIONS

Given their potential to bring innovations, new technologies are the key driver of changes in the financial sector, including insurance sector. Analysis of the insurtech development path indicates a sharp increase in investment into insurtech start-ups and their growing emergence across the insurance value chain and lines of business, with concentration in distribution, non-life and personal lines. Insurtechs are developing innovative business models that may provide greater insurability of policyholders by using technology to facilitate product comparison, simplify the purchasing process and to better tailor insurance coverage as well as deliver widespread efficiency. In emerging markets with less developed distribution networks, insurtech has the potential to enhance financial inclusion and to increase insurance penetration.

Entrance of insurtech innovators to the insurance market imposes distinct challenges for traditional insurance companies. Faced by technology-led disruption, incumbents are under increasing pressure to evolve and reinvent their business processes and attitude toward customers. At the same time, they can benefit from acquiring or partnering with insurtechs which will enable them to introduce innovative products and to provide services more efficiently based on the application of new technologies. Thus, the rapid evolution of the insurtech sector does not necessarily lead to crowding out of incumbents. Proactive insurance companies that respond fast enough to ongoing digitization by adjusting their portfolios, distribution channels, organizational structure, and internal processes will be able to maintain their market position. A valuable support in this regard can be the digital expertise of insurtech companies, whose entry should be considered more as an opportunity than a threat.

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IMPLEMENTATION OF THE PRINCIPLE OF FULL INSURANCE COVERAGE IN THE INSURANCE OF MUNICIPAL PROPERTY IN POLAND

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Abstract: *The principle of full insurance coverage was formulated in Soviet insurance literature during the socialist era. In Poland, despite the transformation of the economy from socialized to market, the principle of full insurance coverage is still mentioned as one of the three basic tenets of business insurance by the authorities in insurance law. The most common interpretation of this concept indicates the postulate character of the principle of full insurance coverage as the intended aim of full compensation. Currently defined sum of insurance is listed as one of the factors determining full compensation of losses after damage.*

The purpose of the conducted research was to verify the assumption that the sum insured corresponding to the gross book value of fixed assets declared for insurance guarantees full insurance coverage. The study was carried out on the basis of a newly purchased municipal property.

The scope of the research included general insurance conditions for property in force before and after the implementation of the Insurance Distribution Directive of the European Parliament and of the Council (EU), within selected insurance companies operating in Poland. In addition, the scope of the research included national accounting standards and balance sheet law in the domain of fixed assets, technical literature on the functioning of the local government in Poland and selected legal acts of insurance law and publications regarding property insurance. This analysis was carried out as of 15/10/2018.

Qualitative research methods were used, including critical analysis and comparative studies. As a result of the conducted research, it was found that the sum insured of the newly acquired local government property given according to the purchase price and/or production cost is not always a guarantee of receiving full compensation for the material damage suffered. A dysfunction of the general terms and conditions of insurance was observed in relation to the balance sheet law applicable in the local government sector in the interpretation of the gross book value definition to the detriment of the insured.

The undertaken research is one of the first attempts to treat the sum insured of municipal property in an interdisciplinary way.

In the applied sense, the results of the research may indicate to the Polish legislature a further suggested direction of work to be done on increasing the insured's protection, namely the need to bring coherence in the interpretation of the definition of gross book value in insurance and balance sheet law.

In the technical sense, the research signals the need to revise the adopted views on the principle of full insurance coverage of municipal property. The signaled need concerns the inclusion of additional elements (criteria) when assessing the implementation of this principle of full coverage, especially in relation to cost calculation.

Keywords: *principle of full insurance coverage, gross book value, sum insured, payment of compensation, local government in Poland.*

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1. INTRODUCTION

The principle of full insurance coverage is mentioned as one of the basic principles of property insurance. The most common view indicates the postulate character of the principle of full insurance coverage, namely the compensation paid should allow the restoration of the property to its pre-injury status. The insurer should pay compensation according to the type of the declared value of property [1], and the insured should prove the value of the damage [2].

The purpose of the conducted research was to check whether the sum insured according to the gross book value of the fixed asset guarantees the fulfillment of the principle of full insurance coverage. The survey was carried out on the example of newly acquired local government property as a result of a zero sum purchase (or manufacture), acquisition or otherwise, which had not been entered into the bookkeeping previously.

Qualitative research methods were used, such as elementary and critical analysis of literature presenting municipal and business insurance issues and a comparative study of the gross book value concept as defined in National Accounting Standards No. 11 "Fixed assets" (NAS No. 11) and general insurance conditions [3]. The research was conducted on the basis of 8 selected general conditions of insurance offered by insurance companies[243] operating in Poland as at 15/10/2018. The results were presented in descriptive form, with the formulation of final conclusions.

2. THE CONCEPT OF THE PRINCIPLES OF INSURANCE PROTECTION

In the theory of business insurance, the principle of full insurance coverage has not achieved passed to one commonly accepted definition. In the theory of insurance law, it is called the principle of compensation [4]. Generally, the purpose of the insurance is full compensation of the insured person's loss in an amount no higher than the loss suffered [5]. The principle of full coverage of insurance covers the assurance given to the insured persons of such a level of financial compensation for random losses that can be achieved under given circumstances [6].

There are many factors that encourage and discourage the preservation of the principle of full insurance coverage. One of the encouraging factors is the correct valuation of the subject of insurance [7] together with correct process of determining the value [8]. An inherent attribute of the sum insured is the method of determining the sum to be insured by the local government. It can be gross or net book value, replacement value either market or real.

In insurance literature, there are different views concerning the subject of property insurance and gross book value. Views encountered are: that there is a real danger that the sum insured based on the initial book value will be insufficient to cover the loss [9] or that the gross book value is close to the replacement value in new object [10] and even that the book cost of the asset “in the first year is the real value of assets” [11], that is replacement value (new).

[243] The Companies concerned: Compensa Towarzystwo Ubezpieczeń S.A. Vienna Insurance Group, CONCORDIA POLSKA Towarzystwo Ubezpieczeń Wzajemnych, STU Ergo Hestia S.A., InterRisk Towarzystwo Ubezpieczeń S.A. Vienna Insurance Group, Powszechny Zakład Ubezpieczeń S.A., Towarzystwo Ubezpieczeń Wzajemnych Polski Zakład Ubezpieczeń Wzajemnych, Towarzystwo Ubezpieczeń Wzajemnych „TUW”, UNIQA Towarzystwo Ubezpieczeń S.A.

3. THE CONCEPT OF GROSS ACCOUNT VALUE OF THE FIXED ASSET

The gross book value of a fixed asset is defined in the Accounting Act [12] and specified in the National Accounting Standard No. 11 "Fixed assets" (NAS No. 11).

The legislator defined the initial value as the purchase price, production cost or other value according to which the fixed asset was included for the first time in the accounting books of the entity. At the time of acceptance the initial value of a fixed asset is equal to its gross book value [13]. The purpose of introducing NAS No. 11 was to standardize the application of the provisions of the Accounting Act for the purposes of tax and balance sheet law, but not insurance law.

Consequently, the legislator has not made any regulations in the insurance law provisions regarding the method of determining the sum which fixed assets may be covered by insurance. In practice, after the implementation of the Directive of the European Parliament and the Council on insurance distribution as of 01/10/2018, the position of the insured was strengthened in connection with the obligation to conduct a reliable analysis of the client's needs by the insurance distributor [14]. It does not change the fact that it is the insured person who must comply with the balance sheet law and at the same time be responsible for the proper valuation of the subject of insurance and the type of value.

The issue of determining what should be understood by the term "gross book value" is left to insurance companies who define it in general terms of insurance. Definitions of gross book value refer to the initial value, and in some general terms of insurance cited as "in accordance with the Act" (by default with the Accounting Act), and "resulting from the records of fixed assets". Therefore, it should be understood that insurers interpret the definition of gross book value in accordance with the applicable balance sheet laws for municipalities.

4. THE SUM INSURED OF THE PROPERTY ACCORDING TO GROSS ACCOUNTING VALUE

In balance sheet law, gross book value is the initial value of a fixed asset, which can be determined in various ways.

The initial value may be the purchase price of the asset, including the amount due to the seller together with other necessary costs, and reduced by rebates, discounts, other similar reductions and recoveries. In this situation, underinsurance may be equal to the value of rebates, discounts and other similar decreases and recoveries because the book value of the fixed asset is equal to the purchase price from the invoice. The law prohibits correcting the value of a fixed asset in the list of fixed assets by the municipality.

If it is not possible to determine the purchase price of an asset, in particular one acquired free of charge, including by donation, its valuation is made at the selling price of the same or similar asset or at fair value. From the point of view of the fulfillment of the principle of full insurance coverage, the method of valuation and the time that has elapsed since the date of manufacture (production) is important. Underestimating the value will result in lowering the sum insured (underinsurance).

It would seem that the purchase price and the cost of producing fixed assets under construction correspond to a new value introduced into the bookkeeping. The initial value includes all costs incurred by the local government for the period of construction, assembly, adaptation and improvement, until the day of its acceptance for use. In this situation, the risk of under-insurance is related to the time that has elapsed since the contract was signed with the contractor for the transfer of fixed assets for use. In the case of multi-million infrastructure investments implemented over many years, local government introduce new fixed assets to the records of fixed assets on the basis of the price of the contract concluded beforehand. Changes in investment price indices, price indicators of construction and assembly works or exchange rate fluctuations in the period from the award of the contract until the order is completed and handed over for use are not taken into account when determining the initial value because the contract price applies.

The situation is even more complicated when constructing a new fixed asset using an existing fixed asset. Then, the initial value of the new fixed asset will be increased by the net value of the existing asset that the underinsurance is not less than the value of depreciation write-offs or write-offs due to permanent loss of value.

The acquisition of a fixed asset from another entity in certain situations results in the recognition of the fixed asset in the register of fixed assets in the net book value. Similarly, as in the case described above, under-indemnity is no less than the value of depreciation or write-offs and write-offs for permanent loss of value.

The risk of underestimating the initial value may also occur when the entity acquires a used fixed asset. The initial value of the used property is the value taken from the receipt of purchase and not from the date of manufacture (year of production). Insurance companies when determining the amount of compensation take into account the year of production and not the date of new acquisition of the fixed asset.

In addition, NAS No. 11 allows intangible assets in certain situations to be assigned to assets with a material form. In the case of software, its inclusion in the initial value of a fixed asset or its separate recognition as an intangible asset is determined by the type of license, not the type of software. An operating system license assigned to one device increases the initial value of the fixed asset, while a multi-seat license is recognized as an intangible asset. The established rules are very important from the point of view of the general insurance conditions offered. Electronic equipment and intangible assets should be covered by insurance protection under special insurance conditions. However, due to the price of such insurance, local government decide on an insurance contract, the terms of which may exclude software from insurance coverage. Although the NAS No. 11 allows the recording of intangible assets together with fixed assets, the general insurance terms and conditions do not take into account the provisions of the balance sheet law. In the case of damage, even the correctly determined sum insured for the fixed asset does not guarantee full compensation after damage due to the exclusions in the insurance cover.

Summing up the considerations, it should be emphasized that **gross accounting value which is the initial value depends on the mode by which the entity acquired the fixed asset together with the type and scope of actions undertaken. Also important is the time that has elapsed since the date of the contract for deliveries or construction works until the date of accepting the fixed asset for use.** As a result, even in the case of newly acquired assets, the initial value will not always match the replacement value.

Insurance companies also introduce **additional criteria** that allow limiting their liability, and thus constitute a **factor discouraging the implementation of the principle of full insurance coverage:**
- the local government may suffer negative financial consequences in the case of partial damage, when the declared value of the subject of insurance on the day of concluding the insurance contract is lower than the value of the subject of insurance on the day of occurrence of the damage. In this situation, some insurance companies apply the principle of proportion that is the compensation paid is in proportion to the sum insured and the object value on the day of the damage. Depending on the insurance conditions, the principle of proportionality may apply only when the value of the item on the day of the damage exceeds 110% to 130% of the sum insured and / or when the amount of damage does not exceed PLN 5,000 to PLN 10,000 or a certain percentage threshold (usually 20%);

- consumption of the sum insured for fixed assets insurance, which consists in reducing the sum insured by the amount of compensation paid, entails the necessity to supplement the sum insured. The authority`s failure to redress the sum insured in the event of the next partial damage usually results in under-insurance and the application of an unfavorable principle of proportion.

5. CONCLUSION

As a result of the conducted research, it was found that the sum insured according to the gross book value of the newly acquired property of the commune is not always a guarantee of receiving full compensation for the material damage suffered, thus causing the situation whereby the principle of full insurance coverage is not implemented.

The analysis carried out also allows for the following conclusions:

- In insurance of the property of local government property in Poland, there is a dysfunction in the general insurance conditions with relation to the balance sheet law applicable in the local government sector in the interpretation of the definition of gross book value. This dysfunction also results from the application of the principle of proportion, the principle of consumption of the sum insured and additional insurance conditions that distort the concept of gross book value, which is disadvantageous to the insured;

- It is necessary to ensure consistent interpretation of gross book value in insurance law and balance sheet law, or to refrain from insuring property against gross book value.

According to the author, there should be a revision of the adopted views on the principle of full insurance coverage of property, in particular with regard to municipal property. The signaled need concerns the inclusion of additional criteria when assessing the implementation of this principle, namely attributes of the sum insured, attributes of the subject of insurance and methods of valuation of fixed assets.

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NEW TRENDS IN (UN) INSURABILITY OF RISKS

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Abstract: *In the insurance market have been seen over the last two decades the significant changes in view of (un)insurability of risks, not only in the context of the impact of the recent global economic crisis. To these changes in the insurability of risks can be viewed from two main perspectives. The first is that these changes in the insurability of risks were mainly due to the implementation of the risk of catastrophic dimensions, which were mainly floods. Part of the implementation of flood risk and flood gave rise to a new perspective on one of the sixth criteria of insurability of risks – the randomness. The impacts of these changes in the insurability of risks have economically affect not only to the individual (household), but also to the whole economy. With the last year's floods even increased uninsurable areas in the Czech Republic, hence it's household from 8 % to over 11 %. The second look is at the changes in the insurability of risks – especially the criterion of randomness – is very broad. In the context of the impact of the recent financial crisis on the world arose in the scientific community economic questions about the role played by scientific and economic theory (including general philosophical and methodological), the current problem of global conditions. In the research, scientific methods were particular used: analysis and synthesis, method of deduction, induction, review of professional literature and legislative documents, comparative analysis and synthesis of partial knowledge, elementary statistical analysis.*

Keywords: *(un)insurability, risks, natural disasters, unknown unknowns.*

1. INTRODUCTION

According Ducháčková [1] defined six basic criteria for the limit of risk insurability, among which advises and randomness, which examines the insurer, as one of the three aspects of insurability of risks. It is obvious that randomness is one of the key criteria that are considered in the insurability of risks.

If the risk is implemented several times, even in different period of time, it means that this criterion was not fulfilled insurability of risks and the insurer has the right on it, put this risk into exclusions from insurance. This usually happens in the implementation of risk "catastrophic" impact, with their classification is different. When are not fulfilling the criteria of randomness, the insurer may not only put this risk into exclusions, as already mentioned, but also with this fact can cope and insurance surcharges. Now in the Czech Republic, due to frequent realization of "catastrophic" risks of floods and flood arose flood maps that use Czech insurers in the (un)insurance of property and homes. In the next part of the article we will look at this issue in more detail.

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In previous articles, with my colleagues, I engaged in various aspects of speech (not)responsibility in the current economic processes and its (dis)connection with decision-making and the level at which they take place, see e. g. publication [2] – [9].

However, with regard to the considerations in these articles, it is necessary to realize that understanding the problem of (not) responsibility in the current economic processes is a manifestation of a much deeper and, in my view, much more dangerous tendencies, whose effects are indeed global, but its origins are in developed countries. This process therefore can be easily called globalization.

The term globalization can be understood as an abstract phenomenon, involving various changes in society that led to greater interconnectedness of political, socio-cultural and economic events on the global (mondial) level. Globalization can be seen as an uneven process; as a result, some parts of the world relatively closer, while other relatively delaying all regardless of geographic distance.

Already this definition generally admits unequal impact of globalization on different parts of the world. But this is only part of the truth concerning the unequal consequences of this phenomenon, not only because of the disparity among the different "parts of the world", but also among members of such integration groupings, municipalities within states, but also among people – individuals.

Following the impact of the recent global financial, economic and in the end, the financial crisis that emerged in the scientific community new questions about the role of scientific economic theory, including philosophy and general scientific methodology in the current highly problematic global conditions. This issue is in the Czech Republic recently most discussed be the following authors Daňhel & Ducháčková [10] – [12]. As writes Daňhel & Ducháčková & Radová [11] - "*It is necessary to find new approaches and solutions paradigms of economic theory and problem solving economic policy and practice in general*." This article should contribute to this discussion.

The paper aims to explain the changes in (un)insurability of risks in the Czech Republic over the last decade – over the period 2006 to 2015. For Understanding (un)insurability of risks article first focuses on risks and their uninsurability and then the focus will be on analysis of natural disasters in the Czech Republic.

In the following part will be characterized research methods and data for analysis.

2. METHODOLOGY AND DATA

In the research, particular scientific methods were used: analysis and synthesis, method of deduction, induction, review of professional literature and legislative documents, comparative analysis and synthesis of partial knowledge, elementary statistical analysis. Due to the nature of the article secondary data taken from Czech Insurance Association [14] – [27] and SwissRe [28] – [34] was used.

For understanding of natural disasters is very important definition of this term. Natural catastrophes/disasters are caused by natural forces, the definition by SwissRe [34] is: “The term ‘natural catastrophe’ refers to an event caused by natural forces. Such an event generally results in a large number of individual losses involving many insurance policies. The scale of the losses resulting from a catastrophe depends not only on the severity of the natural forces concerned, but also on man-made factors, such as building design or the efficiency of disaster control in the afflicted region. In this sigma study, natural catastrophes are subdivided into the following categories: floods, storms, earthquakes, droughts/forest fires/heat waves, cold waves/frost, hail, tsunamis, and other natural catastrophes."

SwissRe determines each year the lower limit beyond which it is a disaster. SwissRe changes in the amount caused by the fact that each year these criteria adapted to inflation [34]. Below (see in Table 1) is shown the development these criteria over the past five years. Criteria include amount of: insured loss in mil USD (total damage, marine accidents, aviation accidents, other events) and number of damaged people (death or disappearance, injured, homeless).

The statistics on the damage caused by natural disasters in the Czech Republic publishes the Czech Insurance Association (CIA). Its statistics include events that are not in accordance with SwissRe catastrophe, cover all damage caused by natural elements divided according to three criteria:

- damages caused by weight of snow,
- damages caused by floods,
- damages caused by gales and hail storms.

Table 1: Development of criterion of disaster by SwissRe

Insured loss in mil USD	**Year**					
	2010	2011	2012	2013	2014	2015
Total damage	86.5	89.2	91.1	96.0	97.6	97.7
Marine accidents	17.4	18.0	18.3	19.3	19.6	19.7
Aviation	34.8	35.9	36.7	38.6	39.3	39.3
Other events	43.3	44.6	45.5	48.0	48.8	48.8
Number of damaged people	**Year**					
	2010	2011	2012	2013	2014	2015
Death or disappearance	20	20	20	20	20	20
Injured	50	50	50	50	50	50
Homeless	2000	2000	2000	2000	2000	2000

Source: own elaboration from [28] – [34]

3. RESULTS AND DISCUSSION

Among the risks that the Czech Republic is one of the most endangered risks: floods and flooding, heavy snow and windstorm and hailstorms.
Basic analysis of the number of claims and amount of damages in natural hazard insurance for the last ten years for members of the Czech Insurance Association (CIA) in the Czech Republic is shown in Figure 1.

The above data for the last nine years shows that the greatest damage occurred in 2010, the largest share of these damages should damage from flooding. The most significant natural disaster in the Czech Republic and the associated burden of claims is [14] – [27]:

- 1997 − floods in Moravia (paid CZK 9.7 billion);
- 2002 − floods in Bohemia (paid CZK 33 billion);
- 2006 − heavy snow (shame CZK 2.5 billion), 100-year water (paid CZK 1.1 billion);
- 2007 − hurricane Kyrill (paid CZK 2.25 billion);
- 2008 − windstorm Emma (total damage CZK 1.24 billion);

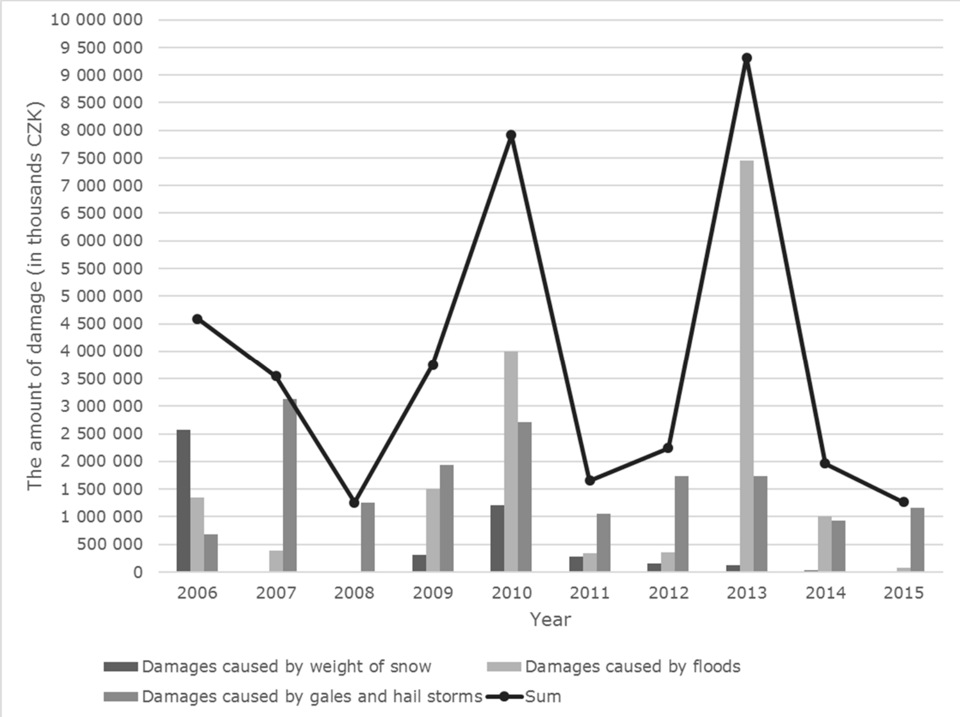
- 2009 − floods in the Opava, Olomouc and South Bohemia (the amount of damage CZK. 1.8 billion);
- 2010 − snow calamity Daisy (the amount of damage CZK 1.1 billion), floods in Moravia and Northern Bohemia (the amount of damage CZK 3.7 billion), hail in Prague (the amount of damage CZK 2.6 billion).
- 2013 − floods (paid CZK 7.4 billion); hurricane Xaver (payout of CZK 8.6 billion).

As the above data show the highest claims in the implementation of the risks of natural disasters – floods in this case – paid in 2002 (also in 2003 – when there was some complicated liquidated damage event) in the amount of CZK 33 billion, although estimates were insured damage in the amount of CZK 37 billion. If we take into account that the total insured losses CZK is 33 billion, these insured losses accounted for more than 45% of the total damage. In the world there are different models of the resolution of property damage in the implementation of catastrophic risks – one of them is based on the principle that each property must be insured against natural disasters. It is interesting that despite the high penetration within the property insurance in the Czech Republic, the share of insured losses is relatively low. This fact was also often caused by under-insurance when properties were poorly insured at inappropriately low amount that did not correspond to the market price of the property. It is surprising that this fact also remains in many insurance policies. Clients are not interested in increasing the sum insured, which would correspond to the market price of the property (or the so-called "indexing" insurance), since this change also brings with it an increase in the price of insurance – premiums. Unfortunately, the introduction of compulsory insurance of property is not possible, because it is inconsistent with the existence of the so-called flood maps. Insurance companies that had to pay such claims in a short time, live up to their commitments. In the Annual report for the year 2002 Vladimír Mráz [5], general director of Czech Insurance Association (CIA) wrote "*This catastrophic event, such as flooding undoubtedly were, however, made it clear that it is necessary to change the method of valuation risk, re-evaluate the rate and existing products. Considerable pressure for change came from the reinsurance, which contributed significantly to cover flood damage. From 2003 onwards, the insurance company had progressed to adjust rates on property insurance, determine the indemnity limits and deductible, catastrophic insurance solutions specific risks, stricter appraisal of the risks involved, modeling scenarios of possible contact with the relevant flood and the generation of sufficient reserves to cover future losses. It is noted with satisfaction that the undertakings in this direction was also supported the CIA. Prepared for example, recommendations for further insuring flood risk, insurance companies supplied information on flood plains – the maximum historically known spilling water during floods – contributed to the decision to wider use of geographic information system in the insurance and proceed to towards the realization of the tariff zones*."

They are these so-called "tariff zones" were the basis for the creation of so-called "flood map". The flood risk zones CIA developed in cooperation with Intermap Technologies in 2002–2003 for the purpose of assessing the risk of flooding its member companies. The creation of hazard zones also participated in renowned global reinsurers SwissRe. Map data and data in the data are regularly updated to be consistent with the information used by member insurers of the CIA. The application is available on the web CIA. Taking a flood maps are used to evaluate the likelihood of flooding throughout the Czech Republic. Member insurers CIA used this system for the determination and calculation of hazard insurance premium prices for property insurance in the spot position of the object. The evaluation of whether the property is located in a flood plain, it is possible to obtain information about the real possibility of (no) insurance the object, respectively indicating a possible increase in the price of premiums or exclusions object of insurance.

After the June floods in 2013 tightened the flood maps by extending the floodplains, where the percentage of households uninsurable extended from 8 % to 11 % [35].

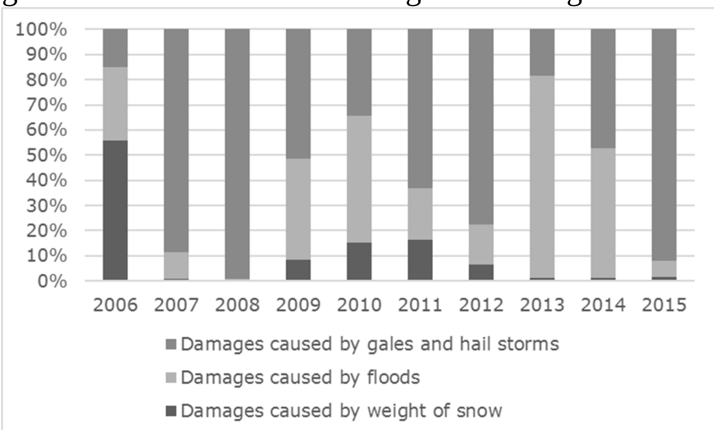
Figure 1: Development of Damages in the Czech Republic (in thousands CZK)



Source: own elaboration from data of CIA [27]

Percentage share of the amount of damages according to different types of damage is illustrated in Figure 2. This figure show that the largest percentage of the total damage during the reporting period was damages caused by gales and hail storms in years 2007, 2008 and 2015 and damages caused by the floods in year 2013. It is also clear that during the reporting period, there is realized risk of flooding each year, and to a lesser or greater extent. From this analysis it is also obvious, and from the available data of CIA, the incidence of the risk of flooding is in the Czech Republic is not realized in some random areas – it is therefore not fulfilling the condition of randomness. This fact was leading to the tightening of flood maps in year 2011. Very interesting is the situation with realization of damages caused by gales and hail storms, these thus ultimately their frequent realization did not lead to the creation of “gales maps”, gales or “hail storm maps”.

Figure 2: Percentage share of the amount of damages according to different types of damage



Source: own elaboration from data of CIA [14] – [27]

In his work Taleb [36], for the understanding of the concept of randomness, classifies events on a "black swan" – unknown unknowns sand "gray swans" – which relate modeled extreme events. Taking the term "unknown unknowns" became common within the non-life insurance, in the context of significant changes in the nature of insurable still dangerous (hurricanes in the USA, the risk of flooding in Central Europe) and in the context of discovering entirely new hazards (SARS disease, environment, cyber attacks, etc.). The term "unknown unknowns" according to Business Dictionary is defined as follows: "Future circumstances, events, or outcomes that are impossible to predict, plan for, or even to know where or when to look for them." This concept has recently been in the calculation of non-life insurance term very frequently [37] as the "unknown unknowns" cannot be a priori probability and thus not included in the previous probabilities, which is just in the calculation of premiums non-life insurance.

There is therefore a clear connection between the term "unknown unknowns" as defined in Business Dictionary and how it also understands and insurance practice and the concept of randomness. We can say that the unknown unknowns are random, if the re-implementation of the "unknown unknowns", so this is a "gray swans" – the risk that we can use mathematical and statistical methods to model and thus predict. There is then the question of whether excessive mathematising of economics is effective. The mathematical-statistical model is reliable only for meeting the basic conditions defined in the model. In today's complex global environment, there are many variables that affect the functioning of the model, making it virtually impossible for the created model in predicting future equaled reality. According Daňhel and Ducháčková [10]: "*The current complex global political-economic systems have problems with its functionality and ability to handle the complexity of phenomena with a high degree of randomness; political elites have to cope with the constraints imposed by democratic principles and characteristics of imperfect people and their difficult modeled subjective behavior*."

As a new paradigm of economic science we can understand the current solutions present a serious dilemma between "good economics and economics of evil" in the sense of holding a solid moral and ethical values. New understanding of the concept of randomness is part thus affected just by adopting the moral and ethical values of individuals whose behavior may affect the company.

It is therefore questionable whether unethical behavior of strong regulation restricts or encourages the natural economic environment, which itself has a tendency to self-regulation. It should be noted that the financial markets have been and will always need to have a certain minimum regulatory measures to ensure the financial health of the players in the financial market. Conversely, an unhealthy degree of regulation may have rather the opposite effect.

4. CONCLUSIONS

The insurability of risks has mainly the effect of randomness, which is one of the six criteria of insurability of risks and one of the three criteria by which the insurer decides whether to assume the risk insurance. Thanks to the risk of catastrophic consequences occurred in the insurance market to reduce the risk insurability nature of natural hazards – risk of flooding due to non-fulfillment of randomness (for frequent that risk). So far this year was increased the number of uninsurable homes from 8 % to over 11 %. There is a certain moral dilemma – on the one hand, it is necessary that people have the opportunity to insure the property and on the other hand, insurance companies do this for them at a disadvantage synallagmatic legal relationship, do not want to enter a due understanding of the concept of randomness, or may not. It is then a question of whether it would be appropriate to change the model of voluntary negotiation of property insurance – especially the legal estate, whether directly altering the whole model of this type of life insurance. It should be emphasized that the influence of the changes of the concept of randomness and that worldwide global problems were caused by the impact of the recent financial crisis. Just complexity of the current complicated "global" world, with strong elements of "unknown unknowns" causes the current global economic challenges, even in the context of vacant solid moral and ethical values. Here it is questionable whether this unethical behavior to limit the strict regulation of the state or encourage the natural economic environment. Certainly, it is necessary to have a certain minimum regulatory measures in order to ensure the financial health of the players in the financial market.

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IDENTIFICATION OF COMPETITIVE ADVANTAGES - CONDITION FOR A SUCCESSFUL APPEARANCE OF INSURANCE COMPANIES IN THE INSURANCE MARKET

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Abstract: *The success of the company to preserve consumers consists of better understanding of consumer's needs and theirs buying processes. In order to build a good business and profitable relationships with their customers, the insurance company should first analyze and understand customer needs and offer a product as a set of insurance services with greater value. When the insurance company differentiates its offer with superior value in the selected target markets, then it acquires a competitive advantage. However, achieving strong market positions require maximum professionalism in the performance and fulfillment of the promise to the customers. Namely, if the insurance company places its product on the market as an offer with the best quality and service, then it must transfer the promised quality and service. Therefore, the insurance company chooses a marketing offer that will be different from the marketing offer of the competition, in order to offer to their consumers' greater value than the one offered by competitors.*

In order to find the points of differentiation, the marketing department in the insurance company should investigate the behavior of consumers towards its products or insurance services. The insurance company that seriously approaches the relationship and communication with its customers finds different ways to differentiate in contact with customers.

Selection of the market is one of the most important decisions that the insurance company should make in building the development strategy. The selection of the market on which the company wants to perform conditions the process of its development is very important, and any prematurely taken steps can cause negative consequences in the future. Decisions to enter the market based on wrong assumptions, poorly executed and badly timed, may have serious negative consequences on the company's development.

When an insurance company makes the decision to select a particular market to perform, management must consider all factors that affect that market. The company should make a detailed analysis, paying particular attention to the impact that such a choice will have on the development strategy.

Keywords: *competitive advantages, insurance companies, insurance services, insurance market*

1. INTRODUCTION

When an insurance company decides to select a particular market in which it intends to perform, management must consider all the factors that influence that market. The company should make a detailed analysis, paying particular attention to the impact that such a choice will have on the development strategy.

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Insurance companies must make the right decision about how and which of their products and services they will place on the selected segments of the market. The needs and preferences of consumers on the target markets must be materialized in the form of a specific marketing mix, in which price, promotional activities and distribution have to be considered. Extremely important is how consumers perceive the service as a treat compared to competitive tender.

In order to build good business and profitable relationships with its customers, the insurance company should first analyze and understand the needs of customers and offer them a product as a set of insurance services with greater value than competitors.

When the insurance company will be differentiated as the carrier of the superior value of the selected target markets, then it gains a competitive advantage. But, achieving solid market positions require maximum performance and professionalism in fulfilling promises to customers. The insurance company chooses a marketing offer that will differ from the marketing offer of competition, in order to offer consumers more value than the one offered by competitors.

2. DIFFERENTIATION OF THE OFFER OF INSURANCE SERVICES FOR ACHIEVING COMPETITIVE ADVANTAGE OF THE COMPANY

Sustainable competitive advantage is based on the company's basic comparative advantages, specific capabilities and capital, that is, in the efficient management of the process of offering services, the company's ability to manage distribution channels, etc. [1]

The insurance company or its offer on the market can be differentiated by product (insurance services), distribution channels, human resources and image.

Product differentiation is a process that is continuous. When it comes to classic products, a company can have an opportunity for smaller or larger differentiations, i.e. low or highly differentiated products. Accordingly, companies will be able to separate their products to the attributes such as endurance, durability, security or reparability. But when it comes to companies that offer services like insurance companies, then the differentiation refers to speed, convenience or prudence in offering services, for example, the quickest resolution of damage, the fastest payout, the greatest discount for loyal customers.

Insurance companies that are differentiated on the insurance market through distribution channels, gain competitive advantage through the way they organize coverage of the market (through sales agents, brokers, representative offices in several locations, on-line sale, and all that in order to be more accessible to customers), mobility and adaptability to customer and efficiency, or the performance of their distribution channel. Successful differentiation of the insurance company and the services offered depends on the design of distribution channels. This is achieved by analyzing consumer needs, establishing channel objectives and identifying and evaluating major alternatives. [2]

Also, insurance companies can gain a strong competitive advantage through differentiation of human resources. In fact, it actually means that the insurance company will pay special attention to the selection of human resources to engage and train or hire from those of the competition. Gaining a competitive advantage based on the human resources requires that the insurance company carefully selects employees who are in contact with consumers and conducts continuous trainings for their upgrading.

From the perspective of consumers, contact with the service staff is probably the most important aspect of the service. From the point of view of the company, however, the quality of the service and the way it is offered or delivered by the human resources that come in direct contact with customers can be an important source of differentiation and the possibility of achieving a competitive advantage due to the following reasons: [3]

- They are an essential part of the product - most often the human resources in the insurance companies that come in direct contact with the customer are the most visible element of the service and significantly determine its quality.
- They are a service company – the human resources in insurance companies that come in direct contact with customers represent the company, and from the point of view of customers they are actually the company.
- They are the brand – the human resources in insurance companies that come in direct contact with customers and the service they offer are often an essential part of the brand, and they determine whether it is offered or delivered what the brand promises.
- They affect sales – the human resources in insurance companies that come in direct contact with customers are often a key factor in generating sales, cross-selling and upgraded sales.
- They determine productivity – the human resources in insurance companies that come in direct contact with customers have a strong impact on the productivity of the insurance company's performance.

Differentiation of the insurance company on the market for gaining a competitive advantage can be achieved also through the company's image or brand. Even when competitive offers of insurance companies look the same, however, customers can see the difference based on the company's image or brand. The image or brand of a company should reflect the characteristic advantages and position of the insurance company and its product on the market. Developing a powerful and distinctive image requires creativity and hard work. Selected symbols, characters, or other elements must communicate through an advertisement that transfers the identity of the company or brand.

When it comes to determining the convenience, Kotler emphasizes two key issues: [4]

- ✓ - Which differences to propagate (point out) - in this case, insurance companies need to analyze the comparative advantages and disadvantages and to identify differences that should be displayed. In determining the competitive position, several basic characteristics can be distinguished, by which companies can adequately position themselves in the target insurance market,
- ✓ - How many of the differences stand out - in the context of this issue, very important point is to decide how differences should be propagated - one, two, several or all. If the insurance company owns an original (unique) attribute, it can be positioned as number one in the insurance market in relation to that attribute. If it has several, less specific attributes, then it will have to find a separate free market space within the target segment.

If an insurance company determines several differentiations as potential competitive advantages, then it must decide how many and which of the determined competitive advantages will be promoted and upon which to build its positioning strategy. Some companies think that they need to aggressively promote only one advantage (attribute) in the target market.
It's best when the company develops a unique sales proposal for each brand and forces it. Each brand should choose attributes and advertise itself as "number one" with that attribute. So, customers will easily memorize this attribute, especially in a society with great communication.

A company that chooses one of these positions and will constantly report it, is likely to become known and remembered by it.

The choice of competitive advantages based on which the product or service will be positioned is a complex issue, but these elections are critical to success. The company must carefully select ways to differentiate itself from competitors, since not all brand differences are significant or cost-effective, and not every difference makes a good difference in terms of the costs and benefits that they cause.

3. DECISIONS ON THE SELECTION OF NEW MARKETS - TIME AND MANNER OF ENTRY

Adopting strategic perspectives related to market choice decisions indicate whether the insurance company considers such decisions to be important for designing an effective strategy. They determine the ground on which the company competes, to which companies they compete, and the level of investment or resources needed to compete on a particular market. Such a market entry perspective fosters the need to analyze not only the characteristics of a particular market, but also the strengths and weaknesses of the company in relation to its competitors. As a result, the level of investments and the determination of the resources required for the successful development of the company is determined. Market characteristics, such as the size and growth rate and their interconnection, determine the market's attractiveness to the management of the company, as well as the expected risks associated with entry into that market. However, when choosing a market, it is necessary for managers to explore and analyze the competition and the position of competitors on the market, as it is of great importance in making decisions about the choice of a target market.

The attitudes of the insurance company's management whether and how much risk they will accept, influence the decision on the level of resources that they can target for aggressive expansion on the market. Attitudes, however, against the risk associated with the environment, influence the choice of the market on which the company decides to perform. Risk avoiding companies strive to avoid markets that have a high degree of political, financial, and economic risk, that is, most often, so these companies apply a non-aggressive competitive strategy. Other companies are significantly more aggressive and determined to allocate more resources for developmental expansion.

Decisions to enter the market require the engagement of various resources to achieve that goal. The financial resources are needed to conduct all initial market research to undertake appropriate promotional activities to establish relationships with distributors and adaptation of products (insurance services). The insurance company should implement a financial strategy that will provide an adequate financial structure in order to achieve the set goals, but also to achieve a competitive advantage through lower spending on the engagement of financial resources. [5] Also, management should allocate a certain amount of time for making certain decisions for the selected market and for developing a competitive strategy, as well as for familiarization with the market environment of the selected market.

The company's willingness to direct resources to other emerging markets is often influenced by the perception of risk in those markets. Mostly emerging markets are associated with higher risk and therefore require caution in directing resources to those markets. Thus, with the acquisition of market experience, the risk expectations are reduced, and the willingness to engage resources increases.

The degree of readiness of management to hire certain resources for the selected market influences the choice of strategy for market entry. Simultaneous entry to multiple markets requires the engagement of significantly larger financial and managerial resources than if the company has chosen an entry-only strategy for one market. [6] Also, the company should analyze the environment of the selected market, because management will need to determine the company's ability to work in such an environment. Important for the insurance company is also to adapt its products (insurance services) and strategies to the specific characteristics of the chosen market.

The evaluation of the characteristics of the market is actually a key factor in making the decision about the selection of the market. The company that chooses a particular strategy must pay particular attention to the interdependence, the possibilities of interconnection and similarities in certain markets.

The magnitude and degree of growth are key indicators of market attractiveness. Namely, winning the market is easier when it comes to markets that have a high growth rate. However, on the other hand, large markets and those with high growth rate require hiring a greater volume of resources, which in turn affects the level of risk. The size and growth rate of the market are not always interconnected.

In addition to the size and growth rate of the market, the insurance company should also take into account the interconnectedness of certain markets, in terms of the similarities and degree of market integration in certain markets. Similar demand characteristics and market infrastructure, influence the choice of strategy or similar strategies that can be applied to markets with similar characteristics. However, apart from the similarities, the company must also analyze the differences in the marketing infrastructure that relate to the media network, the distribution system and advertising. These factors may facilitate or impede the application of similar strategies in different markets.

The nature of the competitive environment is another key factor that influences the decision to choose the market. Often, companies explore market competition by segment, however, it is not uncommon for research to be done on the whole market. Rather static approach to competition analysis should consider the dynamics of the competitive strategy and its impact on decisions when choosing a target market. The more information the company can get for its competitors, the better it can formulate and implement effective strategies. [7]

The structure of the activity is a key determinant in the behavior of the competition. The degree of concentration or market segmentation is also a key determinant when it comes to entering that market if the company's decision to enter a market is conditioned by competition decisions. [8] If the structure of the activity is such that the small and medium-sized enterprises operate in the largest percentage of the market, then the company has more freedom in the selection of the market, and the influence of the competition on the company is not great. On the other hand, if big companies are represented on the market, then every company that will perform on the particular market must carefully analyze the behavior of competing companies for a longer period of time.

Where there is a relatively limited number of companies that dominate in a particular activity, front strategy of competitors and the possible effects of competing companies are key factors in making decisions in a particular market. The company can decide to perform on a neutral market where there is no big competition, or to open up new markets where competition is becoming increasingly stronger in many activities.

The dynamics of decision-making when choosing a market emphasizes the importance of examining the expansion strategy. It is also possible to perceive the reactions of competing companies about the decision to choose a particular market.

This underlines the need to follow competitive decision makers' models of competition and their potential impact on the position of competitors. The rapid expansion of multiple markets increases the competitive advantage, whether it is based on the production or service process, or marketing.

Entrance to the competition in key markets may hinder the entrance of other competing firms, or to make these markets less attractive. Competition reactions to the company's entry into the market should be considered, as these reactions depend on the strategic goals associated with market entry decisions and the competitive position of larger competitors.

4. CONCLUSION

The choice of competitive advantages on the basis of which the product or service will be positioned is a complex issue, yet such choices are crucial to success. Therefore, it should be taken into account whether the difference provides a high value contribution to the target customer in comparison with the competition, whether the difference is superior to other ways in which consumers can receive the same benefit, whether the difference is recognizable and visible to customers, whether the competitors can easily copy the difference, whether customers can afford to pay the difference and whether the company can be profitable or not.

The decision on selection of the target market is the sublimation of internal advantages that the insurance company has, and the favorable market opportunities being offered. Decisions to enter the market should not only be based on assessment of the attractiveness of the market, Company should treat these decisions as a key component of competitive strategy, taking into account the strategic importance of these decisions.

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ADVANTAGES AND DISADVANTAGES OF COOPERATION BETWEEN BANKS AND INSURANCE COMPANIES

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Abstract: *Financial derivatives are financial instruments that cause major changes in financial markets. They appeared in order to protect the transistors' from a certain form of market risk, but also with the intention of making profit.*
The paper analyze a topic related to the forms of cooperation between the financial market entities, especially the cooperation between banks and insurance companies in the sphere of sale of insurance policies, to be more precise - bank insurance.
Banking and insurance are complementary parts of the financial system. Bank insurance is relationship between a bank and an insurance company, whereby the insurance company uses the bank sales channels in order to sell insurance products, an agreement in which a bank and insurance company agree in a way that the insurance company can sell its products to customers of the bank.
Insurance companies sell their insurance products through their direct sales network or through distribution channels, of which the most important are insurance brokers and agents. With the involvement of banks in the sale of insurance products in the 1980s, the development of bank insurance began in Europe and since then it has become increasingly widespread throughout the world. In the narrowest sense, bank insurance implies the sale of insurance products through a bank, while in a broader sense it is defined as a joint venture between banks and insurance companies in order to enable insurance products to reach customers of banking services.
Banking is a winning combination for both institutional partners in a business relationship. The Bank enriches the offer of financial services for its customers by selling or integrating insurance products, while at the same time it receives a new source of income, while the insurance company uses the bank's marketing and increased sales through access to a significantly larger potential customer base. The focus of the bank are the consumers, and the success of this business cooperation depends on the synergy of the three most important elements, namely marketing strategy, organizational culture and market conditions.
The banks and insurance companies have certain problems in its functioning, which can arise as a result of several reasons. The problem with the functioning of the bank insurance is in the various sales philosophies of banks and insurance companies. Banks have a passive sales philosophy, conditioned by traditional demand, while insurance companies have an aggressive sales philosophy.

Keywords: *Financial derivatives, financial market, bank insurance, banks, insurance companies*

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1. INTRODUCTION

Starting from the 1990s, the classic work of banks and insurance companies on the financial market has changed as a result of the new and different needs of the clients, strengthening and developing the competition, reducing the costs in terms of gaining competitive advantage, superiority and increasing of profits.

The method of delivery of insurance products with the development of technology changes in accordance with the needs and wishes of the clients, which implies the sale of insurance with complete financial service. This implies innovations of the distribution network for the sale of insurance products in the direction of various forms of cooperation of the insurance companies with the financial institutions - banks.

The cooperation of the banks with the insurance companies, as a method is quite widespread in the US and Europe, and recently it is more often implemented in Republic of Macedonia.

The insurance is slowly, but surely becoming one of the most attractive options for expanding the banking business. The term "bank insurance" originally appeared in France, which has been operating as a model in Europe since 1980 and indicates a simple distribution of insurance products by bank branches, in that way the bank fully using its customer base as potential users of some type of insurance. [1]

When it comes to the interest of the involved parties in such transactions, both sides are benefiting. Banks find their benefits in the additional and stable source of income, while reducing their dependence on the interest margin, offering integrated financial services to an extended customer base, reducing the required capital at risk for the same level of income, an increased source of funds investable and various tax benefits. On the other hand, the insurance companies direct their field of interest towards reducing the dependence on traditional agents and using the distribution channels set by the banks, developing new products in cooperation with the correspondent bank, using a multiple client base, managing with greater available capital, through which they increase their solvency and the possibilities for expansion of the business.

2. COOPERATION BETWEEN BANKS AND INSURANCE COMPANIES – BANCASSURANCE

Bancassurance is a new concept in financial services sector means using bank’s distribution channels to sell insurance products. The meaning of Bancassurance is to combine the manufacturing capabilities and selling products of insurance companies with the distribution network and large receptive clients base of banks. It is a situation wherein insurance products are offered through the distribution channels of the banking services along with a complete range of banking and investment products and services. Bancassurance tries to exploit synergies between both the insurance companies and banks.

Banks and insurance companies are an integral part of one country's financial system. Cooperation between banks and insurance companies can be accomplished through several forms given the fact that the products they offer are complementary.

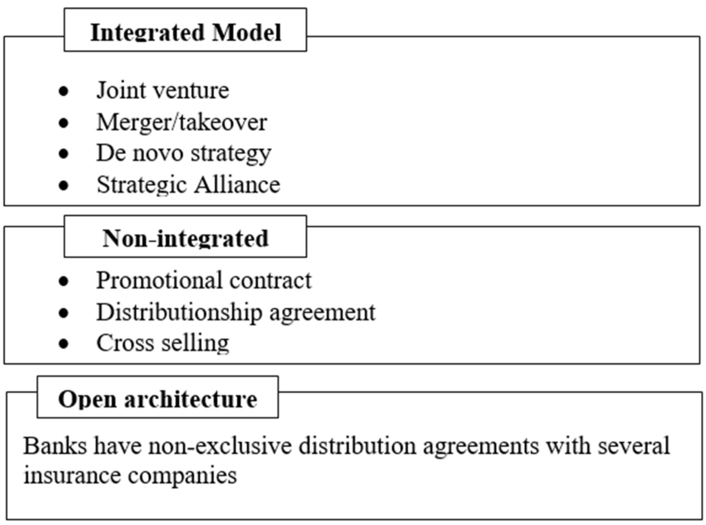
The growing financial market, development of new technologies, universalization of banking industry and the expansion of non-banking activities, has brought rapid development of new channels of distribution on insurance products through banks, leading to a new concept called Bank insurance. This has given rise to a new form of business and has integrated all their strength and efforts to generate new products for potential customers. The growth of bank insurance depends on how well banks and insurance companies are able to conquer the operational challenges that are exposed.

Bancassurance simply means selling of insurance products by banks. Bancassurance is used to describe the partnership or relationship between a bank and an insurance company whereby the insurance company uses the bank sales channel in order to sell insurance products. [6]

In this arrangement, insurance companies and banks undergo a tie-up, thereby allowing banks to sell the insurance products to its customers. By selling insurance policies bank earns a revenue stream apart from interest. It is called a fee-based income. This income is purely risk-free for the bank since the bank simply plays the role of an intermediary for sourcing business to the insurance company. Insurers see it as a tool to increase penetration and market share and bankers use it to augment their fee income and to smoothen the volatility of interest income. Bancassurance is a package of banking and insurance services under one roof.
There are different models of bankassurance in different countries and some of the models are the following: [2]

1. Distribution agreements – in simplest form called "tied agent", the banks personnel sell the products on one insurer exclusively, either in stand-alone basis or bundled with bank products.
2. Strategic alliances – it is a higher degree of intervention in product development, service provision and channel management by the way of bank investing sizably in insurance business without any contingent liability.
3. Joint venture – it's about large bank with a well developed customer database partners with a large insurer and a strong product and channel experience, to develop a powerful new distribution model. Alternatively, a bank and insurance company may agree to have cross holdings between them to share the profits.
4. Financial service group – Under further integration between a bank and insurer, an insurance company may build or buy a bank or a bank may build or buy an insurance company.

Figure 1. Bancassurance- Approaches/Models



In this way banks could associate themselves with insurance companies by becoming a distributor or by being a strategic investor or developing a joint venture, or by becoming a promoter. Most of the bancassurance operations fall in the first model. Each of the identified organizational forms of banking and insurance cooperation results in different consequences in terms of specific risks that may occur in the implementation phases of distribution, or the use of bancassurance products.

3. ADVANTAGES AND DISADVANTAGES OF BANCASSURANCE

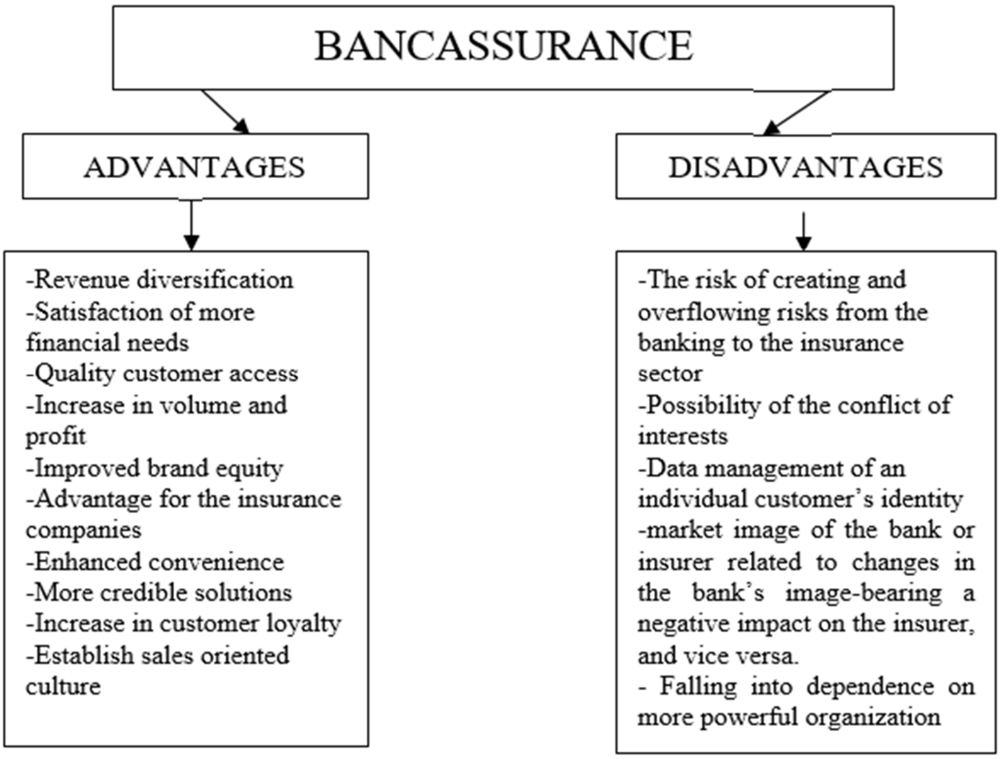
Cooperation relations between insurance companies and banks, including bank insurance, have several advantages and disadvantages for developing both insurance and banking. As the most important positive aspect appears synergistic effect, and negative aspect is the dominant position of the corporation and the problem of calculating the solvency of the insurance company. However, apart from the banks, insurance companies and clients themselves gain significant benefits from bancassurance, as well. The benefits reflect in the following: [3]

- Diversifying their offers - banks have the opportunity to substantially increase the profitability of their network of branches and subsidiaries by means of increased productivity of regularly employed staff, thus providing additional and stable source of income in the form of increased compensations and commissions. This way, the reliance on interest margins (the difference between debit and credit interest rates) as the main source of operating income of banks, is reduced.
- Bancassurance allows insurance companies to sell through banking channels the services that are not suitable for traditional distribution channels of insurance companies. Through this sales channel, insurance companies have access to a new client base - the bank's clients, who represent a completely different segment of the population (according to their buying habits) in relation to potential clients with whom the insurer had dealt earlier. Bancassurance allows the presence of insurance companies in the territories where they have not yet been represented, but where the bank already has its branch offices. In this way, the insurance company does not have to build its own network of insurance agents that requires a lot of time and money.
- The benefits that bancassurance provides to clients are reflected in a complete supply of financial products and services (banking and insurance) in one place. Thus clients can save time and get lower premiums, since insurance companies transfer a part of the reduction of distribution costs to policyholders through reduced premiums.
- Expanding the range of services, leading to additional income, effectiveness of the agent network, reduction of sales channels, competitiveness, receiving detailed information about clients,
- Attraction and prevention from the outflow of capital from the cooperating companies by association of capital non-insurance companies (banks, finance-investment, leasing, consulting, legal, trading companies) with funds of insurance companies,
- Marketing effectiveness of two financial institutions increases thanks to the ability to reach a larger segment of the market (the insurance company's clients automatically become clients of the bank) and thanks to geographical diversification.

These relationships also have disadvantages. Considering the processes of bancassurance from the financial, functional and marketing angle some attention should be paid to aspects of risk associated with cooperation. Some of the disadvantages are: [4]

- Falling into dependence on more powerful organization, conflict of interest between the partners, emergence of new risks, rise in price and doubling of new financial services,
- Problems of calculating the solvency of insurance companies, the increased volume of work will lead to overwork of the agents, a lack of control by government surveillance,
- There is a possibility of the conflict of interest between the other products of bank and insurance policies. This could confuse the customers regarding where they have to invest,
- Carrying out activities targeted at developing offers, conducting sales and organizing operational areas of cooperation within the bancassurance require special precautions to avoid a situation in which the operational problems of one of the entities involved in the bancassurance will be transferred to the level of customer service of the other of the cooperating partners,
- It is also important to address the implications of taking action to achieve synergy in marketing field. A special area that should be subject to intensive monitoring is the impact of bancassurance cooperation on the brand name of each of the cooperating entities, in particular the problems that may occur in the market image of the bank or insurer related to changes in the bank's image - bearing in mind a negative impact on the insurer, and vice versa,
- The risk of creating and overflowing risks from the banking to the insurance sector due to the deposits of the insurance companies in the banking institutions.

Figure 2. Advantages and disadvantages of bancassurance



Increased competition between banks and insurance companies and the risk of outflow of deposits is due to increased mobility of clients imposed on banks to realize their cooperation with the insurance companies by "binding" the clients, by creating diverse financial services in one place.

4. CONCLUSION

Collaboration and cooperation of financial intermediaries in providing financial services becomes one of the main characteristics of modern economic space. Bancassurance is an up-and-coming business model that enables insurance companies to sell their products through banks distribution channels. Banks benefit by enriching the customer's portfolio, and insurers have access to customer databases, profiles and customers, thus have an opportunity to purchase a broader range of products and services to meet their demanding needs.

Distribution channels for financial products and services, capturing related sectors of the financial market, are expanding, which in return helps to diversify risks, reduce operating costs, expand customer base.[1] Such cooperation is gaining increasingly larger scales. It becomes a common phenomenon and provides new prospects for the development of the financial system and its separate subsystems. Bankassurance has also negative impact of insurers' and banks' joint activities:

One should take into consideration that both financial institutions have to reach agreement on certain organizational, financial, and management issues for conducting joint activities.

On Macedonian market the bankassurance is in initially progress. The banks prevailing attitude is that the insurance is low-profit business, and therefore not interested in developing on this channel sales. [5] Also, end users still do not show much interest in various types of insurance products offered in the market. Insurance companies are still oriented towards development of its own sales channels and an additional problem for the development of bankassurance represents software solutions to implementation of the bankassurance.

Managements of most banks and insurance companies operating in Macedonia are aware of the benefits that bancassurance brings, so they work intensively on the development of this distribution channel. This activity is particularly important in the conditions of global economic crisis, since it will facilitate higher growth of those insurers and banks that are bound by capital and contract in the period after the crisis.

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NEW TRENDS IN INSURANCE INFORMATION SECURITY TECHNOLOGIES

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Abstract: *Innovations in the information security technologies within financial institutions represent very important criteria in the competition. They are part of the success at the financial markets as they provide information about the client. Innovations into a suitable information system secure the stability of the insurance portfolio and safety for a client before discreet information outflow. An appropriate processing of the project and keeping of right principles in the field of the projection and implementation of the innovative security technologies and by application of the SkyMinder service the insurance company secure enough information about the client, his commercial partners and a sufficient security for the client. The aim of this paper is to define the new trends in insurance information security technologies and discus how these new technologies are accepted by insurance industry. To achieve this aim we are using qualitative methods such as analysis, synthesis and comparison. This paper is the output of the project "Modernisation and consolidation of R&D infrastructure in the area of financial security information technologies "(Code of the project: 2623012000) and the project GAAA 11_2/2016 „A comparison of the business environment in selected countries in terms of individual market segments ".*

Keywords: *innovation, insurance, information technologies, security technologies.*

1. INTRODUCTION

Innovation through new technologies is a key driver of change in the financial sector and this has led to immeasurable efficiency gains, even though these changes can initially be accompanied by uncertainty and doubt. In recent years, such innovation has happened on the back of new technological developments, with the phenomenon often being described as "FinTech". As financial services deal in intangible products, it is well suited for technological innovation to lower transaction costs and expedite the delivery of services.[7] Together with digitization and the development of new technologies, they are creating new opportunities for entrepreneurship in a volatile, uncertain, complex and ambiguous VUCA environment, resulting into revolution of demand and supply in the field of energy supply side, which requires an adequate transformation of existing business models. .[8]

There are new forms of processes that may be improving the efficiency of intermediation and claims management. Most insurance start-ups involved in distribution have sites with well-developed contents, often accompanied by the application of artificial intelligence or robo-advice. These are intended to give an improved customer experience and lower commission/fees for when products are sold, although the initial fixed cost will likely be higher.

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Some outlooks predict the number of insurance employees will drop as a result of some of these evolutions. [3]

The competition in the insurance market is one of the strongest on the financial market. On one side existing players are trying to innovate on the other side new ones enter the market usually focus on online and non-traditional channels of distribution. Customer retention and cost optimization are becoming very critical. Consumers expect the same kind of service what they experience from leading online companies such as Netflix, Amazon and Airbnb.

Insurance companies are starting to leverage multiple parallel channels, often working hard to minimize channel conflicts. Some of the fastest growing channels are bancassurance, affinity and retail partners. Online and mobile channels are also growing in importance, although in most countries mostly for comparison shopping / information gathering. In Europe, insurance products are starting to be bundled and sold with banking products. Pure-play European insurance companies are at a disadvantage from a distribution perspective. In addition, direct-to-consumer online channels are also becoming more important as the internet pervades the daily lives of most consumers. [2]

For years now, digital advances have been transforming a range of industries. [3] Innovations in the information security technologies within the financial institutions represent very important criteria in the competition. They are part of a success at the financial markets as they provide information about the client. Innovations into a suitable information system secure the stability of the insurance portfolio and safety for a client before discreet information outflow. An appropriate processing of the project and keeping of right principles in the field of the projection and implementation of the innovative security technologies and by application of the SkyMinder service the insurance company secure enough information about the client, his commercial partners and a sufficient security for the client. The aim of this paper is to define the new trends which are expected to absorb the insurance industry and help those who follow them stay on top of the competition and satisfy both their and their customers´ needs, define the insurance information security technologies and discus how these new technologies are accepted by insurance industry. To achieve this aim we are using qualitative methods such as analysis, synthesis and comparison.

2. INNOVATIONS IN INSURANCE TECHNOLOGIES

Artificial intelligence and machine Learning. Insurers are exploring and investing in machine learning and automation during the whole product lifecycle: from marketing, through underwriting and customer service to claims processing, fraud management and reimbursement. While automation and machine learning have been present in the insurance industry for years, only simple processes that require low decision-making skills such as data entry, compliance checks, standard customer communications, and managing rule-based decisions, used to be a subject of automation.[2]

The information systems of insurance companies are able to explore the automation perspectives of more complex processes such as personalized customer interactions, property assessment, fraud detection and claims verification and processing. In today's business, we are experiencing many technological trends, so cyber security is needed to protect the companies from threats.[6] Some insurers are even using drones for automated property and claims assessment.

In this article we look at three key ways that AI will drive savings for insurance carriers, brokers and policyholders, plugging into existing transformations within the insurance industry [12]:

- *Behavioural Policy Pricing:* Ubiquitous Internet of Things (IoT) sensors will provide personalized data to pricing platforms, allowing safer drivers to pay less for auto insurance (known as usage-based insurance) and people with healthier lifestyles to pay less for health insurance
- *Customer Experience & Coverage Personalization:* AI will enable a seamless automated buying experience, using chatbots that can pull on customers' geographic and social data for personalized interactions. Carriers will also allow users to customize coverage for specific items and events (known as on-demand insurance)
- *Faster, Customized Claims Settlement:* Online interfaces and virtual claims adjusters will make it more efficient to settle and pay claims following an accident, while simultaneously decreasing the likelihood of fraud. Customers will also be able to select whose premiums will be used to pay their claims (known as peer-to-peer (P2P) insurance).

The insurance industry is lagging behind tapping into AI´s potential compared to other industries such as life sciences, retail and manufacturing.

Blockchain – the key to secured transactions and fast data processing is one of the most powerful technology trends to revolutionize the insurance industry in the next couple of years.

The first area in the insurance industry, which the blockchain technology could have a lasting effect on, is underwriting. Since this is the department responsible for whether a claim is trustworthy or not and how much of it can be covered, it could use a trust worthy repository of data. Another aspect of the insurance industry that can be positively affected by the blockchain technology is the processing of claims. Considering the number of data points that need to be verified and the manual effort required, it is no surprise that the users find the process too long and tedious. By using blockchain all the necessary information needed for claims verification can quickly be processed. Insurers can track the usage of an asset by using the data available in the blockchain without tampering any information. [2]

3. THE SECURITY INFORMATION TECHNOLOGY IN INSURANCE COMPANIES AND THE CYBER SECURITY

Cyber security with focus on defining the cyberspace or cyber threat is currently a very frequent topic. [5] Innovations of security information systems and information systems of insurance companies are mostly governed by four principles in order to achieve the set goal effectively.

The first principle is the decision of the top management of the insurance company on the project of strategic importance to implement the security system and the management must unanimously support this project. The second principle is to undergo mandatory training for middle and senior management and the staff involved in the implementation, to review the status of the insurance company, describe the current situation, define the areas to be changed and create a project plan to achieve the expected outcome of the implementation itself. A third principle during the project is the need to use the tool to manage the level of expectation of all stakeholders. To make the project successful, they need to think about the expectation from the project. It is better not to have high expectations so that the outcome is not disappointing, but it is also not good to have expectations too low to make the result really implemented and exploited. The fourth principle is the need to maintain the equilibrium triangle "people -

processes - tools": Employees must undergo training, processes must be projected, deployed and adhered to in work procedures and in workload, and processes must be supported by appropriate software tools that are deployed and documented how they are used.

These principles must be respected; otherwise the project is unbalanced and wasteful of resources:

- If unnecessarily expensive software tools are deployed and employees are unable to use their capabilities because they have not completed the necessary training,
- If the processes that are deployed are correct but not supported by software tools, work procedures cannot be complied with, and work is complicated, even though the employees have completed the training because they are trying to bypass them,
- If the tools were not deployed, and therefore they are retreating from their use in the company. Investments are unnecessary, despite the fact that employees are trained and have knowledge of security information technologies.

Without information technology, information is not only inefficient, but also unimaginable today. Information security is the process of maintaining confidentiality and availability during processing, storing and transferring information. Information must be secured against misuse. The client must be certain that the money to protect the person and property he has entrusted to the insurance company and the operations with them is as safe as possible.

Information security is the process of maintaining confidentiality and availability during processing, storing and transferring information. Information must be secured against misuse. There are a number of reasons to protect the information system [10]:

- what software the insurance company uses,
- what means of communication and components,
- what privileges users have,
- how external influences affect information systems,
- what kinds of threats need to be provided for information systems,
- what impact this threat poses.

The insurance company should have multi-level security of the information system. This ensures that in case of attacking a security level, still further levels are intact, therefore the following security levels should be used [1]:

- physical access to the place of possible work with the information system,
- local access to work with PC,
- access to the bank's local computer network,
- access to the application software of the information system,
- access to the operating system.

The client must be sure that the money he has entrusted to the insurance company and the operations with them are as safe as possible. Security includes databases, data files, data and information, various manuals, procedures, but also software and programs, computer and technical equipment. The security department in financial institutions checks whether the data processed by an insurance company is secured against misuse or destruction, or whether the insurer's information system complies with the guidelines of the National Bank and the Treasury, and whether security is understood as a continuous process. The Bank's security policy is approved by the Board of Directors; it should include objectives, principles, powers and responsibilities.

The insurance company is required to contractually ensure the security of information accessed by a third party, i.e. an external company, which is used for example in the form of outsourcing. It must also ensure the design, implementation and operation of the insurance company. Another view is personal security, where a financial institution should reduce the human factor problem, reduce mistakes, thefts and human scams, and have well-informed and trained staff. An insurer should have procedures in place for software mistakes and failures or misconceptions.

For environmental safety, the premises of an insurance company are monitored only for eligible persons. This prevents the risk of space, whether due to data misuse or theft.

It is necessary to ensure the reliable and continuous operation of the information system in order not to disturb the insurance business.

The insurance company determines the possibilities of handling and disposal of portable devices, laptops, flash disks. All exchanges and transfers are contracted in order to mitigate security risks. Procedures for the use of electronic communication channels are also developed. The Security Department has the task of managing all people's access to information and services through various access and user registrations. Each employee logs in to the system with his / her password, after the subsequent identification and authorization, the system enters the system. Every employee has a unique approach under his settings, and each employee has access to the programs they need for their work.

Activities need to be continuously monitored to ensure they are adequately protected. The Bank should comply with the rules resulting from generally binding legislation, contracts and standards and report on the verification of information systems for the NBS. Nowadays, information technologies are being penetrated into all spheres, so it is also an important part of the security of information systems. In order to operate a secure information system, it is also necessary to have the objective of information security and to know the structure of threats and vulnerabilities in the systems.

It is necessary to create the safest information system which:

- ensure company data protection to avoid misuse,
- ensures the protection of personal data in order to prevent unauthorized disclosure of information,
- even if the environment of information systems changes, it can maintain the level of service provided in the required quality. [3]

With the increasing development of information technology, the more important information is processed, the more they must be protected so that:

- it was possible to get them every time it is necessary and only authorized persons,
- it was always possible to find out who, when, and what kind of interventions in the system did,
- Only true information was given to the system [4].

An insurance undertaking must ensure that the information system functions are accessible. Information systems operators are expected to provide protection for these systems. The fact that there are weak points is the result of errors in the development or implementation of the information system. The basis for successful communication and the achievement of the organization's goals is a properly developed information system to suppress potentially vulnerable locations. The threat of the information system is the possibility of using a vulnerability in the system. Threats are the result of intense attacks or irresponsibility of the person who participated in the development, implementation, testing, installation, or operation of the system.

The insurance information system can be assured differently:

- only selected users have access to all of the information system functions, and it is easy and unambiguous to identify who has been and what has changed,
- not only names and passwords, but also chips are used. They allow secure login and encryption of data,
- monitoring all inputs, outputs, changes and usefulness of their use.

Insurance companies also protect their clients by using SkyMinder. It is an international service that provides access to information on over 200 million companies across 230 countries and world territories in the form of reports. The service serves in particular to assess creditworthiness, financial health and warning information about foreign business partners. It will help insurers, among other things, to find out about the ownership structure of the companies reviewed or their managers. SkyMinder is an international service with worldwide coverage and online availability; it provides access to financial, credit, and business information about businesses around the world, including countries designated as tax havens. SkyMinder has been the most effective intermediary between local reporting providers and users around the world. [9]

Another major emerging trend in the insurance industry is cyber security. It is an issue that insurers should look at from both the perspectives of a security provider and a client, since it affects them just as much, if not more, as their clients. While risk management is something that insurers deal with daily, they seem to be a bit behind in terms of cyber precautions, when compared to other financial sectors. Insurance agencies have not been the targets of hackers all that much, however, as other targets become more secure and inaccessible, attackers are moving on to more unprepared targets. Since insurance companies hold enormous amounts of sensitive personal information such as personal properties, health, etc. The other way cyber security could influence the insurance industry is through its inclusion in various policies. Because of the time and age we live in, many businesses and individuals alike are under risk of their virtual information being breached and the expectation for coverage arises. Whether it is included as an entirely standalone service or as an endorsement to an existing policy, companies would look to their current provider and definitely will not be happy with those who refuse.

General liability providers offer cyber risk coverage because of two specific reasons:
First, general liability is a large, profitable business for many insurers. If clients are not satisfied with the coverage provided by their current insurer, they can test the markets.
Second, cyber risk is and emerging trend and line of business that keeps growing, with potential to generate future revenue increases. [2]

4. CONCLUSION

As all the other members of the financial sector, the insurance industry is ever-changing and because of the plethora of competitors who offer similar services, one needs to follow the emerging trends in order to stay on top.

On the one hand, you have trends such as automation and blockchain, that drive your company towards higher efficiency, and on the other hand, you have trends such as the demand for more personalized premiums and cyber security policies, which can lead to the loss of both current and potential clients.

Every day, we encounter massive information about hackers who have disrupted the information systems of the various institutions, causing damage not only to property but also to the health of the world's population. It is therefore important to continuously upgrade security information systems and technologies in insurance companies and other financial institutions co-operating with insurance companies. It consists of protecting clients and consumers using the services offered by the financial institutions on the financial markets. Attention to the security of all processes and invested resources in the upgrading of security information technologies increases the security of the use of common electronic communication means for storing sensitive information, which is now almost done by computers and the Internet. That is why security technology innovation is important for our security.

Integrated supervision over all participants of the financial market, which is carried out by the National Bank of Slovakia, is currently risk-based and thus, one of its main goals is to promote the elimination of specific risks in supervised entities [11]. It is therefore quite substantiated that it is aimed at the prevention of legalization of criminal proceeds and of terrorist financing (or at enforcing the countermeasures against money laundering and terrorist financing).

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A REVIEW OF METHODS FOR ASSESSING THE POTENTIAL RISKS IN URBAN PASSENGER TRANSPORT

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Abstract: *The importance of public transportation networks implies the necessity of identifying potential risks that could negatively influence the quality of the services. Public transport networks are very developed in Romania, 22% of the individuals using public transport daily, compared with an average of 16% in the European Union for 2017.*
The main objective of the current paper is to present some of the risks to which passengers are exposed along with the effects on the quality of transport services.
Accordingly, the purpose of this article is to present an extensive research of the specialized literature in the field of risks in public transport systems.
The key findings of this study is the fact that identifying the risks to which passengers are exposed should be one of the priorities for any public transport operator or public administration. All things considered, authorities should ensure a gradual increase in terms of effectiveness and efficiency for the public transport services.

Keywords: *public transport, risk management, urban life quality, strategies.*

1. INTRODUCTION

Nowadays, the efficiency of public transport systems all over the world directly influences the quality of urban life. One of the biggest challenges for any urban transport service is to succeed in overcoming individuals preferences for using private means of transit. Furthermore, transport systems must ensure their sustainability, which translates by less energy consumption and improving land infrastructure investments [1].

In the current economy, the transport sector is responsible for having a major impact on societies and also on the environment as the principal mode of transportation. At the same time, is the most oil-consuming industry and an important factor for greenhouse gases. Specifically, [2] estimates that this sector will account for more than 50% of the oil consumption in 2020, as well as causing approximately 25% of the CO_2 emissions.

Under those circumstances, the consequences of transport risks may severely affect the quality of the public transport services, especially in a heavily developed urban area like Bucharest, a city with an average population of about 3 million people.

The current paper will be the foundation of an extensive research whose purpose will be reducing the risk in the public transport networks in Romania' capital - Bucharest. The aim of

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the present study is to display a substantial research of the specialized literature in the field of risks in public transport networks.

Given these points, this study is presented as a starting point for extensive research on the public transport threats, alongside with potential risk management measures.
First of all, in order to examine to risks that could occur in public transport system we should concentrate on the characteristics that are important for passengers. Specifically, on the quality indicators of a public transport network, listed below:

- Service reliability;
- Travel speed;
- Network coverage;
- Safety and security for passengers, on board and also on the transport stations ;
- Comfort: seating availability, space in the transport modes, cleanliness;
- Separated lanes for buses and trams;
- Affordable tickets;
- Convenient walking distance from transport stops ;
- Short waiting time in transport stops ;
- Reliable and precise timetables;
- Transit interchanges stops;
- Services for disabled people.

Consequently, we need to analyze how different risk could occur in these situations, and how this aspects will affect the passengers overall satisfaction.
As well known, road transportation in general and specifically public transport involves certain threats for individuals concerning their comfort, trip satisfaction, or even their health.

2. DISCUSSION ON THE GENERAL RISKS THAT CAN OCCUR IN PUBLIC TRANSPORT

A very important category of risks that could occur is related to traffic congestion as well as road accidents. Reducing the impact on public transport users should be one of the primary objectives for any transport operator or administration.

Correspondingly, public transport modes can be involved in serious road accidents which may endanger the health and integrity of passengers. According to [3] road accidents can be classified into the following categories:

1. Accidents between transport vehicles. Here we can include frontal collisions, frontal-lateral, lateral, rear-end and collisions with stopped vehicles.
2. Accidents involving a single vehicle.
3. Accidents involving pedestrians.

In addition to these types of accidents, we should also analyze some of the underlying causes of their production. With this in mind, we can present a number of categories factors with major influence on public transport vehicles accidents:

- Technical faults: poor vehicle maintenance
- Weather conditions;
- Road characteristics;
- Road user's behavior: reckless driving, excess speeding, driver fatigue;
- Unforeseen random events.

On the other hand, at the present time, World Health Organization confirms that more than 40 million people in the European Union, from the largest 115 cities are exposed daily to highly polluted air [4].

With this in mind, according to the European Commission, urban transport operators and administrations must concentrate on three important challenges:

1. Climate warning. The greenhouse gases emission should be decreased by 2030 with 40% compared to 1990.
2. Individual’s safety and security. This aspect can be improved through a better road infrastructure and automatic traffic management.
3. Aging population. Promoting elderly people' mobility should be dramatically increased.

All things considered, different solutions using buses are considered the most efficient way for passenger’s transportation in terms of energy consumption [5].

2. LITERATURE REVIEW

Regarding the study of the specialized literature, a clear distinction must be made between the theoretical research and practical applications or simulations. This distinction is necessary because testing new projects in the field of public transportation is an extremely expensive practice. In either case, it is not accessible for any group of researchers or sometimes even to public authorities.

With this in mind, in 2012 the International Organization for Standardization introduced ISO 39001:2012 the Road Traffic Safety (RTS) Management System, which aims to be a "practical tool for governments, vehicle fleet operators and all organizations worldwide who want to reduce death and serious injury due to road accidents. ISO 39001 provides them with state-of-the-art requirements for safety aspects including speed, vehicle condition and driver awareness" [6], [7].

Therefore, ISO 39001 is perceived as a significant contribution to the United Nation's Decade of Actions for Road Safety for the 2011-2020 period because it imposes new quality standards and also it provides a lot of know-how in the field of public transportation risks. An important key point to realize is the fact that the standard was designed with the support of experts from a total of 40 countries, as well as world-renowned organizations such as World Health Organizations or the World Bank.

All things considered, among the measures imposed by the new standard are included: transport mode specifications, braking systems aspects, protection measures in case of impact, new aspects of ergonomics and so on. Given these points, the new standard will have a significant impact of future traffic safety statistics and thus decreasing passenger’s risks for severe injuries. Equally important, it will increase users' satisfaction and the overall quality of the public transport systems.

Specifically, regarding traffic congestion that is a worldwide phenomenon specialized literature [8] defines two types of congestion:

a) Recurrent congestion, when it depends directly on normal traffic conditions;
b) Non-recurrent congestion, when is due to external factors, difficult to predict such as accidents, extreme weather or natural disasters.

As a result, traffic congestion is closely associated with transit risks, but it is difficult to quantify such a relationship due to a lack of data and mathematical models. Particularly, data unavailability is accentuated when it comes to public transportation of passengers. Nevertheless, researchers have developed mathematical models and algorithms to evaluate transport accidents frequency from a risk management approach.
As an illustration, [9] studied an algorithm in order to calculate the frequency of an accident on the particular road:

$$f_i=y_iL_in_i$$

$$y_i=y_0 \sum_{j=1}^{6} h_j \text{, where:}$$

- y_i=the expected frequency on the i road;
- L_i=the road length;
- n_i=the vehicle number;
- y_0=the basic frequency;
- h_j=the mitigating parameters.

As a result, the researcher concluded that these are the most important parameters that can influence road accidents constantly. Therefore, these aspects should be carefully analyzed by any transport authority or public administration.

Likewise, specialized literature develops the concept of intelligent transport systems (ITS) [10], [11] which can help overcome some of the public transportation problems by enhancing the overall efficiency. In particular, risk management, which includes risk prevention is one of the most significant components of a ITS program, due to the fact that allows operators to identify, group and analyze serious risks [12].

An exploratory research on intelligent transport systems was realized by [12] in order to identify and analyze the necessary steps to create an assessment methodology for an ITS program. In the author' opinion the following stages are required:

1. Planning the initiation of a ITS program. In detail, through this component is being pursued different action which can drastically eliminate various risks and also minimizing their consequences: threats assessment, general research.
2. Risks selection. In other words, the transport risks will be defined as well as determining the resulted threats.
3. Risks analysis. Previously identified risk will be thoroughly analyzed. In addition, in this stage the researcher will study risks impact on the overall performance of the transport system.
4. Taking necessary measures. At this stage the decision maker will identify control measures and monitor the risks through online control.
5. Creating a mitigation plan. As a result, there will be developed the necessary tools to cope and respond to any transport situation.
6. Creating mitigation scenarios to risk outcomes. To put it another way, there will be analyzed aspects such as cooperation between public administrations and private operators, infrastructure features, important trend in ITS development.

As has been noted, the authors considers the introduction of an ITS program mandatory for any effective transportation system, thus achieving a better risk management and control, while in the same time improving the service quality.

At the same time, in addition to introducing an ITS management program, the highly developed cities around the world analyzes the concept of fully automated public transport vehicles. [13] have studied the implementation of an Automated Demand Responsive Transport System (ADRTS) in Arnhem-Netherlands, which should substitute traditional public transport modes with completely automated vehicles. An ADRTS involves a service responsive to users demand.

In other words, passengers should request a vehicle to a certain transport station. In this case, an automated transport vehicle, which is either stationed or in traffic should sort the passengers request and assign the task to one of the vehicles from the transport fleet.

In the long run, this modern project aims to reduce the overall transportation costs by:
1. Optimizing vehicles assignment;
2. Stationing transport modes when there are no passengers requests;
3. Reducing the transport fleet.

The analysis was based on a city in the Netherlands-Arnhem, a city with a population of approximately 150.000 people. The researchers tested 21 different scenarios in the final analysis simulating aspects such as:
- Vehicles passengers capacity (2-40 users per trip);
- Initial vehicles location;
- Demand level;
- Vehicles dwell time.

In the final analysis, the operations cost for the normal transport system in Arnhem were compared to the best scenario case for an ADRTS system. For example, for the current infrastructure, the public administration registers a cost of 0.68 € per passenger/trip with the bus.

On the other hand, using an automated vehicle, the authors estimated a final cost of 0.63 € per trip for a passenger. Meanwhile, the operation costs were calculated without taking into consideration the drivers salaries for the normal operated transport network, which will increase the cost by almost 300%, due to a cost of 25 € per hour/driver. In other words, the total cost for a normal bus trip increases from 0.68 to 3.24 €.
Under those circumstances, automated public vehicles can be a sustainable solution in the future, as well as an alternative to diminish operation costs.

In addition, more advanced studies on this topic can be found in the research papers from [14], who studied the effect of traffic risk in Warsaw, the biggest city in Poland. The authors presented the TRAQM method - *Traffic risk assessment quantitative method*, which divides risk into different categories based on their determinants and consequences. Furthermore, they developed the following strategies, based on management methodologies in order to raise awareness of risk levels in public transport:
1. Avoiding risks if possible;
2. Reducing risks, by proactive operations which will limit the threats;
3. Fallback, minimizing the risks probabilities;
4. Transferring the risks responsibilities if possible to other parts that can deal better with certain threats;
5. Sharing the identified negative aspects with other entities;

6. Accepting the risks, when countermeasures cannot be identified or justified financially.

As can be seen, in the researchers opinion' it is absolutely mandatory for any administration to design a risk strategy in the field of transportation and to offer framework solutions [14].

4. CONCLUSIONS

Public transport is by definition a safe, reliable and economical mode of transportation. As a result, millions of people uses public transit systems daily, and the number is in a continuously increase each year. At the same time, these aspects also means that accidents involving transport vehicles may often include various injuries for the passengers.

Even if public transport unfortunate casualties are much less common than accidents involving private vehicles, the effect can be just as devastating.

This paper presents a first stage in analyzing some of the threats and risks in public transportation of passengers, and how transport operator or public authorities worldwide dealt with these challenges.

In the long run, risks and threats decreasing should be an important objective for any transport operator. Their main attention must be focused on reducing the consequences, having an active risk approach, as well as developing a risk assessment methodology. As a result, traffic safety can be improved alongside with passenger security and comfort.

All things considered, planning and managing future public transport networks will be more complex than in the past. Henceforth, new studies and methodologies should be elaborated and applied in order to increase user' satisfaction and the overall quality of the services.

4. FURTHER RESEARCH

In continuation to this study, there will be realized series of papers in order to provide new insights on:

- the public transport systems in Romania;
- risk management in transit systems;
- various threats than can affect the passengers.

The main objective is to gather relevant information and data on this topic. Thus, being able to conduct a research that could developed a risk assessment methodology in the field of public transportation.

ACKNOWLEDGEMENT

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BILATERAL IMPACT BETWEEN ACCOUNTING AND RELIGION ON THE EXAMPLE OF THE INFLUENCE ON THE SUBJECT LITERATURE

Artur Jastrzębowski[253]

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Abstract:
Purpose: *Modern scientific research allows identifying many factors that have influenced the development of accounting over the centuries. Religion is one of many factors creating the current shape of the accounting system. However, the relationship between these two areas is not one-sided, the accounting system also influenced the shape of religious (especially religious texts), in particular the Bible. In the Bible, fragments were developed using the concepts used in the accounting system, especially regarding rules of keeping accounts, internal control and budgeting.*
On the other hand, religion over the years has significantly influenced the formation of the accounting system. The common example is the area of shaping moral foundations that are the basis of some practices and accounting principles. However, another specific area of influence is shaping the form of some studies in the field of accounting. The above thesis was presented on the example of selected nineteenth-century textbooks from accounting, which authors gave to their works a form similar to a catechism, which may be explained by two factors:
- acquaint readers with the form of catechism,
- emphasizing the meaning of the content.
Design/methodology/approach: *The aim of the article is to present the bilateral impact of accounting and religion on example of influences on the literature of both fields. Achieving the main goal required prior realization of specific objectives, including finding traces of accounting in religious texts and examples of the influence of religion on the accounting system. The assumed assumptions of the article determined the structure of the article, so in the first part were shown fragments of the Bible containing activities which are currently characteristic for accounting system. Next, examples of the influence of religion on the accounting system, with particular reference to the use of forms characteristic of religious texts in the 19th century book-keeping textbooks were shown.*
In the article was used critical analysis of sources and comparative analysis using the elements of inductive reasoning.

Keywords: *accounting determinants, accounting impact on the bible, impact of religious concepts on accounting*

INTRODUCTION

The shape of the modern accounting system is a derivative of all the factors that have influenced its development over the years. The stimuli affecting the directions of accounting development are often difficult to identify unequivocally, due to the large span of their sources of origin (Łazarowicz 2010, pp. 369-370). One of the determinants

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affecting the accounting system is religion, which influenced both the conceptual basis of accounting, and the form of didactic studies, by constituting a legitimizing factor. In addition, there is feedback between religion and accounting because the accounting concepts also determined the content of religious texts.

The aim of this study was to present the bilateral interaction between accounting and religion on the example of shaping the content and form of texts from these two areas.

The article was divided into three parts preceded by an introduction and concluded with a summary. At the beginning, the set of factors shaping the development of accounting over the years, including the religious stimulus were presented. The next item shows the influence of accounting theory on the text of the Bible. The third part presents and discusses examples of impact of religious concepts on the form of accounting studies.

The research used the method of literature analysis, the critical-comparative method and inductive reasoning.

1. IDENTIFICATION OF FACTORS DETERMINING THE DEVELOPMENT OF THE ACCOUNTING SYSTEM

As current research indicates, the beginnings of accounting development can be sought not during the turn of the Middle Ages and the Renaissance, but even in the beginnings of the economic functioning of man. According to researchers (Dobija 1996, p. 8), the elements of pre-accounting can be traced back to the prehistoric period, where there were entries on various types of materials fulfilling the functions attributed to modern accounting.

Such a long period of accounting development results in large number of factors identified as the source of the development of the accounting system. The scientific studies of the area list the following ones as the most frequent determinants for the evolution of accounting (Łazarowicz 2010, pp. 369-370, Adamek 2011, pp. 128-129, Adamek 2012, pp. 10-11, Kurek and Zielińska 2006, pp. 31-32; Ashraf and Ghanib 2005, pp. 176-198, Napier 2006, pp. 328-352):

- The art of writing,
- Arithmetic,
- Money,
- Credit,
- Trade,
- Capital,
- Companies,
- Agency,
- Culture,
- Ideologies,
- Economic crises,
- Political systems,
- Tax regimes,
- Cross-border investments,
- Professional organizations and professionalization of the accounting profession,
- Privatization,
- International economic organizations,

- Education in accounting,
- Harmonization of accounting regulations and principles,
- Information technology,
- Economic risk.

As it was noted, some of the above factors stimulated the development of accounting already in prehistoric times. The invention of writing, arithmetic or various forms of money were among the first factors that allowed the development of accounting. However, over the years, new factors have begun to stimulate changes in the accounting system that resulted from economic, social and technological development (Jastrzębowski 2015, p. 36).

It should be emphasized that the nature of the impact is often bilateral, as a result of which a given factor not only causes changes in the accounting system, but is also stimulated and shaped by it. One of the examples of mutual influence are the relations between accounting and religion, ideological and religious factors that constituted the determinant of accounting development and were shaped by it.

Feedback between religion and accounting can also be considered at the level of texts. This work will present traces of the accounting system in the Bible and the impact of the concept of Judaeo-Christian ideology on the form of accounting studies.

2. THE IMPACT OF ACCOUNTING ON THE BIBLE

The Bible is a collection of books, sacred for Jews and Christians, and describing their moral and belief systems in a comprehensive way. However, as presented in his study by T. Sedláček (2012, pp. 57-104 and 145-184), this work also provides a rich source of information about economic processes in antiquity.

The scientific literature contains many studies showing traces of economic and ethical theories and mechanisms in the Bible. An example from the beginning of the 20th century is the work of W. Sombart (1911, pp. 225-292), demonstrating the influence of Jewish culture on the development of capitalism or modern financial practices based, among other, on proofs from the books of the Bible and the Talmud. Another confirmation of the interest of the research community in this subject is the study by M. Weber (1930, pp. 53-125), in which the author presented the Christian (and especially Protestant) roots of capitalism, also based on the analysis of the Bible. Also today, scientists analyze economic problems by using biblical texts (Fel and Zdun 2014, pp. 84-95, McGee 1998, pp. 211-222).

In connection with the above, one should ask the question whether the Bible will contain fragments created on the basis of knowledge in the field of accounting?

A detailed study in this regard was presented by R. Hagerman (1980, p. 72), and in his opinion, elements of the accounting system (and especially accounting) appear on the pages of the Bible. The analysis of the text allows defining fragments referring to theories and practices currently accounted for in accounting.

The author divided the identified information into three groups concerning (1980, pp. 71-76):
- Accounting,
- Internal control,
- Management accounting.

The researcher identified four passages dealing with the subject of financial accounting (1980, pp. 71-72). The first quote quoted from the Second Book of Kings[254] (2 Kings, 12:16 and 22: 7) shows the importance of accounting books as a system of control over expenditures. It is emphasized, in the quoted passages, that the trust in the priests supervising the repair of the temple was so high that there was no need to keep accounting records[255]. On the basis of the quoted descriptions, it can be concluded that the accounting system was accepted as a tool for disciplining managers and contractors, preventing embezzlement of the acquired and invested capital. The resignation from conducting accounting records is a symbol of the greatest trust in subordinated entities.

The confirmation of the above considerations is a fragment of the Gospel according to Luke (Luke 16: 2), where the unsatisfied owner demands from his subordinate the accounting records of his activity[256]. As noted by R. Hagerman (1980, p. 72), this element can also be read as highlighting the importance of periodic accounting reports for the management process.

In another of the identified quotes (1980, p. 72), the importance of accounting records is also stressed. In Wisdom of Sirach (Sirach 42: 1-8), it was pointed out that one should not be ashamed to keep records with a companion and guest, because this is a sign of honest and prudent conduct. In the opinion of R. Hagerman (1980, p. 72), the reliable conduct of settlements contributes to the limitation of possible conflicts through the implementation of the evidential and accounting function of accounting.

What's more, the quoted part of Ecclesiastes also raises the problem of registry and inventory. According to the Old Testament (Sirach 42: 1-8), prudence and honesty also result from the preparation of a personal list of entrusted items and a list of everything that is taken and issued.

Another area of relations of accounting and the Bible is internal control. According to Hagerman (1980, p. 73), the quotation outlining the need to exercise internal control is the phrase contained in the Book of Micah (Micah 7: 5), according to which one should not trust too much and believe a neighbor or even a friend. So if you can‘t trust even your loved ones, all the more you should control employees and other subject entities.

The Old Testament contains a description of the activities carried out as part of the accounting control function, which in a significant way resemble the practices implemented also in the Ancient Egypt. In the Second Book of Chronicles (2 Chronicles 24: 11-12) the process of control of acquired funds was presented, which were first collected and checked by the Levites, and then subjected to re-control by the royal writer and the high priest's representative. As mentioned above, this practice is similar to the procedure used by priests in Egypt. According to the researchers (Łazarowicz 2011, p. 18), the process of accepting grain to the warehouses in Ancient Egypt was carried out in similar fashion, as it was served by at least three people. Two of them independently recorded the amount of grain accepted into the granary, and the third person compared both records, trying to discover possible discrepancies.

[254] Fragments of the Bible in Polish were quoted after Holy Scripture elaborated by Rev. M.Petera and Rev. M. Wolniewicz (2003).
[255] It is worth noting here that although the Polish translation used the phrase without word “accounts”, in The Jerusalem Bible (1966) features "**No accounts were kept** with the men".
[256] Polish translation (2003, Luke 16: 2) states "Report your business, because you will no longer be in charge", and The Jerusalem Bible (1966, Luke 16: 2) "Draw me up **an account** of your stewardship".

According to R. Hagerman (1980, p. 73), the analogous process of double control is also shown in the pages of the New Testament in the passage of Second Corinthians (2 Corinthians 8: 20-24), where we find justification of sending members of the community under the leadership of Titus for the purposes of collecting funds collected by the Corinthians. Importantly, the consequences of the lack of proper (double) control are also presented on the pages of the Bible. In John's Gospel (John 12: 6), a description was made about the figure of Judas Iscariot, who turned out to be a thief, and the thefts could take place because he was the person responsible for storing money[257], not subject to control by other students.

The last element of internal control presented in the Scriptures is the audit procedure. In the Gospel according to Matthew (Mt. 24: 45-47) there is a fragment describing the characteristics of a wise servant, who is met performing his duties during an unannounced audit. Hegerman (1980, p. 74) emphasizes on the occasion of examining this passage that the awareness of control is disciplinary and preventive in both accounting and religious systems.

The last of the accounting areas affecting the records included in the Bible is management accounting. According to R. Hagerman (1980, 74-75), the impact is most affected by the budgeting process. In the Gospel according to Luke (Luke 14: 28-30), the importance of estimating costs before investing was clearly emphasized. From this fragment we can conclude that the activities aimed at drawing up estimates of expenses were not only considered to be rational but also commonly used.

As R. Hegerman (1980, 75) believes, a similar approach was already presented in the times described by the Old Testament, as shown in Proverbs (Prov 15:22), where the pre-planning activity is the source of a positive result.

R. Hegerman (1980, 75) also identified a fragment inspired by the break-even point theory. According to the author, in the Wisdom of Sirach (Ecclus. 7:22), the rules regarding concentration on investments above the break-even point, i.e. the profitable ones, were presented[258].

Further accounting traces in the Bible were also identified by other authors (Knowing-jesus.com 2018). The analysis allows us to find quotes depicting the adaptation of accounting activities to religious purposes, an example of which is the description of report making included in the First Book of Chronicles (21: 1) regarding the preparation of inventories.
Another area of influence is the use of the accounting profession category as a carrier of a set of features. In this case, we can look at the Book of Isaiah (33:18), where the profession of the accountant is presented as being associated with negative emotions.

The above-mentioned fragments allow to state that one of the factors influencing the final shape of the Bible were the views and theories currently included in the field of accounting. The use of accounting practice examples as carriers for transferring the truths of faith causes that, intentionally or not, accounting shapes the content of books are included in the Holy Bible. What is more, the common acceptance of general economic rules may have contributed to the legitimization of the contents for which examples from the area of accounting were selected.

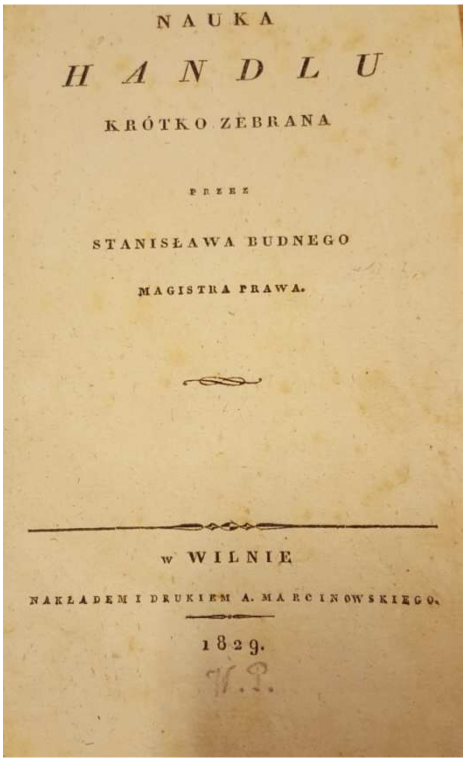
[257] Probably funds belonging to Jesus and his disciples, which were kept in the Judas' pouch, or purse.
[258] In the Polish translation (2003, Ecl 7:22) "Do You have animals? Follow them personally; they bring you an advantage, so take care of them" and in The Jerusalem Bible (1966, Ecl 7:22) "Have you cattle? Look after them; if they are making you a profit, keep them".

The next point will be presented the process opposite to the above, i.e. the influence of Judeo-Christian thought on accounting theory and literature.

3. THE INFLUENCE OF RELIGIOUS CONCEPTS ON ACCOUNTING STUDIES

The feedback causes that religious concepts are not only a factor determining the shape of the accounting system, but were also created by it. The impact may be shown in the context of shaping the ethical and moral foundations, as well as the construction of theoretical studies in the field of accounting. The work by S. Budny (1829) entitled "Nauka handlu krótko zebrana" ["Short textbook of commerce"] may be a model of such influence on the basis of Polish literature.

Figure 1. Title page of S. Budny's study



Source: (Budny 1829).

This book was written in Vilnius in 1829 by Stanisław Budny legal advisor, translator and creator of publications on trade and law. As presented by S. Sojak and M. Kowalska in their text (2014, pp. 140-142), the author who was a graduate of the Vilnius University had not only theoretical knowledge in accounting, but also a practical job as a bookkeeper in the main committee for drawing up accounts in Vilnius. In addition, according to researchers, S. Budny should be considered the author of the first accounting textbook issued in Polish.

Budny included, in his publication, information on trade, which he claimed (1829, p. I) to be the most important source of national wealth.

The study takes up twenty-two issues, which are detailed in the table below.

Table 1. Content layout of the study by S. Budny.

Chapter number	**Chapter title**
I	Introductory information
II	Of the nations who became famous in trade
III	A brief historical outline of English commerce
IV	A brief historical outline of the Russian commerce
V	About arts and crafts
VI	About the current state of trade in Russia
VII	On money
VIII	About banks
IX	About bills of exchange
X	On goods in general
XI	About measurements and weights, extra weight
XII	About price marking for goods in wholesale trade; inventory of goods; demand; and merchant speculations
XIII	About various types of trade
XIV	About private commercial companies
XV	Some common methods of doing business
XVI	About seafaring
XVII	On the costs and damages to which the seafaring is connected and on the calculation of such damages, i.e. the so called mishaps
XVIII	About security or the reassurance
XIX	On loans in foreign ports
XX	On bankruptcy
XXI	About Bookkeeping
XXII	Some comments regarding trade

Source: Own elaboration.

Chapter XXI was devoted to accounting in the enterprise (1829, pp. 88-95) containing information on:
- The essence of accounting (book-keeping),
- Types of records (single-German, double-Italian),
- The meaning of credit and debit concepts,
- Types and rules of creating books (main and auxiliary) with examples.

In the context of the analysis of the impact of religious texts, it should be noted that the content of the "Nauka handlu krótko zebrana" was developed using the characteristic question-answer system (1829, p. V). What's more, in the preface to the book, S. Budny (1829, pp. I-VI) concluded that the text was developed in a catechetical manner on the model of a commercial catechism written in English. This statement raises questions:

- In what sense the words "catechism" and "catechetical" are used,
- Whether the form used is modeled on religious studies,
- Can the form be legitimized in the context of the deliberations under consideration?

The answer to the first of the questions should start with presenting the possible meanings of the terms used. According to the definition from the PWN foreign word dictionary (2010, p. 615), the word catechism may mean:

- A lecture on the basic principles of the Christian religion, often in the form of questions and answers; also a book containing this lecture, or

- (figuratively) basic principles of something.

In addition, as seen from the etymological point of view, the word "catechism" comes from the Latin-related word *catechismus* and the Greek *katechismos* meaning "instruction of life." Undoubtedly, both expressions of their original use were found in the context of the instruction for religious practices.

The word "catechism" is similarly described by the 1939 Encyclopedic Dictionary of Foreign Words, by Trzaska, Evert and Michalski (1994, p. 960), also here the catechism was defined as a concise lecture of the principles of faith in the form of questions and answers.

Also the dictionary of the foreign words of Kopaliński (2006, p. 382) is limited to the definition of a catechism as a book that is a lecture on the principles of faith, usually in the form of questions and answers.

By subjecting the word "catechism" to further analysis, it can be seen that the first of the meanings mentioned in the PWN dictionary is also adopted in other languages. For example, the word "catechism" in the Webster dictionary (1994, p. 153) is described as:
- Summary of religious doctrine, often in the form of questions and answers, or as
- A set of questions in the form of a test.

The above dictionary definitions show that the basic meaning of the word "catechism" is the elaboration of the basic principles of religion, with particular emphasis on the characteristic form of such a text (question-answer).

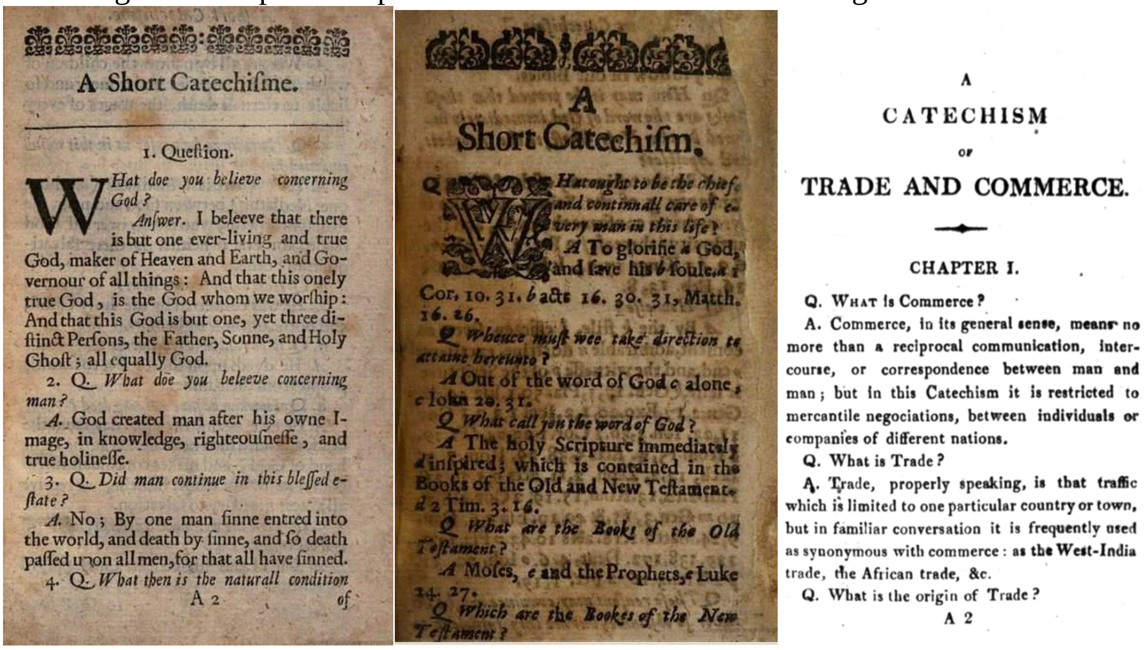
However, the analysis carried out does not prejudge the meaning, in which the word "catechism" was used by S. Budny. However, in the introduction to his study, the Polish author reveals that the concept of the dissertation was based on an English study by William Pinnock (1823).

Unfortunately, in the introduction to his work, the British author did not present the premises for the use of the word "catechism", but the analysis of his achievements covering the entire cycle of "catechisms" concerning various fields of science leads to the recognition that this word was used in the context of a comprehensive and complete accounting study.

The above-mentioned conclusion, however, does not determine the total rejection of the concept of inspiration with religious texts, and thus the thesis that the books by S. Budny and W. Pinnock were formulated following the example of religious catechism.
Further considerations in this respect should begin with the analysis of the English original. W. Pinnock (1823, p. 2) in the introduction to his dissertation did not refer to the question of the source of inspiration in the form of his book, which, like the later study by S. Budny, groups the text as questions and answers. As it has been presented, the definitions of the word "catechism" emphasize that religious studies often take on the same specific form as the texts discussed. Therefore, two questions should be asked here:
- Whether this form is characteristic for religious catechisms,
- Do other accounting works from the same period also have such a content layout?

Comparing "*A catechism of trade and commerce...*" (Pinnock, 1823) to Anglican catechisms one should affirmatively answer the first question.

Figure 2. Graphic comparison of W. Pinnock's text with Anglican catechisms



A Short Catechisme.

1. Question.

WHat doe you believe concerning God?

Answer. I beleeve that there is but one ever-living and true God, maker of Heaven and Earth, and Governour of all things: And that this onely true God, is the God whom we worship: And that this God is but one, yet three distinct Persons, the Father, Sonne, and Holy Ghost; all equally God.

2. Q. What doe you beleeve concerning man?

A. God created man after his owne Image, in knowledge, righteousnesse, and true holinesse.

3. Q. Did man continue in this blessed estate?

A. No; By one man sinne entred into the world, and death by sinne, and so death passed upon all men, for that all have sinned.

4. Q. What then is the naturall condition of

A 2

A Short Catechism.

Q. What ought to be the chief and continuall care of every man in this life?

A To glorifie a God, and save his b soule. a 1 Cor. 10. 31. b acts 16. 30. 31. Matth. 16. 26.

Q. Whence must wee take direction to attaine hereunto?

A Out of the word of God c alone, c Iohn 20. 31.

Q. What call you the word of God?

A The holy Scripture immediately d inspired; which is contained in the Books of the Old and New Testament. d 2 Tim. 3. 16.

Q. What are the Books of the Old Testament?

A Moses, e and the Prophets, e Luke 24. 27.

Q. Which are the Bookes of the New Testament?

A

CATECHISM

OF

TRADE AND COMMERCE.

CHAPTER I.

Q. What is Commerce?

A. Commerce, in its general sense, means no more than a reciprocal communication, intercourse, or correspondence between man and man; but in this Catechism it is restricted to mercantile negociations, between individuals or companies of different nations.

Q. What is Trade?

A. Trade, properly speaking, is that traffic which is limited to one particular country or town, but in familiar conversation it is frequently used as synonymous with commerce: as the West-India trade, the African trade, &c.

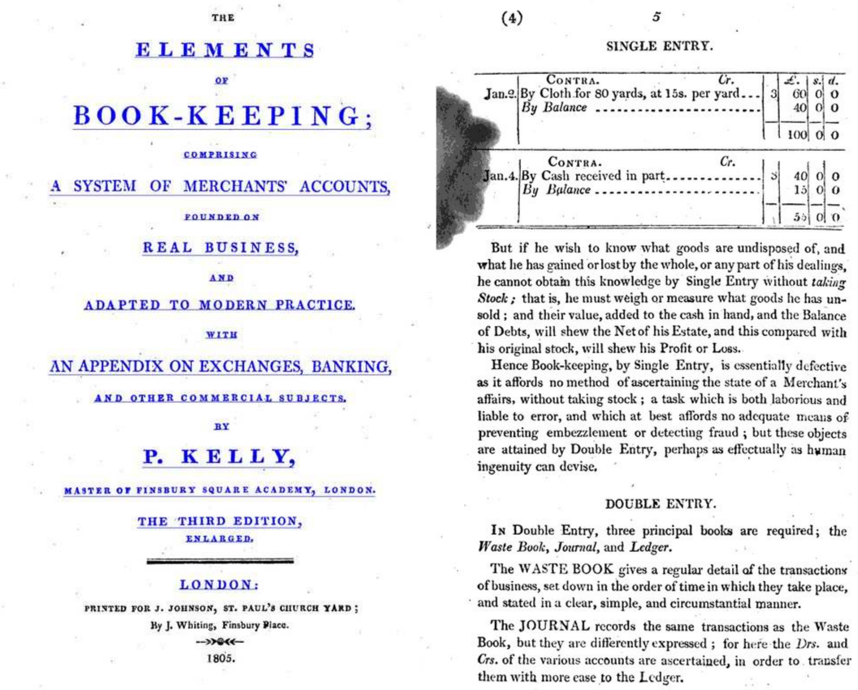
Q. What is the origin of Trade?

A 2

Source: (Minifter 1646, Brewster 1653, Pinnock 1823).

Undoubtedly, the layout of the text in the two editions of "*A Short Catechisme...*" is almost identical to that used in the work of W. Pinnock. Therefore, the necessity to find the answer to the second question becomes so important, i.e. whether this form was generally accepted also in the case of other studies concerning the principles of keeping accounting books. As a material for comparative analysis, one can use P. Kelli's (1805) textbook entitled "*The Elements of Book-keeping: Comprising a System of Merchants' Accounts...*" which, as can be seen in the figures below, has a different form for presenting the content.

Figure 3. Fragments of a study by P. Kelly, a contemporary book of that by W. Pinnock



THE

ELEMENTS

OF

BOOK-KEEPING;

COMPRISING

A SYSTEM OF MERCHANTS' ACCOUNTS,

FOUNDED ON

REAL BUSINESS,

AND

ADAPTED TO MODERN PRACTICE.

WITH

AN APPENDIX ON EXCHANGES, BANKING,

AND OTHER COMMERCIAL SUBJECTS.

BY

P. KELLY,

MASTER OF FINSBURY SQUARE ACADEMY, LONDON.

THE THIRD EDITION,

ENLARGED.

LONDON:

PRINTED FOR J. JOHNSON, ST. PAUL'S CHURCH YARD;

By J. Whiting, Finsbury Place.

1805.

(4) 5

SINGLE ENTRY.

	Contra. Cr.		£.	s.	d.
Jan.2.	By Cloth for 80 yards, at 15s. per yard	3	60	0	0
	By Balance		40	0	0
			100	0	0

	Contra. Cr.				
Jan.4.	By Cash received in part	3	40	0	0
	By Balance		15	0	0
			55	0	0

But if he wish to know what goods are undisposed of, and what he has gained or lost by the whole, or any part of his dealings, he cannot obtain this knowledge by Single Entry without *taking Stock*; that is, he must weigh or measure what goods he has unsold; and their value, added to the cash in hand, and the Balance of Debts, will shew the Net of his Estate, and this compared with his original stock, will shew his Profit or Loss.

Hence Book-keeping, by Single Entry, is essentially defective as it affords no method of ascertaining the state of a Merchant's affairs, without taking stock; a task which is both laborious and liable to error, and which at best affords no adequate means of preventing embezzlement or detecting fraud; but these objects are attained by Double Entry, perhaps as effectually as human ingenuity can devise.

DOUBLE ENTRY.

In Double Entry, three principal books are required; the *Waste Book*, *Journal*, and *Ledger*.

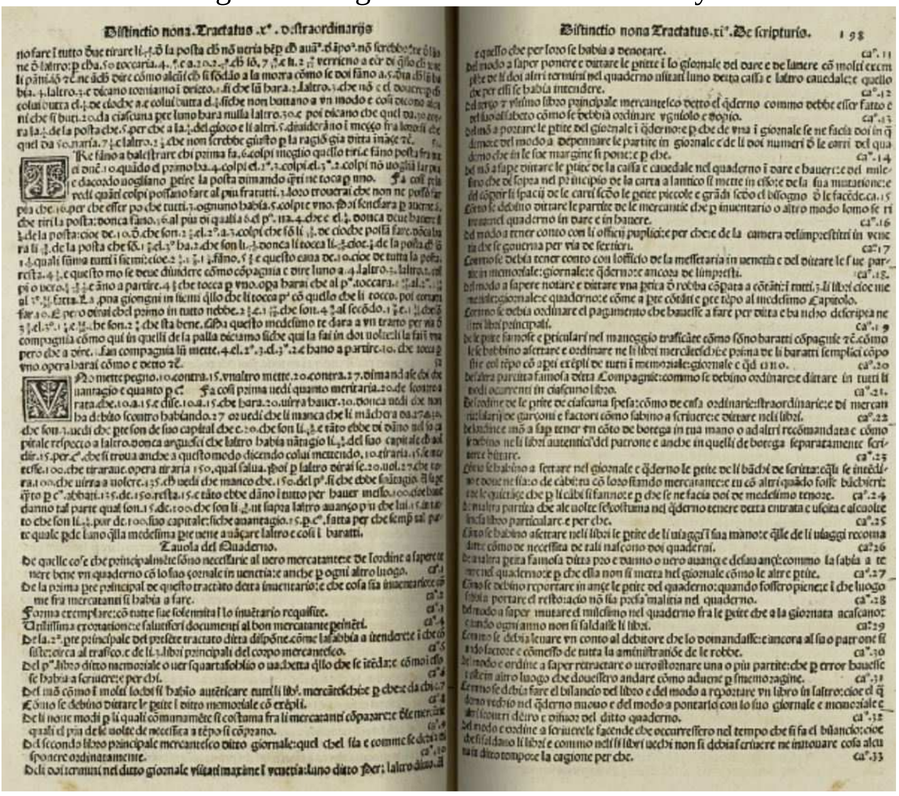
The WASTE BOOK gives a regular detail of the transactions of business, set down in the order of time in which they take place, and stated in a clear, simple, and circumstantial manner.

The JOURNAL records the same transactions as the Waste Book, but they are differently expressed; for here the *Drs.* and *Crs.* of the various accounts are ascertained, in order to transfer them with more ease to the Ledger.

Source: (Kelly 1833).

What is important, as can be seen below, also the work of Luca Pacioli "*Summary of arithmetic, geometry, proportions and proportionality*..." was developed in the form of a continuous text, not a question-answer.

Figure 4. Fragments of L. Pacioli's study



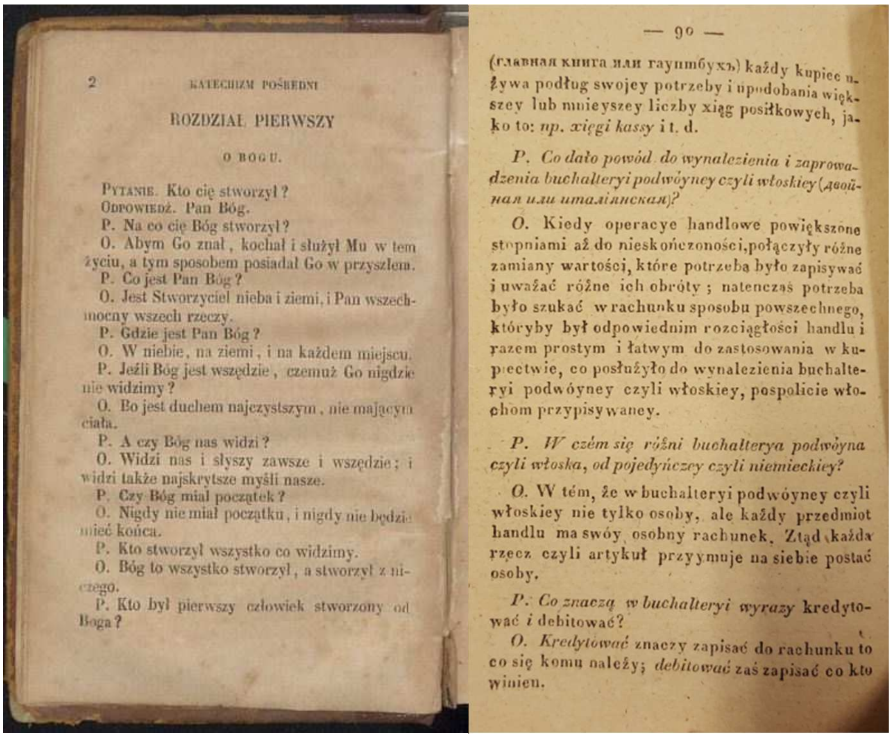
Source: (Pacioli 1494).

What is not without significance for our attempts to read the intentions of W. Pinnock may also be the information about the fact that he was a baptized person, whose son was an ordained minister (Wikipedia). This allows us to assume that W. Pinnock was a person familiarized with religious texts.

The above analysis prompts us to re-establish the thesis (this time at the level of the English original) that the discussed test was consciously elaborated in a form similar to religious catechisms.

A similar reasoning process can also be carried out in direct relation to S. Budny's book. Also in this case, a direct comparison of pages from the study and a general catechism issued in a similar period reveals a large similarity of form. They are constructionally almost identical texts.

Figure 5. Comparison of the graphic layout of the study by S. Budny and the Lesser Catechism



2 KATECHIZM POŚREDNI

ROZDZIAŁ PIERWSZY

O BOGU.

PYTANIE. Kto cię stworzył?
ODPOWIEDŹ. Pan Bóg.
P. Na co cię Bóg stworzył?
O. Abym Go znał, kochał i służył Mu w tem życiu, a tym sposobem posiadał Go w przyszłem.
P. Co jest Pan Bóg?
O. Jest Stworzyciel nieba i ziemi, i Pan wszechmocny wszech rzeczy.
P. Gdzie jest Pan Bóg?
O. W niebie, na ziemi, i na każdem miejscu.
P. Jeźli Bóg jest wszędzie, czemuż Go nigdzie nie widzimy?
O. Bo jest duchem najczystszym, nie mającym ciała.
P. A czy Bóg nas widzi?
O. Widzi nas i słyszy zawsze i wszędzie; i widzi także najskrytsze myśli nasze.
P. Czy Bóg miał początek?
O. Nigdy nie miał początku, i nigdy nie będzie mieć końca.
P. Kto stworzył wszystko co widzimy.
O. Bóg to wszystko stworzył, a stworzył z niczego.
P. Kto był pierwszy człowiek stworzony od Boga?

— 90 —

(главная книга или гауптбухъ) każdy kupiec używa podług swojey potrzeby i upodobania większey lub mnieyszey liczby xiąg posiłkowych, jako to: *np. xięgi kassy* i t. d.

P. Co dało powód do wynalezienia i zaprowadzenia buchalteryi podwóyney czyli włoskiey (двойная или италіанская)?

O. Kiedy operacye handlowe powiększone stopniami aż do nieskończoności, połączyły różne zamiany wartości, które potrzeba było zapisywać i uważać różne ich obróty; natenczas potrzeba było szukać w rachunku sposobu powszechnego, któryby był odpowiednim rozciągłości handlu i razem prostym i łatwym do zastosowania w kupiectwie, co posłużyło do wynalezienia buchalteryi podwóyney czyli włoskiey, pospolicie włochom przypisywaney.

P. W czém się różni buchalterya podwóyna czyli włoska, od pojedyńczey czyli niemieckiey?

O. W tém, że w buchalteryi podwóyney czyli włoskiey nie tylko osoby, ale każdy przedmiot handlu ma swóy osobny rachunek. Ztąd każda rzecz czyli artykuł przyymuje na siebie postać osoby.

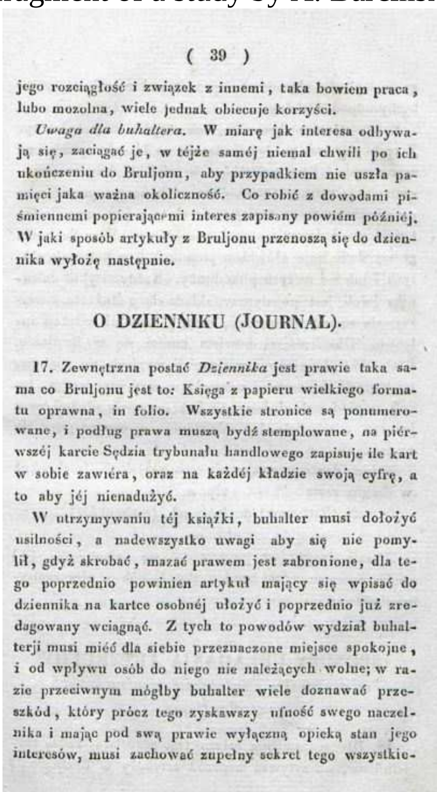
P. Co znaczą w buchalteryi wyrazy kredytować *i* debitować?

O. *Kredytować* znaczy zapisać do rachunku to co się komu należy; *debitować* zaś zapisać co kto winien.

Source: (Zawadzki 1817; Budny 1829).

The comparison of S. Budny's dissertation with other accounting studies from the same period also shows that giving the question-answer form was not a common practice.

Figure 6. A fragment of a study by A. Barciński from 1834.



(39)

jego rozciągłość i związek z innemi, taka bowiem praca, lubo mozolna, wiele jednak obiecuje korzyści.

Uwaga dla buhaltera. W miarę jak interesa odbywają się, zaciągać je, w téjże saméj niemal chwili po ich ukończeniu do Bruljonu, aby przypadkiem nie uszła pamięci jaka ważna okoliczność. Co robić z dowodami piśmiennemi popierającemi interes zapisany powiém późniéj. W jaki sposób artykuły z Bruljonu przenoszą się do dziennika wyłożę następnie.

O DZIENNIKU (JOURNAL).

17. Zewnętrzna postać *Dziennika* jest prawie taka sama co Bruljonu jest to: Księga z papieru wielkiego formatu oprawna, in folio. Wszystkie stronice są ponumerowane, i podług prawa muszą bydź stemplowane, na piérwszéj karcie Sędzia trybunału handlowego zapisuje ile kart w sobie zawiéra, oraz na każdéj kładzie swoją cyfrę, a to aby jéj nienadużyć.

W utrzymywaniu téj książki, buhalter musi dołożyć usilności, a nadewszystko uwagi aby się nie pomylił, gdyż skrobać, mazać prawem jest zabronione, dla tego poprzednio powinien artykuł mający się wpisać do dziennika na kartce osobnéj ułożyć i poprzednio już zredagowany wciągnąć. Z tych to powodów wydział buhalterji musi mieć dla siebie przeznaczone miejsce spokojne, i od wpływu osób do niego nie należących wolne; w razie przeciwnym mógłby buhalter wiele doznawać przeszkód, który prócz tego zyskawszy ufność swego naczelnika i mając pod swą prawie wyłączną opieką stan jego interesów, musi zachować zupełny sekret tego wszystkie-

Source: (Barciński 1834).

Bearing in mind the above comparisons, it can be considered legitimate to specify that both books are structurally similar to religious catechisms. The question whether S. Budny, was modeling his work on W. Pinnock's catechism, deliberately retained this characteristic form, remains unsolved.

Going to the last of the questions asked, one must consider the possible reason for using such form of studies.
Taking into account the historical context and information about the authors, one can accept the thesis that this form was chosen because of two factors:
- The readers were already well acquainted with the form of catechism,
- Emphasizing the meaning of the content.

Considering the first of these reasons, one should recall the close ties of W. Pinnock with the Church in England. In turn, in the case of S. Budny, it is worth noting that the social changes that took place in the Enlightenment Age in Poland and Lithuania were not the same as in the countries of the Continental Western Europe. The local specificity meant that in the Republic of Poland the processes of Catholic enlightenment are recognized (Ślusarska 2012, pp. 175-176), which were characterized by the involvement of intellectual circles in the reform of the church operating on the territory of Poland and Lithuania, and not in processes distancing new trends from religion and church structures. Consequently, in Poland and Lithuania the Enlightenment movements did not undermine the significance of the Roman Catholic Church. Therefore, it can be concluded that the form of the study preserved by S. Budny was widely known and could facilitate understanding of the content contained in the book by its recipients. Another factor influencing the choice of the catechism form could be an attempt to emphasize the content contained in the study. S. Budny, in the introduction to his study, emphasizes the superiority of trade over agriculture and the handicraft industry (Budny 1829, p. I). In addition, according to the author, in 1829 in the Republic of Poland there was still no study on the principles of conducting trade, which would present this issue in a comprehensive manner (1829, p. V) in Polish. Therefore, for S. Budny it became even more important to adopt the appropriate form of the text, which would allow the most common dissemination of the content presented in the book, and thus fill the educational gap identified by the author. A form similar to a religious text could legitimize the knowledge contained in the book and contribute to the acceptance of the statements contained therein.

SUMMARY

The aim of the present study was to present feedback between accounting and religion.

Religion is one of many factors that shaped the current form of the accounting system. However, when considering the impact of religion on accounting, one should also pay attention to feedback resulting in the inclusion of accounting concepts in religious texts, and in the Bible in particular.

Many fragments can be identified in the Old and New Testament containing concepts in the field of accounting, including in particular:
- Rules of keeping accounts,
- Internal control,
- Budgeting.

In turn, an example of the influence of religion on Polish literature in the field of accounting is the study of S. Budny from 1829 entitled "Nauka handlu krótko zebrana" ('Short Textbook of Commerce). The author gave the work a form similar to a catechism, which can be explained by two factors:

- The readers were already well acquainted with the form of catechism,
- Emphasizing the meaning of the content.

The shape of S. Budny's study was also a factor legitimizing the contents contained in it.

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RECENT ADVANCES IN EUROPEAN ACCOUNTING: THE CASE OF ITALY

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Abstract: *Following the implementation of Directive 2013/34/EU (hereafter the Directive), significant innovations have recently been introduced in the European Union countries to prepare the financial statements of non-listed companies. In Italy, the aforementioned Directive was implemented with Legislative Decree no. 139 of 18/8/2015 and applies starting from the financial statements for the financial year 2016. Two years have passed since the first application and it is now possible to analyze the effects of this reform in the Italian context. The purpose of this study is to verify whether the aforementioned reform has brought real benefits, and especially if it has improved the information that can be obtained from the financial statement for decision-making by managers and stakeholders. Through this contribution, the reader can learn: a) the main rules for preparing the financial statements of Italian non-listed companies; b) improve reading and interpreting the financial statements of Italian companies. The method used is inductive-deductive and is based: i) on the analysis of the recent regulatory framework; ii) on the empirical survey, conducted on the financial statements of some non-listed Italian companies, for the four-year period 2014-2017; iii) on the quantitative cost-benefit analysis of the reformed rules. The findings of the research are the sequent. 1) The statement of cash flows, introduced in Italy for the first time by the Directive, provides summary information useful to the reader of the financial statements, but less useful to managers, for whom historical data are not sufficient, because they also need information to plan the future. 2) The evaluation criteria have been made more complex, but in the face of the increased technical and applicative difficulties, the benefit in terms of utility for managers and readers of the financial statement is not commensurate with the effort and resources required. 3) The quantitative survey led to a cost-benefit indicator generally not less than 1 [(C/B)≥1].*

Keywords: *Italian Accounting, Financial Statement, non-listed companies.*

1. INTRODUCTION

On 26 June 2013, the European Parliament and the Council of the European Union adopted Directive 2013/34 concerning the annual and consolidated financial statements of certain types of companies.

As a result of the adoption, the previous Council Directives 78/660/EEC and 83/349/EEC, concerning the regulation of the financial statements and consolidated financial statements of the joint stock companies and other subjects identified by law, have been repealed.

The implementation of the Directive in Italy has made significant changes in the preparation of the financial statements of non-listed companies, in force since 2016 [1] - [2] - [3].

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These innovations are part of the process of progressive alignment of the principles in force in the civil law countries with the IAS/IFRS International Accounting Standards [4] - [5].

It is necessary, however, not to forget that the structure and accounting tradition of most of the countries of Continental Europe are based on two central rules: a) the criterion of *historical cost*; b) the protection of *social creditors*; while the IAS/IFRS accounting principles are based on rules that tend to be opposed, namely: a) the criterion of *fair value*; b) the information in favor of *investors* (current and potential) [6] - [7].

With particular reference to Italy, the reform entailed: 1) the adoption of mathematical-financial techniques and procedures, generally not used by non-listed companies; 2) the support of additional administrative burdens, connected to the most complex rules of drafting of the financial statement.

The purpose of this contribution is to critically consider the innovations mentioned above in order to understand whether they -given the resulting efforts and costs- have effectively contributed to improving financial reporting, both towards managers and stakeholders.

2. METHODOLOGY

The main methods used for this analysis are as follows. 1) Theoretical investigation, which consists of a comparative analysis of the norms prior to the implementation of the Directive with the rules applicable from 2016. 2) Empirical survey, which consists in the analysis of the financial statements of three Italian non-listed companies, belonging to a group of companies, for the period 2014-2017. 3) Quantitative investigation, which was carried out through a cost-benefit analysis (CBA) [8].

3. COMPARISON BETWEEN LEGAL RULES

Among the main innovations produced by the Directive we consider those summarized in Table 1, in which the current legislation is compared with the repealed legislation.

Table 1: Reference legislation

ARGUMENT	***CURRENT LEGISLATION***	***REPEALED LEGISLATION***
Cash flow statement	Required (articles 2423 and 2425 *ter* c.c.)	Optional
Valuation of securities	Amortized cost (art. 2426 c.c.)	Subscription cost and write-downs in the event of permanent losses (art. 2426 c.c.)
Valuation of receivables and payables	Discounted amortized cost (art. 2426 c.c.)	Realizable value (receivables),nominal value (payables) (art. 2426 c.c.)
Valuation of derivative financial instruments	Fair value (articles 2426 and 2427 *bis* c.c.)	Not to account; to be described in the explanatory note (art. 2427 *bis* c. c.)
Extraordinary area of the income statement	Abolished	Present (art. 2425 c.c.)
Memorandum accounts	To be indicated in the explanatory note (art. 2427 c.c.)	To be indicated at the foot of the balance sheet (art. 2424 c.c.)
Recording of own shares	In a negative reserve of net equity (articles 2357 *ter* and 2424 c.c.)	Among balance sheet assets (articles 2357 *ter* and 2424 c.c.)
Recording of research and advertising costs	Only in the income statement	Possibility of capitalizing in the balance sheet
Detail of relationships with sister companies	To be recorded both in the balance sheet and in the income statement (articles 2424 and 2425 c.c.)	Absent
Depreciation of goodwill	According to its useful life (art. 2426 c.c.)	Within five years (art. 2426 c.c.)

4. THE EMPIRICAL SURVEY

The empirical survey was conducted by assessing the impact of the new rules for preparing the financial statements on three Italian non-listed companies belonging to the same group, within which the parent company draws up the financial statements in ordinary form and the two subsidiaries prepare the financial statements in abbreviated form. The period of analysis (2014-2017) was chosen in such a way as to include both financial statements prepared according to the repealed rules, and financial statements prepared in accordance with the provisions in force, as amended by the Directive.

The financial statement data have been re-aggregated so as to highlight in separate lines the main information added by the Directive and those deleted (see Tables 2, 3 and 4).

Table 2: Company A (holding)-Financial statements in ordinary form

ITEM	*2014*	*2015*	*2016*	*2017*
Assets towards sister companies	Absent item	Absent item	166.864	176.702
Assets towards others	105.767.365	104.720.657	104.875.967	106.106.417
Active derivative financial instruments	Absent item	Absent item	0	0
Liabilites towards sister companies	Absent item	Absent item	1.257.401	807.788
Liabilites towards others	24.170.040	17.505.325	10.494.184	11.885.230
Passive derivative financial instruments	Absent item	Absent item	0	0
Net equity	81.597.325	87.215.332	93.291.246	93.590.101
Memorandum accounts	529.166	533.166	Deleted item	Deleted item
Production value	68.534.098	53.001.972	49.543.208	49.346.573
Production costs	66.422.890	53.609.997	50.181.722	49.718.710
Operating result	2.111.208	(608.025)	(638.514)	(372.137)
Result of the financial area	1.212.882	1.014.410	914.428	738.209
Results of operations in derivative financial instruments and with sister companies	Absent item	Absent item	0	0
Result of extraordinary area	100.387	87.762	Deleted item	Deleted item
Income taxes	2.788.497	176.140	0	67.217
Net income (loss)	635.980	318.007	275.914	298.855

Source: Register of Companies of Brescia - Italy

Table 3: Company B (subsidiary) - Financial statements in abbreviated form

ITEM	*2014*	*2015*	*2016*	*2017*
Assets towards sister companies	Absent item	Absent item	Absent item	Absent item
Assets towards others	3.145.148	3.139.755	3.901.004	4.392.534
Active derivative financial instruments	Absent item	Absent item	Absent item	Absent item
Liabilites towards sister companies	Absent item	Absent item	Absent item	Absent item
Liabilites towards others	876.655	682.517	942.509	856.983
Passive derivative financial instruments	Absent item	Absent item	Absent item	Absent item
Net equity	2.268.493	2.457.238	2.958.495	3.535.551
Memorandum accounts	1.430	1.430	Deleted item	Deleted item
Production value	3.181.623	2.476.796	3.404.560	3.579.951
Production costs	2.813.740	2.217.871	2.683.955	2.787.266
Operating result	367.883	258.925	720.605	792.685
Result of the financial area	7.073	7.925	10.793	11.859
Results of operations in derivative financial instruments and with sister companies	Absent item	Absent item	0	0
Result of extraordinary area	4.027	(43)	Deleted item	Deleted item
Income taxes	131.000	78.062	230.141	227.488
Net income (loss)	247.983	188.745	501.257	577.056

Source: Register of Companies of Padova - Italy

Table 4: Company C (sister of the holding) - Financial statements in abbreviated form

ITEM	*2014*	*2015*	*2016*	*2017*
Assets towards sister companies	Absent item	Absent item	Absent item	Absent item
Assets towards others	6.815.363	7.346.193	7.876.923	7.960.491
Active derivative financial instruments	Absent item	Absent item	Absent item	Absent item
Liabilites towards sister companies	Absent item	Absent item	Absent item	Absent item
Liabilites towards others	2.468.607	1.681.125	854.939	848.901
Passive derivative financial instruments	Absent item	Absent item	Absent item	Absent item
Net equity	4.346.756	5.665.068	7.021.984	7.111.590
Memorandum accounts	0	0	Deleted item	Deleted item

Production value	6.457.254	5.134.621	4.862.774	4.156.462
Production costs	5.896.063	4.809.453	3.981.892	4.155.870
Operating result	561.191	325.168	880.882	592
Result of the financial area	38.472	52.290	74.323	114.783
Results of operations in derivative financial instruments and with sister companies	Absent item	Absent item	0	0
Result of extraordinary area	3.126	(123)	Deleted item	Deleted item
Income taxes	389.941	59.023	298.290	25.769
Net income (loss)	212.848	318.312	656.915	89.606

Source: Register of Companies of Brescia - Italy

Finally, in Table 5, we present a summary of the cash flow statement of the holding A alone, for the years 2016 and 2017, considering that before the Directive the document was not mandatory and also considering that companies B and C are still exempt from the drafting of it, as they present the financial statement in abbreviated form.

Table 5: Company A (holding) - Synthetic Statement of Cash Flows

ITEM	*2017*	*2016*
A) Cash flows from operating activities		
Profit (loss) for the year	298.855	275.914
Income taxes	67.217	0
Active interests	(706.424)	(921.500)
(Dividends)	(20.313)	(40.391)
(Gains)/Losses deriving from the sale of assets	(4.082)	(7.813)
1) Profit (loss) for the year before income taxes, interest, dividends and gains/losses on disposal	**(364.747)**	**(693.790)**
Adjustments for non-monetary items that did not affect the net working capital	1.380.157	1.339.244
2) Financial flow before changes in net working capital	**1.015.410**	**645.454**
Changes in net working capital	(1.882.359)	(59.451)
3) Financial flow after changes in net working capital	**(866.949)**	**586.003**
Other adjustments	42.197	(863.744)
Cash flow from operating activities (A)	**(824.752)**	**(277.741)**
B) Financial flows deriving from investment activity	**(4.743.095)**	**(949.844)**
C) Financial flows deriving from financing activities	**0**	**0**
Increase (decrease) in liquid assets (A ± B ± C)	**(5.567.847)**	**(1.227.585)**
Liquidity at the beginning of the financial year	40.775.134	42.002.719
Liquidity at the end of the financial year	**35.207.287**	**40.775.134**

Source: Register of Companies of Brescia - Italy

5. THE COST-BENEFIT ANALYSIS

It is necessary to consider that the technical complexities related to the new evaluation criteria do not emerge from the financial statements; therefore, we propose here a cost-benefit analysis [9] - [10] - [11], based on the information provided by management and by the administrative offices of companies A, B and C.

To this end, the analysis was conducted jointly for the management [12] and for the stakeholders [13] - [14], taking into account that the costs essentially fall on the first, while the benefits may be related to both.

Moreover, given the difficulty of quantifying the variables in monetary terms, reference was made to a physical parameter, expressed in the number of additional hours used to prepare the financial statements and in the number of hours saved thanks to the information provided by the financial statements.

On this basis, the costs are expressed as:
H_e = additional hours employed,
while the benefits are expressed as:
H_s = hours saved.

In relation to management, the greater use of time was absorbed by the activities indicated in Table 6.

In relation to the benefits, they were considered, for the management, in terms of hours saved for taking decisions, while, with reference to the stakeholders, we considered the hours saved in the formulation of an economic opinion on the company, assuming a medium level of knowledge of accounting matters.

Table 6: Hours employed and saved

ACTIVITY (*)	H_e	H_s
Amortized cost of fixed securities	20	2
Amortized cost of working capital securities	20	2
Amortized cost of receivables	1	2
Amortized cost of payables	0	0
Fair value for derivative financial instruments	5	0
Preparation of the cash flow statement	10	10
TOTAL	**56**	**16**

(*) The activity must be understood also as verification of the existence of the conditions for application of the relative criterion.

Therefore the C/B indicator has the following value:
C/B = 56/16 = 3.5.

6. CRITICAL CONSIDERATIONS

The cost-benefit analysis requires considering an additional profile linked to the level of knowledge that -after the reform- must possess the external reader [15] - [16] of the financial statement for the correct interpretation of accounting information.

In fact, in the cost-benefit analysis proposed above, an adequate level of preparation of the interpreter was purposely assumed, such as to prevent the calculation of the hours saved could be penalized by insufficient competence in the matter.

However, it is necessary to take into account the fact that, prior to Legislative Decree 139/2015, the reading of the financial statements required a lower level of knowledge of accounting matters; the financial statement, in fact, was less complex [17] and technically understandable by a greater number of subjects.

In this regard, we recall that one of the primary objectives pursued by the Directive consists precisely in improving the financial reporting [18], in favor of shareholders and third parties.

But, to achieve this goal, we think that it is necessary not only to make the information more sophisticated, but also to ensure that the audience of the recipients able to read them widens as much as possible, rather than shrinking.

On the contrary, I believe that this has not happened because the reading of the new financial statement implies the knowledge of complex evaluation techniques (also of a financial type) which, in many respects, are less intelligible than the previous historical cost.

I refer, in particular, to the following evaluation criteria, which, not by chance, are the same ones that the empirical survey has shown to be more expensive, in terms of time:

1) the amortized cost criterion for the valuation of the securities [19];
2) the amortized cost criterion for the valuation of receivables and payables [20];

3) the fair value criterion for the valuation of derivative financial instruments [21].

The application *sub* 1) of the amortized cost criterion for the valuation of the securities involves numerous operations, among which I mainly remember:

a) the verification of the existence of the conditions for the application of the criterion (for example, the presence of measurable periodic flows);
b) the reconstruction of future flows associated with the security;
c) the calculation of the IRR (Internal Rate of Return) [22];
d) the formulation of the amortization plan of the differential emerging from the comparison between nominal rate of return and effective rate of return.

Similarly, the application *sub* 2) of the amortized cost criterion for the valuation of receivables and payables requires the execution of a series of operations, among which I remember:

a) the determination of the effective interest rate;
b) the formulation of the amortization plan, using the effective interest rate, in place of the nominal one;
c) the calculation of the amortized cost;
d) the application of discounting, in the event that the nominal interest rate diverges appreciably from the market interest rate.

Finally, the application *sub* 3) of the fair value criterion for the valuation of derivative financial instruments is even more complex than the two previous ones.
In particular, the evaluation process is carried out through the following steps, alternative or co-present:

a) application of market prices, for listed derivative financial instruments;
b) application of the market prices of similar financial instruments, in the absence of listing of the derivative financial instrument to be valued;
c) application of generally accepted valuation techniques, in the absence of quotations both of the derivative financial instrument to be valued, and of similar financial instruments;
d) non-application of the fair value criterion where it does not lead to a reliable result.

Therefore, the reader can consciously judge the values of the financial statements only through the knowledge of the variables and of the procedures that led to the accounting results. In other words, it is necessary that the stakeholders know at least: what the IRR is; what is the amortization plan of the differentials between the rates; what is a derivative financial instrument; what are the generally accepted fair value calculation techniques, etc.

I therefore believe that the audience of those who actually have a substantial knowledge of the elements considered above is certainly narrower than that of those who know the meaning of the simplest and least conjectured historical cost [23] - [24].

7. CONCLUSIONS

The examination of the financial statements of companies A, B and C shows how the information provided by the accounting schedules useful for the decisions of managers and stakeholders has not obtained a significant improvement, for the following reasons.

First of all, the main indicators of income and financial performance (ROE, ROI, ROS, financial independence index, etc.) [25] - [26] - [27] remained substantially unchanged, as no further significant indicators could be deduced from the reformed financial statement compared to those that can be derived before the reform.

Secondly, a sort of compensation between added information and suppressed information has taken place: on the one hand, in fact, and only for ordinary financial statements, the changes made by the Directive make it possible to assess the extent of relationships between sister companies and that of transactions in financial derivative instruments; on the other hand, however, they have provoked the loss of information relating to the memorandum accounts [28] - [29] and to extraordinary income items [30] - [31], also for the companies that prepare the financial statements in abbreviated form. For both this information, the reader of the financial statements must also read the explanatory note [32].

Thirdly, it is necessary to remember that the reform introduced the obligation to draw up the cash flow statement, which, even before the Directive, was strongly recommended by the National Accounting Standards [33]. In effect, this document offers stakeholders significant information on the contribution of the various areas of management to increases or decreases in cash and cash equivalents during the year [34], while it presents a different utility for managers who, for decision-making purposes, can certainly draw important data from past management, but must additionally formulate appropriate hypotheses on future management [35] - [36] and on the cash flows that it will be able to produce [37] - [38].

Finally, in relation to the cost-benefit analysis, it is necessary to consider, first of all, the limits of the survey, which is particularly affected by: a) the subjectivity (technical capacity, theoretical and practical preparation) of the editor and the reader of the financial statement; b) the limited size of the chosen sample, which would require a more extensive empirical analysis.

However, the result obtained is far superior to unity (3.5), showing -although in an indicative and symptomatic manner- as the innovations introduced by the Directive have not led to an effective improvement of the financial statement disclosure, in spite of a significant increase in the application complexity and in the technical training required by the preparation of the accounting and extra-accounting tables.

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NEOLIBERALISM, ECONOMIC GLOBALIZATION AND THE NEW INTERNATIONAL DIVISION OF LABOR

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Abstract: *The new international division of labor is based on the globalization of the production, whose creators are the multinational companies that gradually became main factors of the new world economy.*
Even with not similar intensity and in accordance with the different positions that the countries have inside the world system, the transformations were intertwined in the whole system. Their implications regarding to the national economic politics can concisely illustrate through the following insistences and requests: national economies have to open towards the world market; an advantage should be given to the export economy; the efforts of the monetary and fiscal policy should be directed towards decreased inflation and national debt, and maintenance of the balance between the import and the export prices; the rights of the private owners should be clearly defined and invulnerable; the entrepreneurship state sector should be privatized etc.
One of the most noticeable transformations that happened under the influence of the neo-liberal economic globalization is the huge concentration of the economic power in the hands of the transnational companies. The economic globalization is supported by the neo-liberal economic consensus, that is consisted of three institutional news: drastic limitation of the state regulation to the economics, new rules for the international ownership of the foreign investors, innovators and innovation creators that could become intellectual ownership and subordination of the national states to the multilateral agencies such as the World Bank, the International Monetary Fund (IMF) and the World Trade Organization.
The respect of the neoliberal regulations is mostly imposed of the peripheral countries. Even the countries that make the nucleus of the world system, and those whose public debt increases, have consequences from the decisions of the agencies for the financial rating.
The computer technology is possible technology that similar to the conductor's stick conducts from the center in terms of the economic and political power. According to the terminology of globalization, the industrial activity has been described as an efficient substitution of the workers with the machines, and the competition is higher if the workers' wages are decreased.

Keywords: *globalization, neoliberalisam, labor, neoliberal economic consensus*

Technology and the new division of labor

The great reversal in globalization of the world economy, which marks the new technological era - happened in the 19th century. Some believe that exactly this era of technology has led to the key changes in the quality of life. It should not be forgotten that the production grew rapidly, and international trade developed more rapidly under the conditions of a stable monetary system, which was guaranteed by the later deflated gold standard.

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The existing forces continue to speak about every new generation of technological discovery, with the same utopian terminology that describes every previous generation, starting from motor vehicles, flying, electricity, steam drive and clean nuclear energy, which are presented to change from which the breath stops. Today are common is the world's computer networks, which are said to be able to strengthen the community and the individual, while the truth is completely different. The global computer-satellite connection, besides offering fantastic and new weapons for financial speculation, increases the capacity of global corporations, their global enterprise of a few thousands of workers armed with computers to be internally uninterrupted connected, so that momentary changes are achieved with one unique touch of keyboard. Computer technology is most likely a technology that is similar to the conductor steak that dirigues from the center, at least in terms of economic and political power. One thing is crystal clear: today's global industry cannot exist without computers. The technology makes globalization possible in a way that allows an invisible degree of control.

The scientific-technological revolution does not terminologically reflect the far-reaching, the scale and complexity of the changes today and changes in perspective, since it speaks of mutational changes only in science and technology, and in reality works for the world historical fracture, in whose vortex our entire planet is entangled, for the occurrence of the "global village", for the creation of means of communication that make it possible to access all points of the globe in a minute. In this scientific-technological revolution there are epochal changes in a dialectic unity, which are along with all spheres of life and work of the people, and are dictating by the changes in science and technology. Everything is in movement, everything is twisted, the present is shrouded in the past, and the future becomes a reality.

In the meantime, the new types of technology such as biotechnology and genetic engineering set the development framework of a completely new field, enabling the computerization of our genetic potential, the very heart of life. The discovery and creation of new forms of life, from a cell, through insects and animals, to man, leaves deep moral and ethical consequences in the field of agro-culture in third world countries, in ecology and human rights.

Globalization transforms conglomerates and multinational companies into centers of global power, decisive political factors and global awareness creators. According to the terminology of globalization, the industrial activity is described as an efficient replacement of the workers with machines, and the competitiveness is higher if the wages of workers are lowered, in order to dress in the direction of the foreign competitors.

The transfer of technology is not limited to the production of goods but also in the field of services (banking, trade and catering).

Such a division and, in general, such a definition of technology can be noted that it is too tight. The technology is not only produced in factories and enterprises, but in institutes and universities, in public and private laboratories, etc., and in many cases individually (silent, non-codified knowledge). Therefore, it is also transferred with the education of such institutions and the acquisition by those individuals. In general, technology is also in the form of books, articles and reports. Less tangible it is getting with the participation in the scientific and expert gatherings, symposia, etc. with "brain drain" and so on. "Hunting" talents through special bureaus and later the accent is on a particularly specific and well-known phenomenon: the underdeveloped countries "supply" the developed countries with "gray matrix", and for that they do not receive compensation and the “grey matrix” is so necessary in the country from which it is fading.

The commercial transfer of technology takes place mainly in nine forms: foreign direct investments, licensing, franchises, management agreements, marketing agreements, service agreements, turnkey agreements and international subcontracting.

Conclusion

Will the "story" of globalization and technology development be completed like any other "great story" or will it become endless? On this question, some hypotheses can be posed. One of them might be the following:
-As an ideological and theoretical "mega-story" it will experience the fate of the other "stories" that at one time gathered the prevailing spirit of time. Nevertheless, as the living, developmental, best-described world-historical "story" - it is objectively endless.

The most important question about the processes of current technology is: are these processes in the long run acting in the direction of making better international division of labor and destroying poverty and inequality in living conditions between people or in changed forms it leads to an extended reproduction of poverty and inequality?

It is certain that a world-wide strategy deepens the gap between the rich and the poor, increases unemployment and in many cases it spreads absolute poverty - to many countries and nations, and to the world as a whole, bring them an economy of disaster and a growing danger.

The compensation between the new technology and the workers is the most remarkable product of globalization.

From the previous one we can synthesize the following:
In spite of scientific and technological achievements, approximately one billion people in the world live on the "edge of existence". For many in developing countries, the development of technology has not brought the promised benefits. Even countries that have benefited from globalization have many poor and unemployed people, and in many countries the difference between the rich and the poor has increased.

In underdeveloped countries and around the world too many workers are neglected, in trade, finance, technology, exactly in those areas that can help them in the development and reduction of poverty.

Country-level policies are the key to reducing poverty, even in times of globalization.
It is reasonably considered that the allocation of money and the financing of poor countries is a simple but unsuccessful method. Money is transferred through countless non-governmental and governmental organizations and with each diversion they melt into someone's pocket or are extremely inadequately invested. Problems thus remain because they are not resolved by people directly affected by these problems, but by people to whom those problems are rather distant.

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BUSINESS PROCESSES IN TIMES OF CRISIS

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Abstract: *The main part of a company is made of its Business processes. Companies are confronted with major changes in their business environment which are global economic and financial crisis and also a steady increase in the expectations of the company's customers. In this modern business conditions all companies are forced to adapting to modern business, both in terms of demand and supply and all of that in order to stay in this demanding market, which is a major problem for the business. Continuous improvement and Business process reengineering is required nowadays on the modern way of business, especially because this is a time of economic crisis. The main subjects of research in this paper are reengineering and improvement of business processes in times of crisis, beginning with the analysis of the current condition of business processes towards presenting more efficient business operations in the times of the crisis.*

There is demanded a different approach of improving and Business process reengineering in times of crisis than in peaceful business times. The same Business process reengineering which usually gives good results is not appropriate enough for a market which is going through an economic crisis. The target of the reengineering is establishment of changes which are defined and based on the demand and market needs. Additionally, as a subject of research in this paper will be processed the way of increasing efficiency in a particular company during the economic crisis. As well, a mode of improving and Business process reengineering, and therefore what is accomplished by using and applying certain methods.

There is an example in this paper which shows how good results can be achieved and accomplished by using certain methods in the company during the crisis with adequate changes, also the methodology for better business results, method of defining the business process management plan in times of crisis, planning phase and realization of plans was presented. The purpose of this paper is to emphasize the importance of managing business processes, especially during the crisis, and how good plan and organization of processes and employees can help companies to overcome the crisis without consequences and to achieve good results in the crisis period.

Keywords: *business processes, crisis, efficiency, reengineering, changes*

INTRODUCTION

Functioning of any company without business processes can't be imagined. Management of business processes achieves the company's success, efficiency and effectiveness of operations. Today, in a global economy that is under the influence of globalization expanding its market, and thus competition is approaching, many companies are looking for ways to increase productivity and reduce operating costs. The modern organization must set its goals before it successfully decides on the implementation of a strategy for the proper management of business processes. A large number of facts points to the significance of the process. Processes are a set of activities aimed at achieving a particular result that has value for the customer of a product or service user [6]. The process is a set of activities that transform one or more inputs and create an output that has a value for the user [2]. The business process is defined as a series of steps designed to create a product or service. The process is a set of related activities that are undertaken in response to a particular event in order to create an output [5].

What is important for a business process manager is a constant improvement in business processes. Continuous analysis of existing processes, problem identification and the adoption and implementation of strategies and methods are the key to the good business processes and their improvement. It should be noted that improving the process is not the only solution to the problem or a unique way to achieve the organization's results. Although process improvement or redesign can make significant progress in an organization's business, success will not happen unless there is a link between processes with strategies and goals. The strategy is very important and the strategy that will be applied depends on the goal that we want to achieve. When there are problems to be solved, the restructuring of business processes is being analyzed, which helps organizations to return to the beginnings and re-examine the very beginnings of the organization's work. The most important thing about reengineering business processes is the process itself, so the reengineering of business processes focuses on processes, not on jobs, situations, tasks or people.

As already mentioned, business processes are very important for the functioning of one company, and the success and position of the company on the market depends on them. When managing business processes properly, then all the processes and sub processes are constantly analyzed, and there is one continuity in the implementation of changes and improvements that are important to the company itself and the positive results of the business. When this is not the case and when the processes are not working and it is not managed in an adequate way, there is a problem. Typically, the problems of business process mismatches are immediately apparent on business results as reflected in dissatisfaction with customers.

Nowadays, the challenge for managers of modern organizations is to successfully coordinate the activities of these units and utilize their knowledge and business skills for the benefit of the organization as a whole. Very often the work of these business units is not synchronized and in accordance with the mission or purpose of the organization.

In the continuation of the paper the methods of improving business processes will be presented, as well as the methods used in the specific Automobile Company in the conditions of the crisis. The situation and the implementation of the method that will help company to improve business processes will be presented and explained.

BUSINESS PROCESSES, CRISIS AND REENGINEERING

The biggest problem in redefining and improving existing business processes is the current economic theory that when the world economy entered the recession itself, was in crisis, because its existing knowledge fails to explain the causes of the current situation and to recommend solutions for its overcoming. The same applies to the current reengineering theory that is based on the principles of subjective change and improvement of business processes, which as such does not correspond to the character and dynamics of current and expected even more intense future changes. Business process management is a managerial approach that focuses on adapting organizational aspects to the needs and demands of customers. It is a holistic approach to governance, which promotes efficiency and effectiveness in business, encourages innovation, organizational flexibility and the use of high technology [7]. The management of business processes in times of crisis and their improvement and reengineering are of great importance. If a particular company is going through a crisis period, it is important to analyze the existing situation and for which business process activities need changes. After applying the method of improvement and reengineering, it is necessary to record whether progress has been made and whether the processes have been improved and whether as such can affect the company's better performance and efficiency.

Crises are the moment of fracture, the moment when it is understood that it is necessary to make very important decisions and proceed on the basis of them to take action in order to eliminate all the factors that have contributed to the disruption of the normal functioning of the system. Any problem or occasion that arises from a change requires a solution, which leads to a new change, so that the company again encounters a new reality and new problems or opportunities. Problems are constantly there and as long as there are changes, there will be problems and opportunities. The cycle of change and the problem can be simply shown in the following way:

CHANGE → PROBLEM → SOLUTION or CRISIS

The longer company is waiting and delaying the resolution of a problem, most likely the problem will turn into a crisis. In order to solve any problem, it must be understood beforehand, also the understanding of the essence of the problem helps the management of the company that is the one who must implement methods for achieving goals of the company.

Modern business conditions require business organizations to adapt their strategies and business practices. The global economy creates a belief in the equal functioning of business organizations, but also results in stronger competition. On the global contemporary market, the best of the best win, no matter where they are from. The most important reasons for a reengineering of business processes are the rapid changes that are taking place in the world, consumers who are increasingly demanding and competition that is getting tougher. The most important reasons for the crisis are the changes taking place in the world, customers or consumers that are becoming more and more demanding and competition that is becoming even more severe.

Business process reengineering required a complete reorganization of a company based on business processes. This is a radical solution, but it was well perceived by companies that were faced with major problems with regard to competition and change. The goal of reengineering the business processes of each organization is to raise the effectiveness of these activities to a higher level.

The first clear definition for BPR is that this is a fundamental change in thinking and a radical redesign of business processes that are used in order to achieve great improvements in problematic, modern performance measures, such as cost, quality, service and speed [7]. Business process reengineering represents a process of transformation in a radical way in order to achieve great improvements in terms of quality and productivity [1].

Reengineering is done in several phases such as the selection of the process, the team that will carry out the process, understanding the already existing process, planning the process, develop the vision and further communicate the future process and details of the plan and execution actions. This is the way to emphasize influence of the new economic crisis, since business must be modified to the newly emerging situation where production and service processes need to be maximally adapted to new market demands and reduced demand. In this way, reengineering is presented like a fundamental reflection and a radical redesign of business processes to achieve dramatic improvements in critical, essential performance measures, such as cost, quality, service and speed. This definition contains four Keywords: fundamentally, radically, dramatically and processes. The central place in the philosophy of reengineering belongs to processes, and this term refers to the design of the process. The revolution of the reengineering had two main themes: the first is when organization is around the process, and the other is to organize the processes in a superior way. The concept of reengineering is closely related to the need for companies to reinvent themselves. It is a new business model to achieve company's inventiveness. Reengineering has the task of influencing on whole business system of the company in achieving better results on the dynamic jump of business [4]. As already mentioned, reengineering is fundamentally principled, and its program can be implemented in two categories, both at company and process level. At the company level, it means executing all radical and fundamental activities that will include the entire business of one company. It is most often due to the fact that competition is fairly pronounced on the market and there is a need for the implementation of changes to be made by the top management. It implies a series of procedures to be carried out, including the change in the organizational structure, the rewarding process of employees in the organization, the improvement of motivation and the establishment of a stronger organizational culture. At the level of the process radical changes imply in terms of redesigning the basic process and analyzing management that results in defining problems and at the same time eliminating: it implies what processes the company needs to redesign and how the procedure will be performed [9].

Based on the above, it can be mentioned that the reengineering of business processes as a management tool is necessary in order to successfully implement the application of innovations and fundamental redesign of the entire business, all in order to be in accordance with the new business flows.

BUSINESS PROCESS REENGENIRING METHODOLOGIES

The most common methodologies for improving business processes are kaizen, lean and Six Sigma. Depending on the company's activity and its goals, a decision is made which methodology is going to be in use.

Lean is a production philosophy that, when implemented, shortens the time from the customer's order to the delivery of the finished product, eliminating all sources of waste and losses in the production process. The basic principle of Lean production is to produce exactly what the customer wants, both in terms of quality and quantity, which is dictated by the market.

Six Sigma is a business strategy which was developed by Motorola in USA in 1986. The goal is to improve the quality of final products by defining and eliminating the causes that lead to errors, thus minimizing variability in production and business processes [8].

Kaizen implies the constant improvement production business processes and management. Kaizen is one of the most suitable methods of continual improvement. It enables incremental process improvement, and it is also inexpensive and flexible. At the same time, it provides the ability for employees to respond quickly, effectively and efficiently to all the changes in turbulent and complex business environment. Kaizen is today recognized as a world movement with the aim of eliminating all forms of wasting and economical resource use in production and service processes. In the Kaizen project people are the key to success, so it is important to support the process. Therefore, it is important to explain to employees what is expected of the improvement process and what their mission is [3].

The Kaizen methodology was used on a concrete case of a car company which is being in a financial crisis. Employees are the key of a change; in this case, they have worked as a team, have changed a continuous way of doing business and thinking which have not brought positive results. Education and trainings helped out to all employees to implement the Kaizen approach.

When it comes to selling new cars, the problem in the automotive industry has arisen in the last few years because of a concern about the cars as a source of air pollution. Standards of air pollution were increased recently.

Consequently, the set-up of E6 engines that are not suitable for customers contributed to this, as they require significantly more expensive maintenance. Regulations of air pollution in the EU, which is related to cars, have existed since the 1970s, and have since continually been tightened, so that from the Euro 1 standard in 1992. the Euro 6 standard has been in force since 2014. All diesel vehicles have significantly reduced the emissions of nitrogen oxides after that regulation was set up. The emission of harmful gases is limited to 80 mg / km, which is more than 50% less in comparison to the Euro 5 standard.

The increase of Euro standards brought many problems. During the survey, the director of a car-servicing company was interviewed. He is directly informed about contemporary issues, developments and problems as well. The demand for new cars grows with the increase of a living standard and individual capabilities and cultural specificities in each country. As mentioned above, the legal standards prescribe the production of vehicles which have the most modern technology that fits to required standards, and this directly affects on the production of vehicles, as well as the costs of installing special filters that purify harmful gases by retaining particles of soot and other modern devices which reduce the emissions of harmful gases. All of this implies on a final product price increase, which consequently has the effect of reducing the demand for cars, and this leads to a reduction in the number of employees in the automotive industry. GDP is also reduced, and public consumption of other goods and services is reduced, so the overall economic capacity is reduced.

AUTOMOTIVE INDUSTRY IN CRISIS

The main subject of this paper refers to the automotive companies in crisis, due to the decrease in cars sale, which was influenced by several factors. It also presents the company management, whose director was interviewed, that has found the solution for improvement of business processes. These changes in business led the company to better results. The main part in the implementation of reengineering are employees, so the management decided that there won’t be dismissal of employees or cutting down salaries, even though the volume of work was reduced and the costs of work have increased. Instead, they made a resolution that all employees will work one hour longer every day, and they also started working on Saturdays. Before this resolution, only half of the all employees have worked on Saturdays. This resulted in more work assignments being done, and employees working more effectively as a team, making the right decisions for the company to improve its position on the market.

The first step was to define the problem with sales and customer service that was causing reduced car sale and providing services. In addition, they needed to find out what the reason for the customer complaints are and what makes them unsatisfied. The next task was to identify problems in production, what are the most common issues and how can they be solved in order to reduce clients' dissatisfaction and the number of complaints. After that, all of the elements were analyzed in order to conduct reengineering in this process. In the final phase, there were implementation and control, implementation of improvement and prevention of possible failures that could possibly cause much bigger problems.

From the sales point of view, the budget disposal decisions were made. It has been decided to invest in a marketing strategy on a regional level with the support from a general distributor who dictates the rules. Besides advertisements and promotions, well-known people from the automotive industry are engaged to promote cars, in order to attract new customers. Also, the company introduces the offer – selling old one for the new one – so the owners of a car with the E5 engine got a discount on a new car with the E6 engine, in order to improve the sales. Legislation in the EU had forced citizens to adapt and to buy new cars that are in line with the law and regulations.

According to the latest legal standards, the current Euro standard is 6.2. The challenge is big, but it's not new, because these are the standards for climate protection. Until recently, internal combustion engines were one of a kind technology, including diesel engines in order to achieve a European standard target of 95 grams of CO_2 emission from 2020/2021. According to the recently available information, a petrol engine with a SCR catalytic converter is produced, which requires the injection of fluid UREA and DPF filter, which require the addition of a certain DPX liquid after passing the prescribed kilometers. In the long term, the responsible ones in that area agreed that more battery-powered electrical will occur, as the before mentioned system is extremely sensitive to the smallest changes, and as of the reports that the Euro standard has not been reached yet.

Companies that are directly dependent on the automotive industry and produce raw materials and parts that are necessary for the production, have a major problem. Such enterprises (not only in the car industry, but also small and medium-sized enterprises as well) are the heart of the economic development and prosperity of national economics. They do not produce, do not hire, do not take loans, guarantees, credit lines, and do not even earn money. In each country, economic development slows down to a complete stop. That is why governments of the crisis-hit countries inject billions into the car industry recovering [10].

However, due to the overall situation, various scandals have arisen, even falsifying the values of harmful exhaust gases. The subject of the investigation is a well-known car company which has launched cars with software for manipulating the measured values of exhaust gases, which was discovered by monitoring the car's operation during a few hours. In the first few hours, the car produces allowed amount of harmful substances, while after a certain time the value of the pollution raised that much that it fits to Euro 4 standards.

CONCLUSION

This paper is about business processes and their improvement in the state of crisis. Business processes, as an integral part of each organization, represent the foundation of existence and business. Proper business process management achieves positive business results, minimizes operating costs by making efficient use of available resources and improving processes, while continuously innovating and delivering top quality products for the most important clients by adequate employee, which would result in an increased revenue and profit for the founder's and employees' satisfaction as well. The requirement for the business process reengineering during the crisis is explained, as well as what crisis and changes bring with them.

Certain case of the Automotive company during the crisis is researched for this paper, and the research shows how business process management works and moreover the importance of the company's management's right decisions. This includes implementing adequate strategies for meeting certain goals. Some of the solutions to overcome the crisis are training for all employees, increasing the work hours, as well as introducing working Saturdays. Employees still have the same salary, but they spend more time at work using it to design the best solution and strategy for further business. All of this is to avoid firing people. Despite of the same salary, employees feel necessary, important and significant because they participate in making big decisions about their company's business. One of the changes is also that a bigger budget is set aside for advertising. The market is being surveyed and a target group is determined. They decided that the targeted audience is younger population, so a well-known personality that's a model and an example in eyes of the young people was engaged in advertising.

As one of the main causes of the crisis in this industry is the change in the air pollution standards for vehicles, the biggest problem is customer dissatisfaction caused by formed change in standards and regulations. New legal regulations have significantly increased the cost of car maintenance. Owners of the cars with E5 and lower standard engines are already influenced because they own relatively new cars that are threatened by the ban and very high maintenance costs, which means that they will eventually have to replace those models with newer ones, that have even higher maintenance costs because of the requirement of the fluids that are indispensable for achieving certain Euro standards.

Better business management has achieved by making changes in the working teams, staff training, and even increase in working time has contributed to improvement. Marketing was done the right way and it attracted a specific targeted group of younger people. The main problem is the new standard, but this is the legal rule and neither the company nor an individual can revise much. The company has offered subventions like replacing the old cars with new ones as well as offering discount on new cars.

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SOCIOCULTURAL AND ECONOMIC IMPACTS OF EVENTS ON LOCAL COMMUNITY

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Abstract: *The number and variety of events have increased significantly in recent years. People, who want to participate in events, are able to find a wide opportunity to select the events regarding their preferences, tastes and interests. On the other hand, growth in event industry causes negative and positive impacts on local community, visitors and environment. Events are the organizations to influence a huge number of people about political, economic, environmental, cultural issues and particularly raise awareness and create sensitivity in specific issues and influence their lifestyle. To provide an effective impact on local community and educate them with the aim of events, smart sustainable event design is needed and plays crucial role. Therefore, it is important that organizers should improve sustainable design in event planning process which considers people, planet and to reduce negative impacts for sustainable development. This paper reviews the available literature on events and sociocultural and economic sustainability and to provide context. The purpose of this paper is to understand why sustainability should be implemented into events. This study explores the impacts of sociocultural and economic aspects in events that could promote sustainability.*

Keywords: *Sociocultural sustainability, economic sustainability, local community, events*

1. INTRODUCTION

As events and festivals become increasingly popular, research interest in their economic and sociocultural impacts on host communities and abroad has grown substantially. While researchers that explore the economic impacts of events are mostly interested in the economic benefits and opportunities that events provide with the host communities, researchers that investigate the sociocultural impacts of events and festival are mostly interested in understanding the perceptions of host communities about the staging of events and festivals. Research in this area can be split into some categories firstly by regarding the types of impacts being considered -i.e., economic/sociocultural, secondly by the nature of events -i.e., cultural/sports events, and, finally, by the width & scope of events -i.e., large, global events/small, local events. Studies that measure economic impacts of events usually report the calculations of costs and benefits of events on the host community, job creation opportunities that come from event hosting, financial investments that are made on event locations and so on. Studies that investigate the sociocultural events, on the other hand, usually measure the enhancement of the host city's image in the world and national pride and the sense of cultural cohesion felt by host communities. This paper explains major methodological approaches to the study of events from the economic and sociocultural perspectives. This study summarizes the findings of some studies that are conducted on the economic/sociocultural impacts of large/small, cultural/sports events.

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2. METHODOLOGICAL APPROACHES IN THE STUDY OF ECONOMIC IMPACTS OF EVENTS

There are two major methods that are used by researchers to measure the economic impacts of events [1]. These are input–output modelling (I-O), and computable general equilibrium (CGE) modelling. I-O modelling tries to represent the bulk of effects that are caused by an initial demand shock. Despite the fact that it is the most widely used method to measure the economic impacts of events, there are some researchers who contend that I-O modelling exaggerates the impact caused by the initial change in demand [2]. It has been argued that CGE models represent the behaviors of key stakeholders in an economy more realistically than I-O models [3]. Accordingly, it has more realistic assumptions about the economical structure and it can generate more realistic results than the I-O model.

2.1. ECONOMIC IMPACTS OF LARGE CULTURAL EVENTS

A study that utilized the I-O method has assessed the economic impacts of events that ensued the declaration of Spanish city Salamanca as the European Capital of Culture in 2002. The study has found that the overall economic impact of events has been €701.5m [4] of which, 61.99% has been related to the event itself, “understood as a concrete cultural creation and its associated consumption”; and the remaining 38.01% has been related to the new cultural establishments and equipments meant to the use of tourists. The authors concluded that, aside from the cultural and social benefits, there are many economic benefits to be gained from organizing such a festival.

Another study has examined the economic impact of Sundance Film Festival 2017 on the host state Utah’s GDP, employment, wages, and state and local tax revenue [5]. It has found that 71,600 people (52% of which were from out of the state) attended the festival. Out-of-state attendees spent approximately $124 million in Utah during the festival. The festival has contributed $151.5 million to the Utah GDP in total. It has created 2,778 job opportunities for the residents of Utah. It has generated $79 million in Utah wages. And, finally, the state and local tax avenues were up to $14 million in total.

It seems that, when we take these two studies into consideration, we can comfortably conclude that large cultural events most often brings clear economic profits to host communities.

2.2. ECONOMIC IMPACTS OF SMALL CULTURAL EVENTS

A study that examined the economic impacts of Finland’s Kaustinen Folk Music Festival on total output, demand, wages, employment, national and regional taxes has found that this event contributed to the local economy by varying degrees on all areas that have been considered [6]. For example, while the study have found out that the festival can be a good investment for the local municipality which has generated ₠65,600 in the year the study conducted, a significant rise from ₠40,365 in other years, the festival has only employed 27 people from the community, which is a low number.

Another study from the researchers at University of Central Florida has measured the economic impacts of annual Zora! festival on the local community of Eatonville [7]. It has found out that a money input of $372,175 from festival attendees circulated to become $767,179 for local community when the multiplier effect was taken into account. As this was an annual event, the authors noted, a similar amount of income would likely to be generated in the following years.

The authors have also offered some other ways to generate income such as holding a farmer's market in the festival area to encourage the development of economy of Eatonville.

Taken together, these findings suggest that there are many economic benefits to be gained from holding even small cultural events and festivals.

2.3. ECONOMIC IMPACTS OF LARGE SPORTS

A paper assessed the economic impact of the 2008 Beijing Olympics using the CGE modelling [8]. While the findings showed that the event brought economic benefits to the local people, the contribution to the Beijing economy was small compared to the total GDP of Beijing. More specifically, the Beijing Olympics estimated to have brought welfare gains of $119 million from Olympic International and $59 million from national visitors in 2008. Considering that the total GDP of Beijing was $178 billion for 2008, the event only accounted for 0.1% of the GDP of Beijing. However, it should be noted that this paper only examined the event tourism expenditures, other expenditures and investments were specifically excluded. The authors concluded by pointing at future studies that might examine the other demand shocks brought by the Beijing Olympics such as investment on construction and infrastructure related to the event.

An earlier study has examined the economic impacts of 2002 FIFA World Cup in South Korea using the I-O model [9]. Calculating the portion of tourists not related to the event, the researchers have found that 57.7% of tourists during the event were either directly or indirectly came for the World Cup. Using this data, the researchers have found that the economic impact of the World Cup has been $1.35 billion of output (sales), $307 million of income, and $713 million of value added for South Korea. Furthermore, it has been found that the foreign tourists attracted to the World Cup has spent 1.8 more compared to the non-event related foreign tourists, suggesting that organizing a major sports event yields more economic profit than attracting tourists otherwise.

Unsurprisingly, large sports events generate a lot of income. However, if we count the total income as a percentage of the total GDP of a major city, it seems that the figures for additional income generated by major sports events don't look so impressive.

2.4. ECONOMIC IMPACTS OF SMALL SPORTS EVENTS

A recent study assessed the economic impact of World Cup ski-jumping events in Norway during the winter of 2012-2013 [10]. The study found that the overall economic impact of World Cup events in ski-jumping was less than NOK 9 million. Although the event was international, the impact on the region's economy was modest. Considering the fact that most stakeholders who promote hosting events put arguments stressing the economic benefits of hosting events researchers argue that not all events "pay off" as such, and those stakeholders should consider new arguments other than economic ones when promoting an event. These arguments may instead focus on intangible benefits of hosting events such as civil pride and community integration that may be felt from hosting events in the region.

An earlier study from the UK has examined the economic impacts of four small-scale swimming events [11]. Results suggested that if secondary expenditure options are available during the event, the event has the potential to generate indisputable economic benefits to the host community. Specifically, the study has found that a total of £80,000 was generated over 8 days of competition, though the total income was distributed unevenly between each day. While commercial accommodation was the single most important factor of the expenditure, food and drink, shopping and souvenirs were also responsible for some portion of the total expenditure.

Apparently, these two studies suggest that small scale sports events don't provide many economic benefits for the host community. The most benefits that can be obtained may be found in sociocultural benefits of these events.

3. METHODOLOGICAL APPROACHES IN THE STUDY OF SOCIOCULTURAL IMPACTS

One model researchers mostly use to measure the cultural impacts of events is Festival Social Impact Attitude Scale (FSIAS) [12]. This model focuses on (1) identifying the impacts by using the perceptions of residents and (2) the deliberation on the cultural benefits for the host society. Another prominent model that researchers use is Social Impact Evaluation (SIE) [13]. Researchers measure the social impact by grouping it into five different categories: impacts in community, leisure, infrastructure, health and safety, and cultural impacts [14].

3.1. SOCIOCULTURAL IMPACTS OF LARGE CULTURAL EVENTS

One interesting study has looked at the sociocultural impacts of the events that ensued the declaration of Liverpool as the European Capital of Culture in 2008 on the socially marginalized communities [15]. Using quantitative and qualitative data from four neighborhoods in Liverpool, the researchers found out that there were three aspects of sociocultural impacts which could enhance the quality of life of the host communities: participation and interest in cultural activities, accessibility and inclusion effects of cultural events, and enhancement of sense of local identity.

A more recent study has looked at crosscultural differences in locals' attitude toward large-scale music festivals in Serbia (Exit Festival) and Hungary (Sziget Festival) using the Festival Social Impact Attitude Scale (FSIAS) [16]. The results suggest that national culture significantly influences locals' perception of festivals.

To sum up, while national culture significantly influences the host cultures' perception of large-scale events and festivals, there are many sociocultural benefits to be gained from hosting a festival or event.

3.2. SOCIOCULTURAL IMPACTS OF SMALL CULTURAL EVENTS

One study from Turkey examined the validity of FSIAS instrument, as well as measured the locals' perceptions of the Foça Rock Festival [17]. Researchers have found out that (1) when convergent and discriminant validities of FSIAS are achieved, the construct validity is achieved, and (2) locals perceived the social benefits of the festival positively. However, negative social impacts reported by residents included the increase in traffic congestion, pedestrian traffic, ecological damage, garbage and overcrowding.

Another study focusing on the sociocultural impacts of small cultural events on rural societies offered moving the discussion of sociocultural impacts from the negative/positive categorization to a discussion that recognizes differing social constructions of those impacts or the "shades of gray" [18]. Accordingly, the article stressed that there is a lack of a quantifiable social impact tool that assesses themes such as trust and respect, breaking down social barriers, releasing stress and tension, forgetting hard times, being affiliated with success and so on.

3.3. SOCIOCULTURAL IMPACTS OF LARGE SPORTS EVENTS

A study measured the pre- and post-event perceptions of residents toward a major sports event called 2007 Tour de France in Ghent [19]. Results showed that residents' perceptions changed over time. Whereas cultural and city-image benefits in pre- and post- tests showed that these benefits increased residents' willingness to hold the event in the future, excessive spending and mobility factors diminished it.

A study that tried to capture residents' perception of Beijing 2008 Olympic Games reached at similar results to the ones that have been just mentioned. More specifically, Zhou and Ap (2008) [20] found that the majority of residents perceived the impacts of 2008 Olympics very positively especially in areas that are related to the social-psychological, urban developmental, and economic developmental factors. However, residents' perception toward some social life impacts, especially overcrowding and higher prices, were mixed. While some respondents reported to have embraced the negative impacts such as these, others just tolerated them.

3.4. SOCIOCULTURAL IMPACTS OF SMALL SPORTS EVENTS

A 2011 study analyzed Barbadians' perceptions of the impacts of International Cricket Council (ICC) and Cricket World Cup (CWC) 2007 on Barbados [21]. Analyzing pre- and post-perceptions of the Barbadians on hosting ICC and CWC together, researchers found that while Barbadians perceived it as a benefit to have a venue for cultural exchange, to gain economic benefit and cultural development; most Barbadians conceived the increase in traffic congestion and pollution, price and construction costs negatively. While most Barbadians expected that the costs of hosting CWC would outweigh the benefits, they reported that benefits outweighed the costs in post-perception tests.

The final study in this review focused on the tourism-related behaviors of fans who followed the University of Florida football team in the fall of 1999 [22]. While the surveys showed that fans mostly spent money on food and shopping when attending the games, their main motivation was to see the game. Main sociocultural impacts of following their team were observed to be the positive sense of being good fans, being "pilgrimages to the Mecca of Gator (the name of the football team) football". The authors also noted that the fans were more likely to engage in traditional tourist behaviors when not attending the games.

4. CONCLUSION

As the number and variety of cultural and sports events increase day-by-day, so does the research interest in their economic, sociocultural, psychological, urban-developmental impacts. Research that focus on the economic impacts of cultural and sports events mainly point at their benefits that reflect in host communities' total GDP, employment opportunities and increased investment. Researchers who investigate the sociocultural impacts of events, on the other hand, mostly reach at results that show that hosting a festival or event fosters community cohesion, local belongingness, and also their ability to create venues for cultural exchange. However, not all research shows positive economic and sociocultural impacts of events and festivals. For example, most residents surveyed in summarized studies complain about increased traffic congestion, overcrowding and increased prices. While these negative impacts are mostly offset by positive impacts of hosting events and festivals, it is clear that policy makers and public officials should take host communities' perceptions about events into account when organizing future events.

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ENTERPRISE INNOVATION - KEY FACTOR FOR MANUFACTURING INDUSTRY 4.0

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Abstract: *The experience of developed countries demonstrates that sustainable growth is not possible without a high degree of innovation of firms, branches and economic sectors. According to Eurostat data and the European Commission's expert reports, Romania has failed to overcome the "modest innovation" stage in the last 15 years, being included in the cluster with the lowest innovative performance, although innovation has been included as a determinant of development economic and social, in all the strategies developed in recent years, both in the EU and in Romania. Romania's innovative performance, as measured by the Synthetic Innovation Scoreboard, recorded low values compared to all member countries. Under these conditions, the transition of Romanian companies to industry 4.0 will be more difficult.*

The article presents the results of a comparative study between Romania and the EU, having as central elements: types of innovation, product and process innovation, innovation activities and expenditures, organizational and marketing innovation in product and process innovation, public sector procurement and innovation, licensing, barriers to innovation and benefits due to innovation. The study also led to the identification of the main causes that led to Romania's modest position in terms of innovation. Starting from these, have been developed solutions to increase the level of innovation in Romanian enterprises.

Keywords: *industry 4.0, innovation scoreboard, Romania*

1. INTRODUCTION

Industry 4.0 is a significant transformation of all industrial production by unifying digital technologies and the Internet with conventional industry. In Europe, the concept was launched and supported by Germany through government programs [1]. In the US, the often-called "Smart Manufacturing", China is "Made in China 2025", and Japan "Innovation 25" [2]. States are proposing to develop an industry that launches products faster, increase flexibility and increase resource efficiency through digitization and innovation.

2. RESEARCH ORGANIZATION

The subject of the paper is innovation as a key element of the transition to Industry 4.0. The literature offers different models that address innovation systems with aggregated regional data Baumert (2006), Navarro (2007), Pellitero (2008), Institute for Industrial and Financial Analysis (2013), Regional Innovation Scoreboard and others [3]. Another orientation of these researches is at national level. Some studies have attempted to develop an innovative capacity indicator to the national level as: Technology Achievement Index (UNDP, 2002), Technology Index (WEF, 2003), Indicator of Technological Capabilities (Archibugi and Coco, 2004),

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MERIT Institute in Maastricht (EIS) and others [4][5].

As a benchmark for organizing research, Innovation Union Scoreboard (IUS) was chosen to help monitor the implementation of the Europe 2020 Innovation Union strategy. For this purpose the IUS provides a comparative analysis of innovation performance in EU countries, other European countries and regional neighbors. It assesses relative strengths and weaknesses of national innovation systems and helps countries identify areas they need to address [6]. The overall objective of the Scoreboard is to provide information on innovation policies at national and EU level, by tracking progress in performance of innovation within and outside the EU, as compared to other countries (Iceland, Israel, Turkey, and Ukraine).

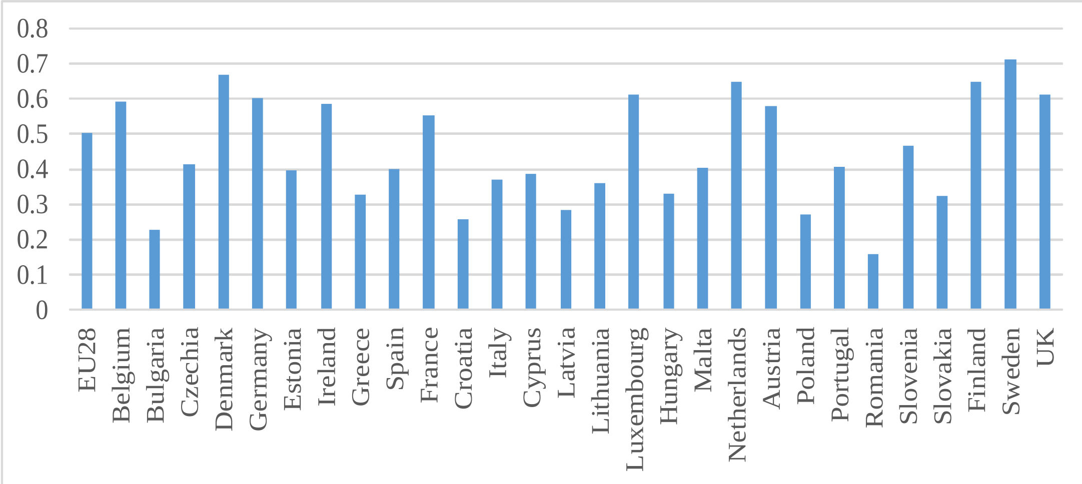
The EU continues to improve its position relative to the United States, Japan, and Canada. However, China is catching up at three times the EU's innovation performance growth rate. Within the EU, innovation performance increased in 18 countries and decreased in 10 countries since 2010. It can be said that innovation performance has improved overall in the European Union over the last eight years. Globally, the EU continues to be less innovative than South Korea, the United States and Japan, but the performance gap has become smaller. The EU still has a considerable advance on many other countries, including China. Starting from this instrument, considered representative for European states and beyond, the study was organized as follows:

- determining Romania's position compared with all EU member states from the point of view of innovation, in the period 2010-2017;
- calculating deviations of Romania's position, in absolute and relative amounts, compared to the EU states, each year of the analysis period;
- establish causes that led to Romania's modest position during the analysis period. The study was conducted for each dimension taken into account by the indicator;
- find solutions to increase innovation in Romania for each dimension and criterion.

2.1. The general context of innovation in the EU. Based on the synthetic indicator of innovation average performance, Member States are grouped into four different performance groups:

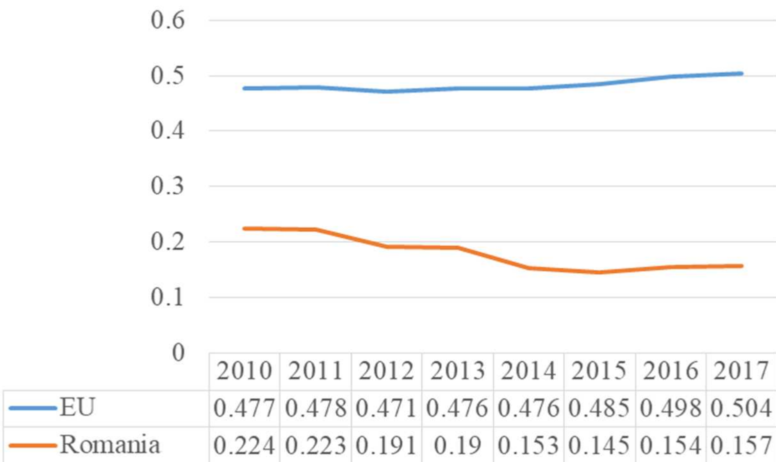
- Sweden, Denmark, Finland, the Netherlands, United Kingdom and Luxembourg are „innovation leaders” whose innovation outcomes are well above the EU average;
- Germany, Belgium, Ireland, Austria, France and Slovenia are „strong innovators”, with innovation performances above or close to the EU average;
- Czechia, Portugal, Malta, Spain, Estonia, Cyprus, Italy, Lithuania, Hungary, Greece, Slovakia, Latvia, Poland and Croatia are below the EU average. These countries are „moderate innovators”;
- Bulgaria and Romania are „modest innovators” with innovation outcomes significantly lower than the EU average (Figure 1).

Figure 1: Innovation Union Scoreboard 2017 [7]



2.2 Innovation in Romania. Taking into account the 28 EU member states, Romania ranks 28th as can be seen in Figure 1. Moreover, Romania is on a downward slope, the difference from the EU average is increasing (Figure 2). The score of Romania is 2.4 times lower than the EU average. As early as 2013, according to the European Commission, the main challenge for Romania was low competitiveness [8].

Figure 2: Innovation Scoreboard in Romania and EU [7]



While the EU28 average annual growth of +0.3% over the period 2010-2017, Romania has an average annual growth rate of innovation performance of 0.9%. Evolution over time shows that Romania has departed from the European average, over this period, now reaching its 31,15% of the Union average value as innovation performance. Nor are prospects encouraging for Romania, even if growth is forecasted. Overall, the EU wide innovation index should grow quite strongly, with about 2.5% within two years. For Romania, an increase is estimated from 0.180 to 0.188, below the European average [9].

The European Scoreboard quantifies three main types of indicators and ten dimensions of innovation, with a total of 28 different indicators. The organization of the research required the details of each dimension and each criterion. Statistical data was analyzed to identify the causes that led to current outcomes. Starting from these, solutions have been developed to be implemented in the economic environment, so that Romania can improve its position. Of the 28 criteria selected in the methodology for index setting are presented below the most consistent ones (Table 1).

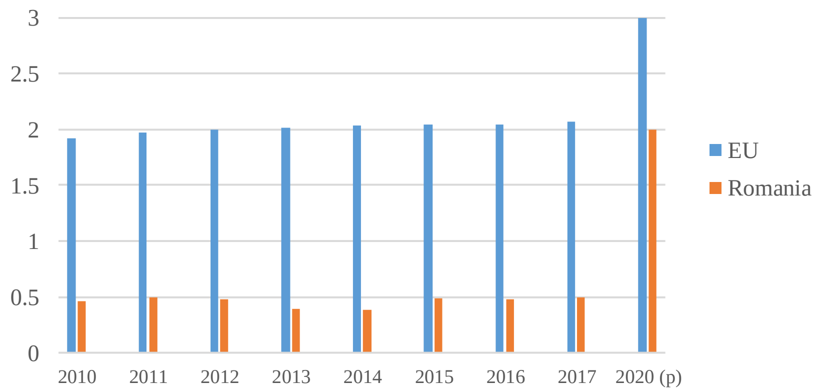
Table 1: Summary innovation index for Romania [8]

Dimension	Performance relative to EU 2010 in		Relative to EU 2017 in
	2010	2017	2017
Human resources	40.7	22,5	18,8
Attractive research systems	22,8	29,7	26,1
Innovation-friendly environment	81.1	96.8	72.3
Finance and support	48.3	22,4	20,8
Firm investments	64.9	13,3	11,9
Innovators	39,1	0.0	0.0
Linkages	53.7	38.1	37.7
Intellectual assets	8,6	22,5	22,3
Employment impacts	18,8	34,7	34,6
Sales impacts	83,4	66,6	64,0
Summary innovation index	**46.9**	**32.9**	**31.1**

2.3 Causes of low innovation in Romania. The detailed research of each chapter of the index composition has identified the following causes:

a) The R&D sector in the country is under-dimensioned due to low funding. In Romania, research and development per capita is spent almost 18 times less than the European average. On the other hand, demand for research and development is low, insufficient stimulus and insufficient stimulation of other economic sectors. The R&D sector proves to be poorly connected with both the business environment and the public in general. Romania is ranked last among EU member states in terms of R&D spending, slightly below 0.5% of GDP, well below the EU average as in Figure 3. This major strategic error is likely to compromise our chances of moving towards a production with a pronounced innovation and greater added value.

Figure 2: Gross domestic expenditure on R&D (GERD) in Romania and EU [8]



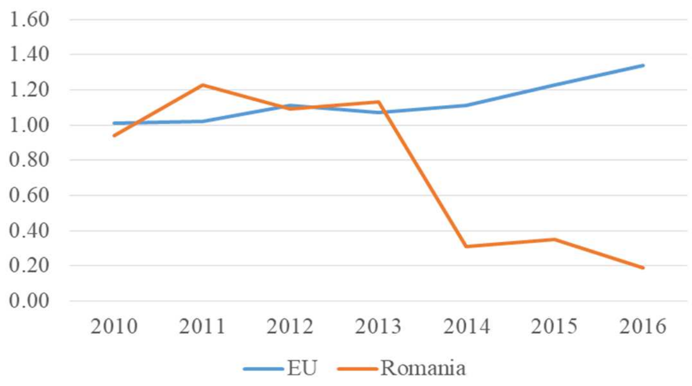
b) If international standards or domestic needs are considered, Romania does not have enough researchers. There is a lack of critical mass of human resources for the development of promising areas and, in particular, for interdisciplinary research and innovation. The number of business researchers is declining, and large companies with subsidiaries in Romania are reluctant to develop local research centers and to include specific activities as research and development activities (Table 2).

c) Inter-sectoral mobility is limited, having an unintended impact on the circulation of technical knowledge and innovation. Private sector access to public research infrastructures is difficult; services are limited and low use.
d) Limited marketing capacity of Romanian research and innovation results. The level of entrepreneurship, especially innovation-based is low.
e) Lack of fiscal facilities or their lack of knowledge by Romanian entrepreneurs.
f) Difficult access of SMEs to private financing sources, including private equity. The banking market does not sufficiently support entrepreneurial risk, much less on innovation. In addition, the tax environment seems unattractive for innovative startups and for investment funds that would offer support to these companies.
g) Romania continues to be below the European average in terms of intellectual property indicators. Part of this is also reflected in poor business research investment, including multinational companies.
h) The absence of an adequate number of professionals within public research organizations is a challenge in transferring technology and knowledge between public and private spaces.

Table 2: Total R&D personnel [7]

Year	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
EU	2541885	2612978	2670842	2712861	2778532	2886057	2961951	3045484
Romania	26171	29749	31135	32507	31391	31331	32232	32586

Figure 3: New doctoral graduates per thousand population aged 25-34 [7]



i) The access of doctoral students and recent doctors to research careers remains limited, as is the exchange of research staff between public and private organizations. Among the worrying developments is the modest presence of foreign researchers in the Romanian, along with the diminishing proportion of researchers among the employees of the private environment (Figure 3).
j) The presence on the international markets of the innovative products produced in the country and the global opening of the national R&D market depends on supporting the affiliation or participation of the Romanian organizations to the regional, European or international initiatives, bodies, programs or infrastructures.
k) Under these circumstances, innovation is not a central factor in economic and social development in Romania. This is why innovation has to become one of the indispensable concerns of the scientific environment that, by leaning on it, will seek to find appropriate ways of addressing regional challenges.

2.4 Solutions for increasing the level of innovation in Romania. After identifying the previously synthesized causes, specific solutions were generated, most important being:

a) Increasing the competitiveness of the Romanian economy through innovation. The objective is to support the performance of economic operators on global value chains. It is necessary to move from cost-based competitiveness to innovation-based competitiveness. This implies developing firms' ability to absorb state-of-the-art technology, adapt these technologies to the needs of the markets they serve, and develop technologies or services that enable them to progress on value chains.

b) Achieving by the year 2020 the critical mass of researchers needed to transform innovation into a factor of economic growth by ensuring a rapid and sustainable, numerical and qualitative development of human resources in research, development and innovation.

c) Increasing the Romanian contribution to the progress of frontier knowledge. The strategy supports the increasing international visibility of research and experimental development in Romania. The R&D activities at the frontier of knowledge imply the formation of a critical mass of researchers in the most promising areas, maintaining the advance in niche areas, where Romanian research already has comparative advantage.

d) Create a stimulating environment for the private sector initiative through tools for entrepreneurship and the marketing of results.

e) Support smart specialization by concentrating resources in areas of research and innovation of economic relevance and potential R&D demonstrated such as: IT security, Big Data analysis, M2M solutions and Artificial Intelligence.

f) To concentrate a significant part of innovation activities on society issues, to develop the capacity of the public R&D sector to request and adopt research results and to address issues related to the global challenges of importance for Romania [10].

g) Developing high performing research organizations capable of becoming regional and global operators by stimulating the R&D system defragmentation, focusing resources and prioritizing their allocation.

h) Venture capital and guarantee funds can activate the banking sector to support innovation, also leading to behavioral changes among economic operators. For this purpose, “minimis” aid schemes, seed equity capital for innovative entrepreneurs, venture capital and growth can be created “growth capital” for innovative start-ups, a credit system (microcredits, working capital loans, development investment loans) with subsidized interest for innovative SMEs.

i) The main directions of action are oriented towards the development of projects initiated by firms, competence centers, innovation infrastructure (accelerators and business incubators, technology transfer centers), doctoral programs and postdoctoral programs in priority fields, research infrastructures “roadmap”, organizational performance and concentration, a strategic orientation mechanism.

3. CONCLUSIONS

Europe's innovation leaders have made the link between science and business and excel in the marketing of technological knowledge. The overall good performance of innovation leaders reflects a balanced national research and innovation system. Moderate and modest innovators such as Romania are characterized by unbalanced research and innovation systems. There is a political and economic consensus on the significantly positive effect of investment in innovation on productivity growth with at least the same efficiency as conventional investment. To implement the Industry 4.0 concept, companies need to plan digital transformation and increase innovation. Given the results obtained, in Romania the shift to Industry 4.0 is postponed, although there are significant growth opportunities.

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MANAGING THE PHYSICAL EVIDENCE IN SERVICES ORGANIZATIONS

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Abstract: *Physical evidence comprises service environment, people (participants) involved in the services production, procedures and flow of activities that contribute to the delivery of services. Managing firm's physical evidence includes everything tangible-from the physical facilities to brochures and business cards as well and organizations' personnel dress code. Physical evidence can fall into different categories such as facility exterior (exterior design, insignia, parking, landscaping and environment), facility interior (interior design, equipment, insignia, layout, air quality and temperature, colors, music, scents and other tangibles).The aim of the empirical research conducted in Dubrovnik was to determine the importance of music and effects of music on consumer behavior in service industry. Data were collected in 2016 by testing a sample of 350 respondents, using method of personal interview. The consumers' attitudes were explored in certain types of service industry (mostly food shops, cloth shops, souvenir shops, restaurants, cafe bars). Data were analyzed by descriptive and inferential statistic based on chi-square testing. The aim of this paper is to show the strategic role and the dimensions of physical evidence in service industry and describe stimulus-response model commonly used to help explain the effects that services environment has on consumer behavior.*

Keywords: *Physical evidence, creating atmosphere, tactics*

Introduction

Physical evidence comprises service environment, people (participants) involved in the services production, procedures and flow of activities that contribute to the delivery of services. For the most services the production and consumption of the service performance occur simultaneously (Fisk *et al*., 2008).

The physical evidence can fall into three broad categories: Facility exterior-includes exterior design, signage, parking, landscaping and surrounding environment; Facility interior- includes elements such as interior design, equipment, signage, layout, air quality and temperature, colors, music, scents, other tangibles (Hoffman, *et al*., 2009).

According to the stimulus-organism-response (SOR) model, individual responses to environmental stimuli are characterized as approach and avoidance behavior.

In other instances, environmental stimuli have been purposely managed to discourage unwelcome market segments, e.g. the convenience stores have cleverly used „Elevator music",

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e.g. Muzak (boring music) outside their stores to repel unwelcome neighborhood gangs that „hang out" in the store's parking lot and deter desired clientele from entering the store. The fundamental importance of services marketing and physical environment results from the following functions: converting intangible in tangible as much as possible and managing perceptions and expectations of the customer (Hoffman *et al*., 2009).

Sounds appeals are second group of elements and have three major roles: mood setter, attention grabber, informer unskilled and unkempt personnel form. Consumers also „feel special" when lighting is inviting and warm; dull and basic lighting gives negative feelings, so much that consumers may be put off approaching the merchandise (Kerfoot *et al*., 2003).

From a variety of stimuli from the environment the music is considered as one of the most influential and most manipulative elements (Herrington & Capella, 1996). Although the music is an important element in all cultures, in each culture it has a different role, different meanings and different level of importance. Listeners from one culture often have difficulty in understanding the feelings expressed by the music of another culture, because of culturally determined emotional expression. In most cultures, music has functions that are not only fun but aesthetic enjoyment of the individual. It supports the process of communication and allows people to work together more effectively. The music actually was alternative means of communication between individuals and groups, although this communication can be limited to those who understand the specific meaning of the used musical genre (www.zamp.hr., accessed on Nov. 15th 2011).

Studies about effects of music set up three main questions: how music can change the retention of customers in the store, whether there has been changing in the perception of the brand with music, and whether there are consequences in choosing the product caused by music (Santoro, www.mymarketing.net, accessed on Feb. 5th 2012). A review of literature dealing with the effects of music on shopping behavior reveals different findings. Kotler (1973), find out that atmosphere can be influential in the purchase decision. Linsen (1975) points out that shoppers may feel that they spend less time standing in queue if the stores provide background music, because customers feel that service organization care about their customers. Bruner (1990) concludes that music is an important element that influences on mood and behavior. Bitner (1992) also suggested that the physical surroundings (atmosphere) of services businesses have a large impact because customers frequently consume services within the firm's environment. Baker *et al*. (1992) find out that music can influence on consumer behavior and willingness to buy. Hui *et al*., (1997) have proved that regardless of its valence, music ameliorates emotional evaluation of the service environment which in turn positively affects approach behavior towards the service organizations. Positively valenced music triggers more positive emotional response to the wait and stronger approach behavior towards the service organization than negatively valence music. According to the foundation of Areni & Kim (1993) shoppers may spend more money when the music "fits" with the product. Yalch & Spangenberg (1993) point out that customers buy products/services that closely match the musical preferences of shoppers. Kellaris (2008) found that music was heavily used in consumer environments as motivating. Mandila & Georgiannis (2012) found out that musical style jazz and lounge music has strong influence and makes consumers spend more. Guegen & Jacob (2010) conducted a study in a flower shop where consumers were exposed to an environment with romantic songs, pop songs (songs usually played at florists) and no music. The result was that consumers spent more time in the store when romantic music was played.

Combining melody, harmony and rhythm to the listener can act in many ways: by changing the mood, provoking a sense of balance, happiness, pleasure, or restlessness, anxiety and sadness (Rojko, 1982). Generally, slow and quiet music has a tendency to encourage relaxation and reduce anxiety and restlessness, while stimulating music typically increases the level of excitement. It is very difficult to determine exactly which musical structure causes a certain mood (www.thepowerofmusic.co.uk., accessed on Feb. 2nd 2012). Due to these emotional reactions to certain music, it is important to choose the appropriate. Care must be taken on the individual preferences of individual customers or segments. Herrington & Capella (1996) just suggest sellers to adapt their strategies to different age structures taking care and about the different parts of day when customers visit them. Bad choice, especially for the older segment of consumers, is a loud music, acts irritating them. An individual's preference for a musical composition is dependent on a number of factors. Musical preferences tend to vary. In the research that Wright (1975) carried out he has concluded that musical preferences depend on the cultural background. Influence on musical preferences has complexity (Burke & Gridley, 1990), such as familiarity with the music (Davies, 1991) and structural characteristics of music (Kellaris, 1992). Musical preference tends to vary according to the listener's age (Yalch & Spangenberg 1993) and musical training (Vanderark & Ely, 1993). In some instances expenditures are influenced by the volume (Smith & Curnow, 1966) and tempo (Milliman, 1982, 1986) of background music.

Materials and Methods

The aim of the paper is to show some specific features of physical evidence and analyze these elements and their influence on consumers' behavior, especially pointing out the importance of music as the basic element of physical evidence in service companies. Therefore the following hypotheses were stated:

H1. "Physical evidence has strategic role in creating augmented services product and facilitating services process. It's an important source of differentiation which affects the perception and behavior of consumers and employees“.

H2."The pleasure-displeasure emotional state reflects the degree to which consumers and employees feel satisfied with the services and has basic influence on consumers and directly influences service quality perception“.

The aim of the empirical research conducted in Dubrovnik was to determine the importance of music and effects of music on consumer behavior in service industry. Data were collected in 2016 by testing a sample of 350 respondents, using method of personal interview. The consumers' attitudes were explored in certain types of service industry (mostly food shops, cloth shops, souvenir shops, restaurants, cafe bars). Data were analyzed by descriptive and inferential statistic based on chi-square testing.

Results and discussion

In the next text we will provide the results of empirical research about impact of music on consumers’ behavior in services organizations in Dubrovnik.

The sample of 350 customers consisted of 41% male and 59% female whereas 37% were between 26-35 years old, 32% up to 25 year, 12% between 36-55 years old and 19% older than 56 years.

The main part of respondents (79%) consider music as an important and extremely important in their everyday life, while only small part of them (21%) considered it unimportant. The largest number of interviewed (85%) often listen the music, and only a small number of respondents (15%) rarely listen the music. The most respondents prefer rock (78%), Dalmatian music (54%), classical music (32%), one part listen techno (25%) and other kinds of music (28%).

The most of the customers (92%) consider it is very important to keep music playing in service organizations and only 8% thinks it is not important. The largest number of customers feels satisfied with the service experience when the music is playing. The largest number of respondents (92%) considered that they perceive a better service and service quality, when music is on, while only 8% thinks it is not important for better perception.

According to the results of empirical study most of respondents(63%) believe that music improves the services' company image, smaller part (18%) think it has small influence on image and there is also one smaller part (19%) who considers that music does not affect the image of the services company.

According to the results of chi-square testing ($\alpha = 0, 05$) there is a correlation between age and the genre of music the customers prefer. Young customers especially prefer buying while the music is playing. A small part of customers said that music does not influence on their feelings (11%) or they feel depression and anxiety (6%), but other consider that they feel happy and satisfied when music fits them. This is in accordance with the findings of Dragičević & Rakidžija (2012) in the research carried out in Dubrovnik as well.

Conclusion

To create an overall impression and cause desirable consumer behavior, it is important to achieve synergy of all elements of physical evidence applying holistic approach. Marketing manager must develop services organizations to ensure that they satisfy the needs of the customers. In certain shopping situations the atmosphere may be more influential than the product itself in the purchase decision. According to the results of the research carried out in Dubrovnik it is confirmed that music is very important in everyday living and consumer expects to be part of physical evidence in services. Music mostly awakes feelings of happiness and satisfaction. Precisely because of these emotional reactions to certain music, it is important to choose the appropriate and better adopt music according to the age of the segments.

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QUALITY OF BUSINESS ENVIRONMENT IN THE SLOVAK REPUBLIC

Jana Sochuľáková[266]

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Abstract: *A high-quality business environment is currently the basis for the long-term development of entrepreneurial activity, the prosperity of the state, but also the quality of life in the state. It is a prerequisite for the long-term competitiveness and growth of every market economy. The quality of the business environment in Slovakia is influenced by two levels. The first is the legislative framework; the second is the specific social and economic conditions in specific regions, such as the development of transport infrastructure, the composition of local industry, or availability of labor. Despite the overall improvement of the business environment in recent years, Slovakia is starting to lag within the region. The aim of the paper is to evaluate the quality of the business environment in the SR through relevant indexes. Then we compare the quality of the business environment of the SR with the V4 countries.*

Keywords: *business environment, competitiveness, index of the business environment, Global Competitiveness Index, Doing Business*

1. INTRODUCTION

The business environment reflects the quality of economic conditions and economic assumptions of business entities in the country. A high-quality business environment is a prerequisite for business development and increasing competition for the country's international economy. At the same time, it creates the conditions for maintaining long-term economic growth. A good business environment is an environment that creates the same favorable conditions for all involved, regardless of where they come from, such as their legal form, size, etc. One of the most important parts of the economy in all developed economies is small and medium-sized enterprises. It is also in the Slovak economy. They are an irreplaceable source of growth, contributing to the flexible introduction of new products, increasing innovation activities, developing a competitive environment, bringing forward progressive solutions, creating new job opportunities, and thereby mitigating unemployment. They quickly adapt and respond responsibly to change. [5] Their development is very closely related to the level and quality of the business environment.

A high-quality business environment with the ability to achieve long-lasting economic growth is a prerequisite for business prosperity and increasing the competitiveness of all market players. Quality of the business environment can be evaluated through several indexes. The indices have a different construction; they use different data sources and different variables. They differ in the objectivity of the evaluators. To evaluate the quality of the business environment in Slovakia, we chose:

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- Business Environment Index,
- Doing Business Report,
- Global Competitiveness Index.

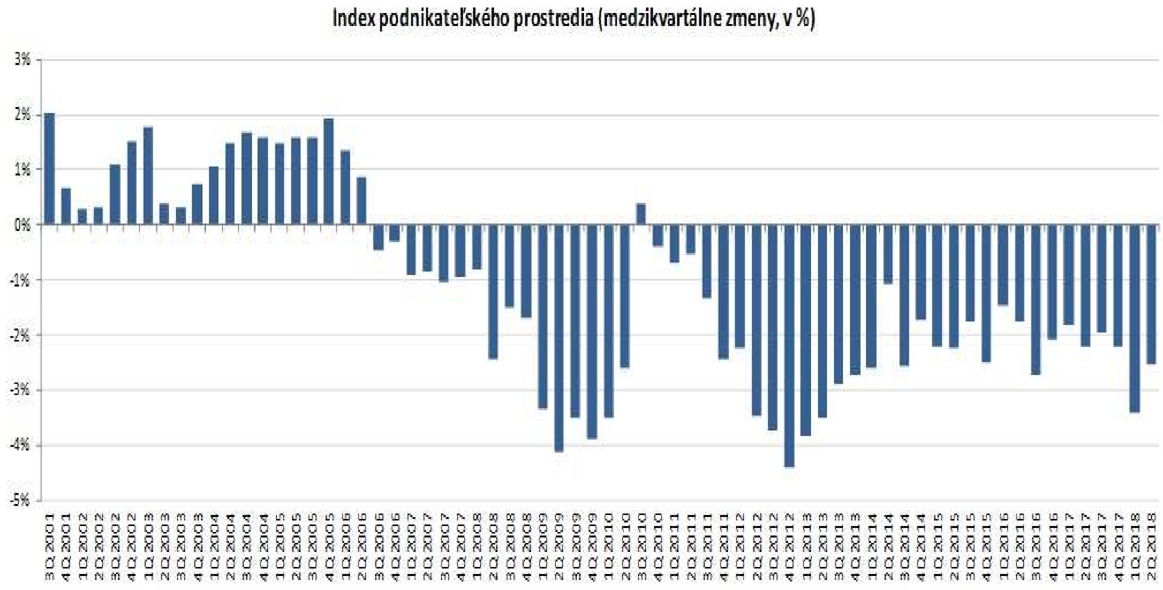
2. BUSINESS ENVIRONMENT INDEX

The Business Environment Index created by the Business Alliance of Slovakia (PAS) is the result of regular monitoring and evaluation of the quality of the business environment in the Slovak Republic. In terms of methodology, it is the most relevant tool for measuring the quality of the business environment at national level.

This index is the quality of the business environment of Slovakia monitored at quarterly intervals since 2001. The index started at a reference value of 100. The business environment index serves to monitor the development of the Slovak business environment and to change the quality of its individual components, such as in the economic policy of the government or in the infrastructure. The index is the result of regular surveys among managers, evaluating the current development of the surveyed areas of the business environment based on their own experience.

The index has three rating categories. The first category has 13 items and follows the development of the legislative and regulatory environment in Slovakia. Examples include business legislation, tax legislation, levies and investments, law enforcement, market regulation. The second category has 11 items and summarizes the impacts of other external macroeconomic factors on businesses. It monitors for example price stability, currency exchange movements, fiscal policy, and infrastructure level. The third category of the index has 10 items and takes into account the business's own contribution to the development of the business environment. Each of the 34 items has its own weight in the index, so the index represents the weighted arithmetic mean of the changes of individual items.

Figure 1: Business Environment Index in Slovakia (Intermediate Change,%) [12]



The development of the business environment in Slovakia, according to its own assessment of entrepreneurs, takes a long time in the negative direction. In the second quarter of 2018, businessmen moderated the negative view of the state of the business environment. The business environment index reached 47.73 points and fell by 2.55% compared to the previous quarter. Entrepreneurs for the top barrier in business for the second quarter have re-enforced law enforcement, the functioning of the judiciary (-8.92%) and the application of the principle of equality before the law (-7.45%). Other in order are the efficiency of state management, access to state aid (-7,70%) and the quality and availability of production inputs, the workforce (-5,69%). In the second quarter, entrepreneurs rated the quality and availability of production inputs, the workforce was 2.67% better than in the first quarter. They also rated significantly better (by 5.75%) the functionality of the political system in the state. The incidence of economic crime, organized crime was rated better by 4.94%.

3. DOING BUSINESS REPORT

Doing Business is created by the World Bank, with higher scores meaning a better, easier and more transparent regulatory environment for business entities and protection of property rights. The assessment of individual indicators in countries is based on the review of legislation and regulatory measures. Findings are provided by thousands of country experts, including government officials, lawyers, and consultants. The World Bank index consists of 10 sub-indices: starting a business, building permits, connection to the mains, registration of real estate, availability of credit resources, investor protection, tax obligations, cross-border trade, enforceability of contracts and termination of business.

Table 1: Ranking of countries according to World Bank Doing Business in 2018 [11]

	DTF score	ranking	change
New Zealand	86,55	1	-0,18
Singapore	84,57	2	0,04
Denmark	84,06	3	-0,01
Korea, Rep.	83,92	4	0,00
Hong Kong, China	83,44	5	+0,29
USA	82,54	6	-0,01
United Kingdom	82,22	7	-0,12
Norway	82,16	8	-0,25
Georgia	82,04	9	+2,12
Sweden	81,27	10	+0,03
Poland	77,30	27	+0,18
Czech Republic	76,27	30	+0,03
Slovak Republic	74,90	39	-0,25
Hungary	72,39	48	+0,26

It deals with trade policy measures currently in 190 world economies. Although this ranking tries to be the most optimal and most objective, there are several limitations that distort the measurement result. One of the most serious, as far as Slovakia is concerned, is that the indicator only evaluates the poorest place in the country. In World Ranking Doing Business 2016, Slovakia finished 29th out of 189 countries in the world, where Slovakia recorded the best ever position in this country. They were in the first thirty countries with the best business environment. In the following year, Slovakia deteriorated and dropped to 39th.

Table 2: Ranking of the V4 countries according to World Bank Doing Business

	2018		2017	
	DTF score	ranking	DTF score	ranking
Poland	77,30	27	77,81	24
Czech Republic	76,27	30	76,71	27
Slovak Republic	74,90	39	75,61	33
Hungary	72,39	48	73,07	41

Compared with the V4 countries, Slovakia ranks third, behind Poland and the Czech Republic. Only Hungary is in a worse position than Slovakia, and in 2018 even worsens its position. In the past year, all V4 countries have worsened their position in the World Bank Doing Business. Slovakia has worsened its position by 6 points.

4. GLOBAL COMPETITIVENESS INDEX

The World Economic Forum (WEF) annually evaluates the Global Competitiveness Index (GCI) of countries in the world to identify the level of competitiveness of individual countries. The Global Competitiveness Index is based on a 12-pillar score, which is divided into three sub-indices – Basic Requirements, Increased Efficiency, Innovation and Sophistication.

The first sub-index covers the essential requirements, which are particularly important for industrially managed economies. Slovakia as a developed country should be at a high level. It includes four pillars, namely institutions, infrastructure, the macroeconomic environment and health and basic education.

The second sub-index contains pillars influencing country efficiency. It is the key to effectively managed economies. Slovakia was just before recently in the range of an effectively managed and innovated landscape. Since last year, it has been in the hands of innovative economies. This includes six pillars: higher education and training, product market efficiency, labor market efficiency, financial market development, technological readiness and market size.

As the third and most important subindex, it is the key to innovative economies. It is the most advanced economy in the world and is the key to sustainable land development. It has two pillars: the maturity of business processes and innovation.

Table 3: GCI index in Slovakia

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Ranking	46	47	60	69	71	78	75	67	65	59
Change	- 5	-1	-13	-9	-2	-7	+3	+8	+2	+6

Since 2008 Slovakia's position has deteriorated until 2013. The most significant decline occurred in 2010, when Slovakia fell by 13 points in the GCI Index. One year later, it dropped to its worst-ever position. Since 2014, Slovakia's position has improved year on year. In 2017, Slovakia moved 6 points up, moved to 59th place. The highest in history was 37th, in times of economic reforms in 2006.

Table 4: Overall ranking of the V4 countries in the GCI index [9]

	2014	2015	2016	2017
Czech Republic	37	31	31	31
Poland	43	41	36	39
Hungary	60	63	69	60
Slovak Republic	75	67	65	59

The GCI index data in the V4 countries in Table 4 show that Slovakia lags behind other V4 countries for the longer term. Slovakia has improved in the period under review, but managed to catch up and overtake only Hungary. Although in 2017 it moved only one position. Slovakia had to meet many criteria when it joined the EU. Nevertheless, long years after EU integration, Slovakia still ranks among the less advanced countries in the world. Despite the fact that until 1993 we formed a united country with the Czech Republic, after the split, both countries chose a different path. This also reflected on the quality of the business environment. In all the indexes surveyed, Slovakia is in a worse position than the Czech Republic.

Table 5: Overall ranking of countries in the GCI index [9]

	GCI 2017		GCI 2016	change
	Score	Ranking	Ranking	
Switzerland	5,86	1	1	→
USA	5,85	2	3	↑
Singapore	5,71	3	2	↓
Netherlands	5,66	4	4	→
Germany	5,65	5	5	→
Hong Kong	5,53	6	9	↑
Sweden	5,52	7	6	↓
United Kingdom	5,51	8	7	↓
Japan	5,49	9	8	↓
Finland	5,49	10	10	→
Czech Republic	4,77	31	31	→
Poland	4,59	39	36	↓
Slovak Republic	4,33	59	65	↑
Hungary	4,33	60	69	↑

In the first five places in recent years, there are Switzerland, USA, Singapore, Netherlands and Germany. From the V4 countries, Slovakia ranks third in terms of the quality of the business environment.

5. CONCLUSION

A high-quality business environment is at present a basic precondition for the long-term competitiveness of the countryside and the growth of every market economy. A favorable business environment creates conditions for long-term sustainable growth, which is a prerequisite for the long-term development of business activities, increasing the economy's performance and hence the living standards of the population. The quality of the business environment is the foundation of a prosperous state. The business environment creates the conditions for a successful business. One of the most important parts of the economy in all developed economies is small and medium-sized enterprises.

Of the total number of businesses in Slovakia up to 99% are small and medium-sized enterprises. This share is comparable to advanced countries. This confirms the necessity of developing small and medium-sized enterprises to improve the economy of the state. The development of small and medium-sized enterprises is heavily dependent on the overall business environment in the country. If the quality of the business environment deteriorates in the economy, there are barriers to business, which is reflected in the decline of SMEs. One way to solve this problem in the economy is to initiate and support the creation of networking clusters of SMEs by the state and local government, clusters. By clusters we understand localized clusters of homogeneous and related societies from the basis of a local environment that can facilitate the transfer of knowledge and stimulate various forms of adaptation, learning and innovation. Cluster, as a model for increasing and gaining competitive exits, also enables small and medium-sized businesses to become dynamic and competitive businesses, not only in the domestic market.

We can evaluate the quality of the business environment using multiple indexes. In the paper we evaluated the quality of the business environment in Slovakia and we compared it with the business environment in other V4 countries. Slovakia has not ranked first in one of the five indices within V4 countries. The worst ranking was scored in the World Economic Forum, the GCI index, where out of the 140 countries surveyed, Slovakia finished at 59th place in 2017. Slovakia is seen by between the V4 countries as the country most affected by corruption. At the penultimate spot, just before Hungary, the Slovak Republic was placed in two evaluations. From the V4 countries, Slovakia ranks third in terms of the quality of the business environment.

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THE IMPACT OF CORPORATE SOCIAL RESPONSIBILITY IN BUILDING THE CORPORATE STRATEGY

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Abstract: *Business organizations are the economic driver of society, and the realization of profit is their primary responsibility. However, in the current business climate, social issues become so important that corporate social responsibility is becoming a new field for competitive success. The biggest challenge for modern organizations is to develop CSR policies and practices to help develop the organization. The pursuit of the interests of all stakeholders has an impact in building all the dimensions of the organizational strategy.*

Keywords: *corporate social responsibility, corporate strategy, strategic social responsibility.*

Introduction

The conception of corporate social responsibility (CSR) draws the interest of the contemporary organizations while introducing the globalization and liberalization. While the conception of corporate social responsibility becomes more popular on a global and on a local scale the importance of finding the most efficient way of implementing it into the organization's strategy increases. The changes in the global market during the last decades switch the entrepreneurs' perception from the business to the society and the development of the organization. The strategic purpose of the contemporary business shifts from just ensuring the profits for a certain organization to sharing this profit with its employees and the society.

Realizing the importance the corporate social responsibility has for the business development, the biggest challenge facing the modern organizations is to develop politics and practices in the CSR area and to successfully implement them into the organization's corporate development strategy.

The purpose of this article is to study the level of influence the corporate social responsibility has on developing the organization's strategy.

Subject of study are the corporate social responsibility and the corporate strategy.

The problems the author will solve in this article are:
- To review the essence of the corporate social responsibility.
- To review the concept of strategic social responsibility.
- To show and analyze the influence the corporate social responsibility has on the corporate strategy development.

1. Nature of the corporate social responsibility

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The roots of the corporate social responsibility conception can be traced back to 1952 when H. Bowen (1953) gave the first modern contribution to the matter of CSR in his book "Social Responsibilities of the Businessman". There, the author draws the following definition of social responsibility of the organization: 'It refers to the obligations the business has on following those politics, to take those decisions, or to make those actions which are necessary regarding the purposes and values of the society.'

The corporate social responsibility merged in the USA and spread throughout other social movements, like for example, the ones for the citizens' rights, the women's rights, the consumer rights, and the environment protection. Since the very beginning of this movement, in the modern business arose the fear that CSR can shift the core focus of the business from maximizing the profits. In reference to that M. Friedman (1970) raised an objection against the rising role and importance of social responsibility underlining that under conditions of free economics the business has the same responsibility, namely to use its resources and to perform those activities through which it increases its profit, and to participate in an open and free competition.

A. Carroll (1979) proposes one of the first and still the most adopted conception of CSR according to which, the organization's responsibilities can be brought to the following four:

- The economical responsibility to generate profit;
- The legal responsibility to comply with the local, state and international laws;
- The ethical responsibility - recognizing the moral rights, fair work conditions, avoiding damages, etc.;
- The discretionary/philanthropic responsibility to perform actions and keep a behavior which the society finds proper - charity and support of various cultural and social causes.

These four categories form the following definition of CSR: The corporate social responsibility covers the economical, the legal, ethical and discretionary expectations of the society towards the organizations in a given time (Carroll and Shabana, 2010). Similar definition was given by A. McWilliams et al (2006) according to whom the social responsibility covers the situations where the organizations perform actions contributing to some social welfare, beyond the company interests and what is required by the law.

Corporate social responsibility is also often view through the prism of the interested parties theory, according to which organizations have responsibilities to various internal and external Interested parties (Freeman, 1984). Thus the corporate social responsibility resembles a part of the organization's activity in response and performance of the expectations enforced by the interested parties. In the group of the organization's interested parties fall the owners, the shareholders, the investors, the employees, the clients, the suppliers, the government and the society as a whole.

Not with standing how they define the corporate social responsibility, the authors of scholar literature unite themselves over the fact, that if used properly, it creates benefits for the organization. Firstly, the corporate social responsibility has the potential to reduce the risks and expenses of business. On one hand performing CSR activities in the form of equal employment opportunities and environmentally responsible engagement politics and practices increases the long-term shareholding value (Carroll and Shabana, 2010). On the other hand, the corporate activities regarding the environment can reduce the expenses and the risks, because the business meets the current and the possible future environmental regulations and creates a more environmental friendly profile of the organization within the society. And least, but not last, the positive interrelations in the community could lead to tax advantages and reduction of the scope of regulations imposed on the organization, since it is perceived as a responsible member of the society (Carroll and Shabana, 2010).

Another advantage of applying corporate social responsibility can be connected with increasing the competitiveness of the organization. In this aspect, the corporate social responsibility is being reviewed as a differentiation strategy, where the opportunities, in the form of requirements by the interested parties, are being strategically managed. CSR activities have the potential to improve the interrelations between the organization and its clients, the loyalty to the brand and the ease of ensuring future investments, which in its term makes the organization competitive.

As another advantage from implementing the corporate social responsibility in the organization’s strategy one can consider reputation and legitimacy improvement of the organization. Implementing the corporate social responsibility is a clear sign that the organizations care about society, keep the social norms and satisfy the expectations of the various interested groups, which in its term improves their image in the society. The organizations who apply CSR and who are good corporate citizens can receive increased loyalty from the consumers’ part, greater interest by the professionals when searching for employment and more opportunities for future investments.

The corporate social responsibility is constantly developing and more attention is paid to the advantages and the results that can be achieved by the social initiatives. According to D. Wood (1991) the corporate social responsibility is building social principles in the business organizations, processes of a social response and related to the organization’s public relations politics and programs that generate visible results for the development of the organization. Namely binding CSR with the results of the organization lay the basis for studying the potential correlation between the social responsibility and the organizational development strategy. The influence of the social responsibility in fulfilling the organization’s business strategy synthesizes in the conception for strategic social responsibility reviewed in the following paragraph.

2. Strategic corporate social responsibility

The conception of strategic corporate social responsibility emerged in response to the growing criticism that CSR is being used by organizations only to create value for their shareholders. J. Logsdon et al (1990) define this conception as a process through which the CSR contributions are being used to serve the direct business interests while serving all the other interested parties in the meantime. In their research on the competitive advantage of the strategic corporate social responsibility M. Porter and M. Kramer (2006) discuss a situation where the social and the economic benefits can be merged. This merger can be achieved if the organizations focus their investments in corporate social responsibility on key factors for the success of the organization. An example for such activities on binding the social and economic benefits are the marketing initiatives related to presenting the social and ecological advantages of the organization’s product and services to the society.

The strategic corporate social responsibility gives the organizations the opportunity to take the so called operational approach to corporate social responsibility. Nowadays, it is not enough for the organizations to show themselves as a good corporate citizen, but they need to choose a unique position, to show the society that they do things in a different way in contrast to their competition, in order to better serve the needs of their clients. In the modern organizations the strategic corporate social responsibility characterizes with a small in number initiatives that bring distinctive business and social benefits.

The new trend for CSR is to integrate the CSR activities into the core business operations and planning processes. The strategic CSR has an increasing influence on forming the connection between the business and the society, and it is being defined by W. Werther and D. Chandler (2011) as: ‘Implementing the whole CSR perspective within the frames of the strategic planning and core operations of the organization in a way that it can be managed for the interest of a wider scope of interested parties in order to gain a maximum social value in mid- and long-term period’. By adapting a strategic approach, the organizations define what activities they have in the value chain, the necessary resources to use social responsibility, as well as to choose the activities that will increase their competitive advantage. Business and society are interdependent and every decision should be made in favor of both parties, thus the CSR practice should be looking for a balance between the economic and social benefits.

The advantages of CSR are achievable by integrating CSR into the organization’s strategy. The tighter a given social matter is connected to the business of the organization, the greater the opportunity for the organization to use CSR in order to bring benefit to the society (Porter and Kramer, 2006). According to this new approach the interests of all interested parties in the organization do not contradict each other, and creating value for them creates value for the business, too. Thus the corporate social responsibility is being perceived as a new way of achieving economic growth. By planning the corporate social responsibility as a part of the entire business strategy plan, the organizations can guarantee that the profits and the increase in shareholders’ value do not undermine the need of ethical behavior towards the society and the other interested parties.

Two basic directions of research emerge from the conception of strategic corporate social responsibility. First, it is being investigated the integration of the corporate social responsibility into the business strategy with the purpose of gaining important advantages from the social activities. As a second, the question of what influence CSR has on the financial results of the organization is put in a discussion, with the purpose to understand the strategic importance of CSR as an innovations and competitiveness drive. Focus of this article is the review on the integration of CSR into the business strategy of the organization.

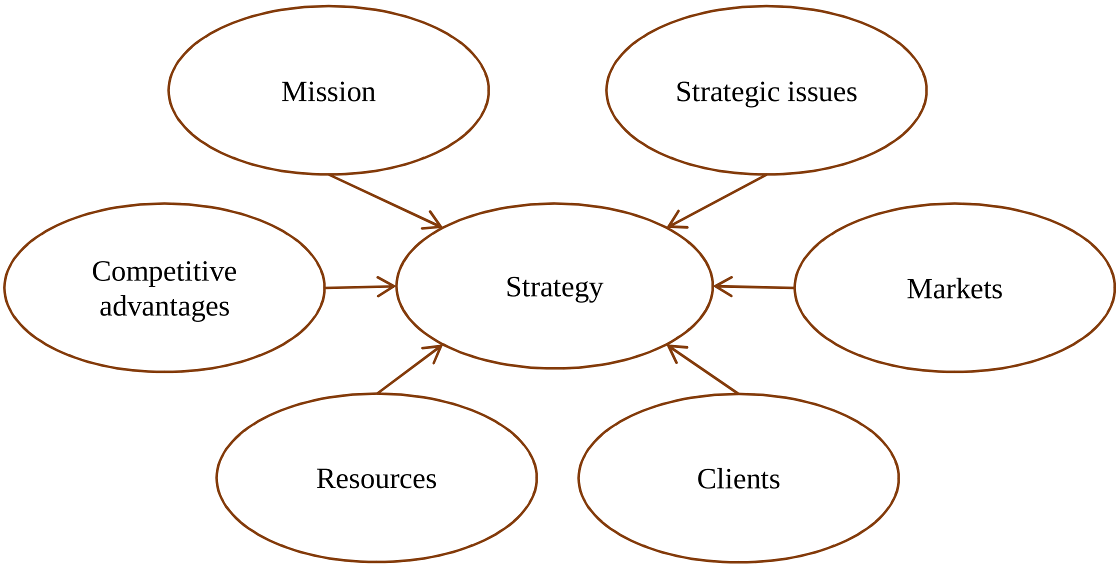
3. Influence and integration of the corporate social responsibility into the corporate strategy development

The need to integrate the corporate social responsibility into the business strategy is widely covered by The European Commission during the latest decades. The commission defines the corporate social responsibility as a conception where the companies integrate the social and environmental care into their business operations and their interrelations with the interested parties. Modern organizations should follow processes for integration of the social, environmental and ethical human rights into their business development operations and strategies in order to maximize the shared value for the interested parties, to identify, prevent and reduce the possible negative impacts of their activities (European Commission, 2011).

Mother organizations face the challenge of how to achieve a synergy between CSR and the strategy of the organization. The necessity of satisfying the needs of the interested parties and achieving key factors for the success of the organization laid the basis of the corporate social responsibility in the Organization’s strategy development (Anguelov, 2018).

The strategy serves as a basis for creating the organization, defining its place in the market, its competitiveness, and its constant development. In order to achieve this it is necessary to plan, develop, formulate and constant updates of the business strategy towards the internal as well as the external conditions in which the organization functions. The CSR impact in the strategy development can be found in the context of all strategic dimensions. In this article is reviewed the process of influence of CSR in the strategy development, not the company strategy development process itself. Figure 1 shows all dimensions in the context of the organizational strategy.

Figure 1. Dimensions of the organizational strategy



The Mission is the fundamental purpose of the organization that reveals why it exists, how it views itself, what it wishes to do, its believes and long-term goals. In other words, the mission signals the organization’s purpose before its interested parties. More precisely, CSR should be put in the contest of what the company is trying to achieve, that it accounts as precise expectations from it. This is of vital importance for the development of the CSR strategy in a way that reflects its actual business meaning for the mission of the organization. However, it is consider inappropriate if the organization points out CSR as its core mission.

The strategic issues the organization has to cope with are internal and external. In order to define an issue as strategic for the organization, it has to be related to the organization’s future development and to have a significant influence on the capability to achieve its goals. Often the strategic issues are viewed as problems against which the organization stands. In respect of CSR we can talk about the strategic issues or problems of social nature. They are the ones related to unfulfilled social needs or social necessities that have developed in the society. CSR helps the organizations to define and avoid activities on reducing the influence of the strategic social issues on the organization.

The market consists of the sum of all current and potential buyers and the product or the service offered by the organization. Developing its strategy the organization targets certain target markets towards which to distribute the general part of the marketing time, resources and attention. This has its consequences on the relations between the CSR and the strategy. Evaluating the markets is a strategic evaluation formed by different variables like market potential, market share, tangible evaluation of expenses and resources. However, the strategic evaluation of the market segments, one should also consider the variable 'social dynamics' related to the basic expectations and needs of a certain market segment. If the organizations succeed in implementing CSR into the organizational strategy, the social dynamics variable becomes an important point of understanding the current and the newly emerged features of the target markets and the target clients' specific needs.

Some scholars consider that the sole purpose of every organization is to create *value for its clients*. Creating value for the clients and satisfying their needs certainly is a strategic business function. Value for the consumer can be created through market orientation or innovation. The orientation towards the client can be defined as strategic actions meant to understand the current and latent clients' needs in the targeted markets with the purpose of satisfying them. Invitations are the driving force of economic growth and achieving competitive advantage. The organizations can use the social issues or needs as a drive for innovations and development. In this context, the organization can perform its activities on corporate social responsibility by creating benefits for its consumers as well as economical profit for its shareholders.

Main aspect of the organizational strategy is the proper distribution of the internal *resources* in relation to the changes of the external environment in such a way that improves the organization's results. Usually the resources consist of material and non-material assets necessary for the creation, operation and maintenance of the organization. An important exit point for the resources in the context of the CSR strategy is the specifics of the resources. Specifics relate to the degree to which the resources are being used for managing or integrating at least some specific for the organization CSR advantages, not just creating collective goods that could be shared by the society. In this sense the organizations not only take responsibility of their own social responsibilities, but also gain exclusive benefits that could have strategic development value.

The last dimension of strategy, competitive advantage, to a greater degree relates to how the organization is going to perform in contrast to the others on the market. The two common strategies the organizations follow in order to gain and keep their competitive advantage, are the strategies of expenses and differentiation. In its nature, the competitive advantage relates to either the production of goods of lower unit price in comparison with the competition, as thus generating a higher return, or by a product differentiated from the competition, for which the clients tend to pay a higher price. Developing social interrelations with the interested parties can also lead to competitive advantages and be a source of better results for the organization. The organizations that develop interrelations with the interested parties on the basis of honesty, mutual trust and cooperation are in a better position to achieve advantage before the organizations that do not do so. Thus CSR influences the strategy development in respect of the competitive advantage.

The influence of the corporate social responsibility in the company strategy development relates to the degree of proximity between the social initiatives and the core business of the organization. Corporate social responsibility initiatives can be divided into three categories according to the proximity to the core business of the organization: They can be entirely connected with the core business of the company by concerning only the common social issues; they can be directed towards reducing the negative impact of the business along the value chain;

or, at a maximum level of integration, they can act and improve the key factors of success within the competitive strategic context.

Conclusion

Many organizations today adopt the corporate social responsibility as part of their corporate strategy. CSR assists in forming a corporate image of a social, environmental, ethical and responsible organization. The corporate social responsibility helps for a smoother management of the organizational changes and gaining a competitive advantage in the modern business conditions, due to which it has its influence on the process of developing all the dimensions of the company strategy - mission, strategic issues, market, clients, resources, and competitive advantage. The companies that better understand their social responsibilities and know the influence CSR has on the company strategy development, will probably extract greater economic benefit for themselves, and social benefits for the society as a whole.

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CLUSTERS AND SMALL AND MEDIUM-SIZED ENTERPRISES IN REGIONS OF THE SLOVAK REPUBLIC

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Abstract: *In developed economies, small and medium-sized enterprises are one of the cornerstones of the economy. They make the flexible introduction of new products, increasing innovation activities. They contribute to the expansion of the competitive environment and are an irreplaceable source of economic growth. They provide progressive solutions and contribute to the creation of new job opportunities and thus to a decrease in unemployment. What is a very important fact for today's economies based on knowledge and innovation is the efficient use of environmental resources and the reduction of unemployment. Therefore, individual states support the creation of various SME support tools, such as the creation of business networks - clusters. In our contribution we will analyze the situation in the regions of the SR in terms of the functionality of the clusters and the benefits of these networks for small and medium enterprises and regional development.*

Keywords: *small and medium enterprises, clusters, networks, region, regional development*

1. INTRODUCTION

Small and medium-sized enterprises (SMEs) are specific. SMEs are characterized by a high degree of flexibility and a faster reaction time to adapt to changing market conditions. In today's dynamically changing business environment, which is influenced by many factors, the importance of small and medium-sized businesses is steadily rising. For the national economy, small and medium-sized enterprises represent significant potential because they have a number of important functions (e.g. social, economic, innovation, education, etc.) The importance of small and medium-sized enterprises now exceeds the national level and has an international dimension. That is why we can say that small and medium-sized enterprises represent the basic economic support of the EU. Small and medium-sized enterprises are one of the most important parts of the economy:

- are an irreplaceable source of growth,
- have a high innovation and development potential,
- contribute to the flexible introduction of new products,
- contribute to increasing innovation activities,
- contribute to the development of a competitive environment,
- are the carriers of progressive solutions,
- are creating new job opportunities, thereby mitigating unemployment,
- quickly adapt and are responsive to change. [8]

The development of small and medium-sized enterprises is closely related to the level and quality of the business environment in the individual regions of the economy.

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A high-quality business environment with the ability to achieve long-lasting economic growth is a prerequisite for business prosperity and increasing the competitiveness of all market players.

2. SMALL AND MEDIUM-SIZED ENTERPRISES IN THE REGIONS OF THE SLOVAK REPUBLIC IN FIGURES

By analyzing the development of the number of small and medium-sized enterprises in SR we find that since 2006 there was a growing tendency. This development in the Slovak Republic was maintained until 2011. After 2011, the total number of small and medium-sized enterprises is characterized by different developmental trends. The size structure of the business sector in the Slovak Republic is, in some respects, copying the size structure of enterprises in other EU Member States. As in the EU and in the Slovak Republic, the higher the representation of micro-enterprises is the characteristic feature of the business sector.

Table 1: Development of the number of small and medium - sized enterprises in the Slovak Republic in 2006 - 2017

	The development of small and medium-sized enterprises					
year	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
SMEs	481 028	500 557	537481	540 617	552 725	555 608
year	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
SMEs	551 608	563 501	565 241	531 063	557 122	567 131

Source: SBA, based on data from the Register of Organizations of the Slovak Statistical Office

The basic quantitative indicator characterizing the overall quality of business conditions in the economy is the number of small and medium-sized enterprises. According to data of the Statistical Office of the Slovak Republic, the year-on-year increase of the total number of active small and medium-sized enterprises was recorded by 1.8%. The business environment of the individual EU countries differs, and so the conditions for doing business in the different regions of the Slovak Republic differ. These differences lead to the uneven development of small and medium-sized enterprises in the regions of the Slovak Republic. What is also reflected in the values of selected quantitative indicators of small and medium-sized enterprises at the level of individual regions (NUTS 3 territorial unit)? Every fifth (22.3%) active small and medium-sized enterprise (including FO - entrepreneurs) operates within the Bratislava Region. In other regions of Slovakia, the representation of SMEs is substantially more even. After the Bratislava Region, the most small and medium-sized enterprises are located in the territory of the Žilinský region with a share of 13.4%. The lowest representation of SMEs, at 9.6%, was registered in Trenčín in 2017. The geographic distribution of small and medium-sized enterprises in the economy significantly affects the development of individual regions as well as the competitiveness of the regions. We must realize that each region is unique. And in this context, it is necessary to strengthen individual regions and allow them to use their strengths. A competitive region is just one that can offer businesses and people an attractive and sustainable environment for life, work and business.

Table 2: Representation of small and medium-sized enterprises by region of Slovakia in 2017

region of Slovakia	SMEs	%	large businesses	%	together
Bratislava region BA	126 464	22,3%	217	32,8%	126 681
Trnava region TT	56 559	9,9%	57	8,6%	56 616
Trenčín region TN	54 273	9,6%	92	13,9%	54 365
Nitra region NR	68 947	12,2%	61	9,2%	69 008
Žilina region ZA	76 199	13,4%	75	11,4%	76 274
BánskaBystrica region BB	56 650	10,0%	48	7,3%	56 698
Prešov region PO	70 616	12,5%	56	8,5%	70 672
Košice region KE	57 423	10,1%	55	8,3%	57 478
together:	567 131	100%	661	100%	567 792

Source: Small and medium-sized enterprises in numbers in 2017, SBA Bratislava 2018.

Every three years the European Union assesses the competitiveness of the regions in the EU. It evaluates the 263 regions of the European Union through the index of regions' competitiveness, which counts on scores of indicators assessing the quality of institutions, macroeconomic stability, infrastructure availability, population health, education, market size, labor market, technology development and maturity of the business sphere.

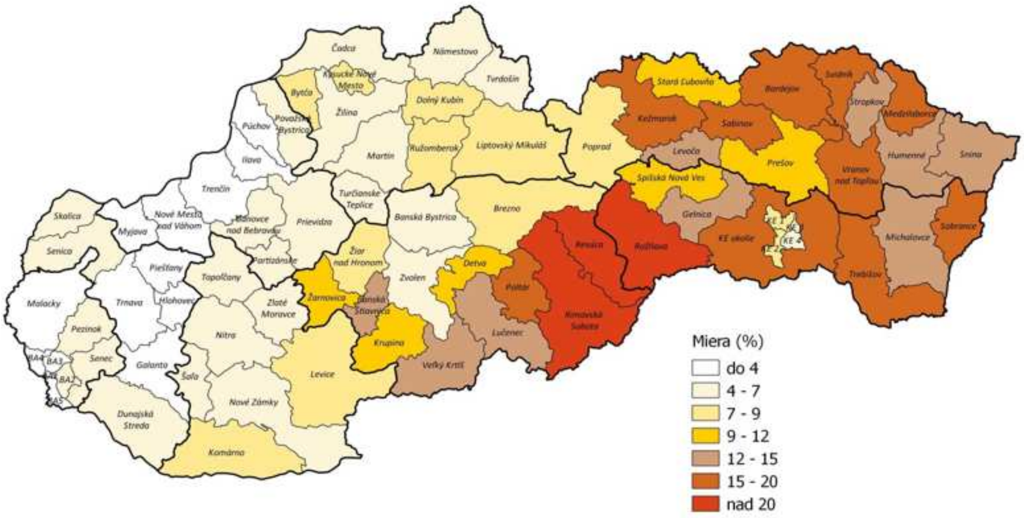
Table 3: Competitiveness Index of SR Regions (year 2016)

	score	order	weaknesses	strengths
Bratislava	65,4	96.	institutions, basic education, health	business sphere, innovation, higher education
western Slovakia	33,8	196.	health, institutions, business sphere	infrastructure, market size, macroeconomic stability,
eastern Slovakia	24,0	225.	health, innovation, labor market	higher education, macroeconomic stability, technology
central Slovakia	29,7	211.	health, business sphere, infrastructure	higher education, macroeconomic stability, technology

Source: European Commission, European Regional Competitiveness Index

So, on the basis of assessing the competitiveness of the regions, we ask ourselves: "How to reduce the lagging regions of Slovakia?" In spite of the economic growth of the Slovak Republic and the rapid growth of state revenues, the less successful regions of Slovakia do not get the richer ones. The long-term unemployment is a major problem in many regions in Central and Eastern Slovakia. As a result, a substantial proportion of the adult population in these regions have lost working habits.

Figure 1: Unemployment rate by district at 31.3.2018.



Source: Statistical Office of the SR, www.statistics.sk, the headquarters of the work of social affairs and family

Another problem of lagging regions is the quality of transport infrastructure, the lack of infrastructure, and the long-term neglect of maintenance of most existing roads. The very serious problem of lagging regions is also the low quality of the business sphere and the weak innovation activity, which has a significant impact on the competitiveness of the regions. Competitive regions generate income and maintain employment at a high level. The Slovak Republic has long been addressing problems with interregional disparities. Habánik, Koišová, [3], Gajdoš, P. [1] states that "regional disparities are the product due to several factors, depend on the quality and developing disposable potentials but also different positions from which each region entered the transition process." The settlement of interregional disparities is an important task of the SR's economic policy. Due to the influence of market forces, globalization or other economic activities, businesses tend to concentrate only in selected regions where appropriate business conditions are ensured to further diversify regional disparities. One of the effective solutions of regional disparities is support the development of clusters in regions such as Haviernikový, Strunz [5] says: One possibility how to contribute to the regional development is interconnection between businesses, educational institutions and local government entities into the purpose-built configurations – clusters. Cluster business cooperation can take the form of a variety of joint activities that maintain the viability, prosperity of the region and the competitiveness of the region. The European Union defines clusters as groups of independent companies and associated institutions that cooperate and compete. They are geographically located in one or more regions or may have a global scope; specialize in a particular field and are linked by common technologies or a common qualification; are a traditional industry or are based on a scientific basis. Clusters can be institutionalized or spontaneous. They have a positive impact on innovation, competitiveness, skills upgrading, information, growth and long-term business dynamics. A part of the project was the survey and mapping of the structure of clusters in individual regions of the SR (Table 4). We processed the obtained data and evaluated the current situation in the cluster packaging in the individual regions of the SR. We have found that the SR in the area of clustering and cluster development lags behind other EU states, which is detrimental. Small and medium-sized enterprises are not interested in engaging in such initiatives, they have no confidence in such a form of mutual cooperation. They are afraid of losing their own business strategy in favor of common know-how. And the mistrust of small and medium-sized enterprises in the moral and professional quality of politicians and in politics itself is very negative too. Other problems that hamper the development of clusters are lacking cluster policy, inadequate legislation that would direct the cluster's work, define forms of co-operation with self-government and government, or funding. Individual institutions work separately and uncoordinated.

Table 4: List of clusters by region in Slovakia (2018)

region		Cluster name	establishment	Cluster type
BA	1	Dunajský vedomostný klaster	2010	TE
	2	Národný energetický klaster - NEK	2012	TE
	3	ABC - Academic Business Cluster	2011	TE
BB*	1	1. slovenský strojársky klaster	2008	TE
	2	Klaster pohraničných hradov	2009	CR
KE*	1	BITERAP	2004	TE
	2	Klaster AT+R z.p.o.	2010	TE
	3	Klaster cestovného ruchu Košice - Turizmus	2010	CR
	4	Klaster RADAR	2014	TE
	5	Košice IT Valley	2012	TE
NR	1	Bioeconomy Cluster	2015	TE
	2	Združenie cestovného ruchu - Klaster Topoľčany	2012	CR
	3	Slovenský plastikársky klaster	2009	TE
PO*	1	Energetický klaster Prešovského kraja	2015	TE
	2	Železničný dopravný klaster, z.z.p.o.	2014	TE
TN	1	Slovak IT Cluster	2013	TE
	2	Klaster Váh	2010	CR
TT	1	Automobilový klaster Slovensko	2007	TE
	2	Elektrotechnický klaster - západné Slovensko	2008	TE
	3	Energetický klaster - západné Slovensko	2009	TE
	4	Klaster pre podporu inovatívnych a zelených technológií -projekt	2012	TE
	5	Klaster regionálneho rozvoja – západné Slovensko	2016	CR
	6	Klaster Smolenice	2010	CR
ZA	1	Klaster Liptov - združenie cestovného ruchu	2008	CR
	2	Klaster Orava	2008	CR
	3	Klaster Turiec - Združenie cestovného ruchu	2009	CR
	4	Z@ict	2007	TE

(Notes: TE - technological cluster, CR - cluster of tourism, * clusters of central and eastern Slovakia)

The total number of clusters is 27 in the SR, of which only 33% are clusters located in Central and Eastern Slovakia. It is a very low representation. Apart from this, there are only two clusters focused on tourism, while Central and Eastern Slovakia has a lot of attractions that could be given to tourists, in the area of historical, cultural monuments, natural delights, gastronomic experiences and so on. These potentialities of these regions have not yet been sufficiently exploited and there are reserves that can be used. These regions are characterized by economic stability; they have free labor and technology. The weakness of these regions is the quality and scale of infrastructure, the quality of the business environment, qualified workforce, investment. The number of these barriers in the development of business activities in these regions could be solved by business networks - clusters that allow small and medium enterprises, for example:

- economies of scale,
- cost sharing,
- sharing research and investment results,
- participation in joint projects and exploitation of their results,
- improving the image of the business,
- increasing the innovative performance of an enterprise,
- supply chain optimalization,
- new customers, opening new markets,

Cluster benefits for the region:

- in the region of the cluster, there is a concentration of specialized suppliers,
- improving the image of the region and landscape,
- increasing the innovation performance of the region and the countryside,
- more efficient use of regional resources,
- creation of jobs,
- more efficient use of the region's natural resources,
- restructuring and development of the regional economy,
- lobbying to improve legislation, subsidy policy.

4. CONCLUSION

Small and medium-sized enterprises are a major factor in co-operation with large enterprises. They grow faster and work more intensively than large businesses. They create jobs with relatively low capital costs, and their performance is more cost-effective. They produce specialized products and also provide specialized services. They are better suited to the needs of the spatial economy and, given the relatively small segments of the market, have more prosperous sales outlets. They also have better opportunities to use technology transfer and the results of innovative processes. Small and medium-sized enterprises are significantly involved in increasing the competitiveness of the regions. This area of small and medium-sized enterprises represents a great potential for the economy, which can be further increased. This means that the interdependence of spatial structure and economic development gains importance in today's highly competitive environment. Thus, solving the problems of the current economy, economic growth, unemployment and financial stability is moving towards a new organization of the economic area by building clusters.

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THE ROLE OF THE MANAGEMENT FUNCTION IN IMPROVING THE BUSINESS OPERATIONS OF THE COMPANY

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Abstract: *Management function is the most important business function (hierarchically highest) in an enterprise. Management defines and sets goals, strategies and policies of the company. Within the management function, business relationships of the company with the environment are designed; it forms a system of internal interconnections and determines the global distribution of the achieved results of the company. The paper will analyze the role and importance of the management function in modern business.*

Keywords: *management, function, company, business operations.*

1. CONDITION AND CLASSIFICATION OF FUNCTIONS

Realizing any task in the enterprise is impossible without the functional alignment of all of its components. In this sense, the function is a set of related tasks and procedures that make the most of the tasks of the company.

In the theory and practice of enterprise economics and other related economic and organizational disciplines, there are a greater number of classifications of functions in an enterprise, depending on the concept and goal of their posting. Functions and jobs in the company can be successfully performed only by a harmonized and connected, complementary operation of people and material components. Therefore, their connection within the enterprise is an important condition for its operation, functioning and survival.

The technical division of labor, on the one hand, and the process of work and business operations in the company, on the other, are the basis for the classification and organization of business functions in a particular company. The reproduction and development of the company is facilitated and accomplished through the various functions and activities of their holders.

The functions of the company are classified according to the vertical and horizontal dimension: [1]

1. Vertical division of the function follows the hierarchy of setting and realizing the goals and tasks of the enterprise and the competence of the bearers of these functions. According to this criterion, three vertical levels of the basic functions of the company appear: management, administration (operational management), and execution of tasks.

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According to the vertical dimension, management is the hierarchically highest function - which sets and defines the goals and strategy of the company.

Concretization and elaboration of goals is done through the administration function, and within the organization of the company. This is the second level of vertical functions, on which the objectives set in the form of tasks and orders for execution of tasks are concretized.

The third level of classification is the execution of specific tasks and orders. It includes the activities of performing various stages and operations of the work process, that is, the realization of specific tasks and the creation of results in the form of products and services.

2. The horizontal division of functions follows their natural course and development in the technological (work) process and performing the business of the company. Through horizontal tasks and functions, a technical division of work and a process of business is realized in the chain of all activities in a single rounded reproduction process. In this classification, the function encompasses a set of interrelated jobs that perform the most specific, specific task or part of the task of the company most salient.

According to the horizontal dimension and conditionality, the functions can be divided into: [1]

- Research & development,
- Technical functions,
- Finance and Accounting,
- Commercial,
- Plan-Analytical,
- Human resources,
- Administrative,
- Control functions and the like.

Regardless of the type and level of classification, business functions in the company must always be coordinated and linked. Performing and executing tasks and orders of one function is an assumption for the realization of others. Individually, functions represent links in the chain of operation, that is, business operations.

2. MANAGEMENT FUNCTION

Management is the hierarchically highest and most important business function in an enterprise. Management defines and sets goals, strategies and policies of the company. Within the management function, business relationships of the company with the environment are designed; it forms a system of internal interconnections and determines the global distribution of the achieved results of the company.

Management has been described as a social process involving responsibility for economical and effective planning & regulation of operation of an enterprise in the fulfillment of given purposes. [2]

The control function is the owner's business function. It determines the company's business philosophy and business policy, as a set of behaviors and relationships in the enterprise as a whole and its business subsystems.

Management also regulates all other functions of the company. It sets out the administration and execution frameworks, defines and organizes the company's management towards the set goals. The management function should be organized to ensure the efficiency of making and executing management decisions.

Picture 1: Management functions
Source: [3]

As we can see from the picture 1, management functions consist of: planning, controlling, organizing, directing and staffing. The structure and size of the management function depends on the activity, size and complexity of a particular company. The complexity of the relationship in the management function is reflected not only in a number of managerial levels, but also in the complexity and diversity of their interrelations. These interrelations are conditioned by the overall tasks and objectives of the company, as well as the degree of interconnection of organizational parts within the company.

3. OWNERSHIP COMPONENT OF THE MANAGEMENT FUNCTION

Each company has a capital owner. Capital, as a condition and one of the components necessary for the operation and functioning of the company, is also owned by legal entities and individuals. The company, as a form of organizing the business and activities, and the form of investment and use of capital, also implies certain relations and obligations towards the owner of the capital.

Capital and company management involve the decision-making process for its placement, movement and use. The owner of capital in market conditions is in a position to choose a place and a company where he will place his capital. If it does not bring the appropriate or desired profit or dividend rate to it, it will withdraw it from one company and invest in other businesses or other companies through the appropriate market and financial mechanism (stock exchange), purchase and sale of shares and stocks on the market.

Within the framework of the corporate management function, that is, deciding on the essential dimensions and aspects of its functioning, the owner of the company has its own economic interests. One of these most important interests is maximizing the profits of your own company, i.e. achieving maximum return on invested capital.

The owner of the capital has an autonomous and undisputed right to decide on where to invest his capital. Moving capital from an enterprise to an enterprise, as well as from a branch in a branch, is a business, or interest-oriented activity of the owner of the capital or their representatives.

The management function of the owner, in addition to making key, strategic decisions, is reflected in the control of the work and efficiency of the management. Management function includes operational management of enterprises and management of capital invested in the enterprise. Financial and other business results are parameters that control the work of management, not people, because management has the sovereign right of operational decision-making in the company, or the function of running a company. [1]

The ownership function also involves taking over the risk of invested capital. The owner is the one who appropriates the positive results of the work of the company (e.g. dividends, name, image, brand, etc.), but also losses and other damaging consequences if the business is doing bad.

The managerial role of the owner of the company is also reflected in the fact that he uses his capital and property as a guarantor to satisfy the needs of creditors of the company. These are banks and other creditors, financial and other institutions. The management function, in addition to the interests of the owner of the capital, includes the interests of the employees in the company and the interests of the wider community.

By its management decisions, conduct and business, the company is obliged to respect the interests of the society, by respecting legal regulations, norms and behavior, material obligations to the state, and moral norms and codes of business conduct.

The interests of employees relate to the right to appropriate a part of the total result, that is, the created values (profit) of the company, in the name of compensation for their work contribution and performance. The management decisions and business policy of the company must also respect these interests, in accordance with the market norms of evaluating individual and collective contributions in the work. This is a very important motive factor for employees in the performance of their individual and collective tasks from the point of view of a particular company.

4. CONTENT OF THE MANAGEMENT FUNCTION

According to the degree of comprehensiveness of powers and competencies in relation to other functions in the enterprise - management takes the highest place. Based on management and managerial decisions, the will, interests and orders of the owners, the state, the collective and the individual employees in the company are reflected.

The established role of management in the system of functional competencies of the company requires quality decision making, which represent the basic content of the management function of the company. Management decisions are the most common expression of collective decision making.

The content of the management function can be defined through the following activities: [1]
1. Setting goals, strategies and business policies of the company,
2. Setting up the organization of the company and its reorganization,
3. Setting out external and inter-company relationships,
4. Managing the functioning of the company and its organizational units,
5. Management and disposal of assets - company's capital,
6. Managing results and distributing business results,
7. Controlling the business of the company and its parts,
8. Control of the holders of all functions in the enterprise,
9. Deciding on all status changes of the company.

Setting goals and strategies implies the adoption of plans and programs, measures and decisions of developmental and current business policy. Plan-setting and elaboration of goals (long-term, mid-term and operational plans) determine the areas of business and behavior of the company in the long run.

By influencing the business environment, technology, markets and other external factors, strategies and plans are changing and adapting to new conditions and requirements. The goals of the company, as well as its business policy, cannot be realized without appropriate, normatively organized, organizational forms in which the company operates. Modern practice introduces and builds flexible organizational forms of the company, which can successfully follow the requirements and intensity of environmental changes and demands of modern technological processes.

Establishing relationships within a company is the normative and organizational regulation of the interdependence of parts within the company, as well as the rights, obligations and responsibilities of the holders of functions in an enterprise and its parts.

It is the duty of the company to comply with the norms and rules governing economic, national and international legislation. Status issues, changes and regulation of institutional relations with state and other bodies - also require continuous management activities in the company.

Relations with financial and market institutions are part of the activities of managing bodies of companies. Disposing of funds means their acquisition, maintenance, use, protection and replacement.

The distribution of results is one of the key activities of the management function. The results, based on the scope and quality of those results and the adopted business policy, determine the place of the individual in the distribution. On the other hand, the allocation determines which part of the results will be directed towards the development and investments of the company, which will be shared with shareholders and directed to other obligations.

Control is an inseparable part of the management function and it is given to certain authorities for supervision and enforcement. Managers retain certain control tasks and conduct them themselves through committees, commissions and the like, or by analyzing the periodic business and annual accounts. Part of the control function in the company are independent auditors.

5. HOLDERS OF THE MANAGEMENT FUNCTION

Holders of the management function are individuals or collective bodies delegated by the owner. They have the authority and bear the responsibility for performing the management function.

The company's management bodies are: [1]
- Assembly of owners (shareholders),
- Board of directors (The Steering Committee),
- Supervisor Committee.

We will monitor the functions and scope of these management bodies through the current normative regulations.

Assembly of owners - shareholders
The Assembly, as the body of the owner, has the most important strategic functions in the company. The scope of competence of the Assembly includes:
- Passing and changing the basic rules - company statute,
- Adoption of business policy,
- Adoption of annual accounts and business reports,
- Deciding on the distribution of annual profits and deciding on covering losses of the company,
- Deciding on all status changes, as well as the cessation of the company's operations.

The competence of the assembly includes the election and recall of the board of directors and the supervisory board in the company, as well as the selection of auditors. The competence of the shareholder assembly is regulated and specified by the company's Articles of Association, regulations and the rules of procedure.

Board of Directors (The Steering Committee)
The Steering Committee is the most important operational management body in the company. It is selected by the Assembly of the company and corresponds to the Assembly, i.e. the owners or representatives of the company's owners, for its work.

The basic functions of the Board of Directors or the Board of Directors are:
- Prepares all proposed decisions for the Assembly and executes the decisions of the Assembly,
- Adopts normative acts and rules on business operations and business policy (internal rules),
- Prepares and adopts the calculation of the achieved results of work (periodical and annual calculations),
- Reports to the assembly and shareholders on business operations and implementation of business policy,
- Proposes distribution of profits and coverage of company losses,
- Appoints and dismisses the Director,
- Decides on business cooperation and business connection with other enterprises,
- Makes investment decisions,
- Decides on the establishment of new enterprises and parts of the company.

The Board of Directors is responsible for the work to the Assembly that can replace it (in whole or in particular) if it is not satisfied with its work. The competencies of the Management Board are defined in the company's statute and other legal acts (regulations, etc.).

Supervisor Committee

The supervisory board is the body that performs the control function in the company. Its basic functions are:

- Performs supervision and control over the legality of work of all bodies and holders of functions in the company,
- Controls periodical and annual reports and calculations of results of work and business,
- Gives an opinion on proposals for the distribution of company results and coverage of losses.

The Supervisory Board determines whether the books, contracts and other acts and documents of the company are in accordance with the law and regulations. It reports to the Assembly about the results of the supervision and control undertaken by the company.

6. CONCLUSION

Based on the presented data and facts, it can be concluded that the management function has an extremely important role in the business operations of a modern enterprise. Performance and business results of the company largely depend on the management decisions. Also, this function creates and directs the remaining functions in the vertical division of jobs: administration, and execution. In this sense, the management function sets the framework for the strategic directions of the development of the company, which is further, through the administration function (operational management), translated into the corresponding work orders and assignments, which are assigned to the executors. If the goals and tasks set at the management level are in line with all other factors, the holders of functions, the interests of individuals and groups both in and out of the company, as well as the company's capabilities and resources, then successful business results can be expected.

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ENTERPRISE RISK MANAGEMENT IMPLEMENTATION: A REVIEW OF GOOD PRACTICE

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Abstract: *The inherent complexity and risk profile of business operations and of financial and capital markets in which they operate increase the importance of effective risk management practices and the modalities of their implementation and application. In view of this, it is essential to know the aspects of the implementation of risk management, which is why a review of the literature has been carried out.*
After defining the search criteria, the search was performed on the Web of Science Core Collection database, where 4 articles were obtained. To consolidate research, it was considered appropriate to perform a search on Google Search to identify the studies carried out by practitioners. 9 studies were obtained, forming a final 13-articles database.
The main objective of this work is to provide an overview of the existing literature on implementation of risk management within organizations, identifying key issues raised by authors and suggesting possible research pathways in this area.

Keywords: *enterprise risk management, implementation, good practice, review.*

1. INTRODUCTION

In recent years, risk management has developed into an accepted discipline, assigning its own language, tools and techniques. In the academic environment its proliferation is represented by the growing number of works dealing with this subject but also by the inclusion in the management manuals of sections on risk management [1].

In the business environment, the inherent complexity and risk profile of business operations and the financial and capital markets in which they act, increase the importance of effective risk management practices and the detailed rules of application [2].

The benefits for the organizations through the adoption of risk management practices make its importance widely recognized. The main advantages that strengthen the need for implementation of risk management are represented by: reducing the variability in the performance of the entity, aligning and integrating different opinions related to risk management, improving stakeholders' confidence and involvement, strengthening the relationship between the risk management mechanism and corporate governance, increasing the capacity to successfully respond to the permanent changes in the business environment and the development of an open and positive culture with regard to risk management [3].

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In practice, the implementation of risk management has provided different advantages to organizations such as: reducing the total cost of risk of the turnover from 2.7% in 2006 to an estimated 2.2% in 2010 (DLA Piper), reducing risk exposure by 85% for 51 analyzed projects (Nestle), financial exposure of significant risks decreased by 70% (governmental agency) [4].

Implementation of integrated risk management is an exercise in change management, there will be people who embrace change and see it as a welcome improvement for the company, but there will be people who consider change as an unnecessary work [5].

The implementation of the integrated approach to risk management within the organization is a process that is usually carried out over several years and is subject to numerous factors. This is possible in the context of a strong initial strength deriving from the novelty of the initiative, but also of an aspiration to obtain a fully mature programme [6].

As any major project involving a multi-year process, the action plan must be realistic in terms of objectives, sub-objectives and timelines [7], the main objective being the expansion and deepening of the ERM capacities of the organization [8].

Organizations often consider it useful to start the implementation initiative with caution, addressing smaller projects first, so that tangible results can be achieved early. Early successes can help generate momentum, enthusiasm and probably funding for future risk management initiatives [9].

The research is structured as follows: after introduction, research methodology, main results and discussions, conclusions are presented.

2. RESEARCH METHODOLOGY

The main objective of this work is to provide an overview of the existing literature on implementation of risk management within organizations, to identify key issues raised by authors and to suggest possible research pathways in this area.

In order to achieve the objectives, a database of 13 articles was built, which was subsequently analyzed to extract issues related to implementation of risk management. The following steps have been carried out in detail:

A. Setting keywords: risk management, implementation.

B. Selecting databases.

It was decided to use the Web of Science Core Collection database due to the fact that the base information are used (search, discovery and evaluation) by nearly 7,000 academic and government institutions and top corporations, it has 1.3 billion references quoted since 1900, complete references containing data related to authors and affiliation and incorporates more than 18000 journals, carefully and objectively selected by quality [10].

The low number of research obtained in the Web of Science Core Collection database has led to an examination on Google Search. In view of the reduced approach of the subject of the implementation of risk management by academics, a review of the bibliography made available by the practitioners was considered appropriate.

A number of documents have been found dealing with the subject in many respects. It is true that most of them focus on the effective application of risk management, but those that have a conceptual approach to implementing risk management have been identified.

C. Effective search performance

In the Web of Science Core Collection database, the Key words were initially introduced: “Risk Management” in “Title” and “Implementation” in “Topic”, resulting in 1435 articles. Given the large number of returned results, it was decided to enter the keyword “Enterprise” in the “Title” alongside the other two previously established words. A list of 76 articles was obtained, coming from various fields besides the ones of interest (management, economics, business, business finance) such as: industrial and civil engineering, public administration, telecommunications, computer science information systems, construction building technology etc.

The final search focused on the three key words entered in the title and the database returned 13 articles, published between 2007-2018, most of them from year 2011 (4 articles) and 2014 (3 articles). Given the small number of results, the refining by document type and field of origin was waived, directly performing the analysis. Of these, 5 were not available, 4 were not in accordance with the requirements of the research, and therefore, 4 articles of the Web of Science Core Collection are considered the result.

The same keywords were used on Google Search, but two searches were made, the first in May 2018 where they resulted in 4 documents and the second in August 2018 where they resulted in 5 more documents. Most are published after the year 2009, only one is from 2003.

3. RESULTS AND DISCUSSIONS

The data collected through the revision of literature has been deeply analyzed to gain insight into the ERM implementation, to identify important aspects and to draw conclusions on the manner in which the literature covers this specific subject. Table 1 summarizes both data relating to authors, the year of publication, the title of the research and, where appropriate, the magazine, conference or publisher and relevant information extracted there from.

Table 1: List of articles used in the revision of literature

Authors, Year, Title, Journal	**Issues/Topics covered**	**Description of topics covered**
WEB of SCIENCE CORE COLLECTION		
Rostami, A., Sommerville, J., Wong, I. L., & Lee, C. (2015). Risk management implementation in small and medium enterprises in the UK construction industry. *Engineering, Construction and Architectural Management, 22* (1), 91-107.	Involved variables in ERM implementation	(1) Managerial awareness and/or support on ERM implementation, (2) financial resources for technology and training, (3) the adoption of appropriate tools and techniques for risk management, (4) skilled personnel, (5) personal ownership, (6) developing an appropriate risk management culture.
Ahmad, S., Ng, C., & McManus, L.A. (2014). Enterprise risk management	Aspects of ERM implementation	(1) ERM implementation is congruent with investors and other stakeholders’ demands for better corporate governance,

(ERM) implementation: Some empirical evidence from large Australian companies. *International Conference On Accounting Studies 2014*, August 18-19, 2014, Kuala Lumpur: Procedia Social and Behavioral Sciences, pp. 541-547.		(2) the implementation is considered complete or full when ERM is embedded into corporate strategic planning and decision making processes, (3) a consistent trend of Chief Risk Officers (CRO) appointment within firms that implement ERM, while others use the existence of a CRO as proxy to ERM implementation.
Zhao, X. B., Hwang, B. G., Low, S. P. (2014). Enterprise risk management implementation in construction firms: An organizational change perspective, *Management Decision, 52* (5), 814-833.	Drivers for ERM implementation	(1) compliance and regulatory requirements, (2) the occurrence of reports or standards, (3) reducing revenue volatility, (4) low costs and losses, (5) increase profitability and earnings, (6) improving decision-making, (7) better risk reporting and communication, (8) better allocation of resources, (9) improve owner satisfaction, (10) improving control over business and ongoing projects, (11) a wider range of risks, (12) IT advances, (13) encouragement by management to such practices.
Lai, F. W., Samad, F. A. (2011). Enterprise risk management framework and the empirical determinants of its implementation. *International Conference on Business and Economics Research 2010*, November 26-28, 2010, Kuala Lumpur: Procedia International Proceedings of Economics Development and Research, pp. 340-344.	Characteristics of the ERM implementation framework	(1) provides common understanding ERM initiative objectives, (2) provides common ERM terminology, (3) assures enterprise-wide information about risk, (4) enables clear accountability for human resources involved in risk management, (5) aligns ERM with business objectives, strategic planning and decision making, (6) integrates ERM with all functions and business units, (9) provides rigor to risk management process.
GOOGLE SEARCH		
Frigo, M. L., & Anderson, R. J. (2011). Embracing Enterprise Risk Management: Practical Approaches for Getting Started.	Action plan for ERM implementation.	1) seek Board and Senior Management involvement and oversight, (2) identify and position a leader to drive the ERM initiative, (3) establish a management working group, (4) conduct an initial enterprise-wide risk assessment and action plan, (5) inventory the existing risk management practices, (6) develop initial risk reporting, (7) develop the next phase of action plans and ongoing communications.

Latilla. (2011). 8 Step Guide to Implementing ERM.	Reasons for ERM implementation	(1) improved regulator, investor and rating agency confidence, (2) enhanced corporate governance, (3) improved ability to respond to changing business demands, (4) ability to evaluate the likelihood and impact of major risks, (5) provides an integrated as opposed to silo approach, (6) promotes an open, positive, risk-aware culture.
	Implementation steps	(1) obtain Board and Senior Management support and involvement, (2) appoint a strong ERM leader, (3) establish a risk committee, (4) conduct a risk assessment, (5) review existing risk management practices, augment, controls, implement action plans, (6) implement risk reporting, (7) communicate results, (8) review, enhance, repeat.
Protiviti. (2006). Enterprise Risk Management: Practical Implementation Advice.	Implementation steps	1) conduct an enterprise risk assessment (ERA), (2) articulate the ERM vision and value proposition using gaps around the priority risks, (3) advance the risk management capabilities of the organization for one or two priority risks, (4) evaluate the existing ERM infrastructure capability and develop a strategy to advance it, (5) advance the risk management capabilities for other key risks.
The Institution of Civil Engineers, & The Faculty and Institute of Actuaries. (2009, Iulie). ERM – a guide to implementation.	Key tasks preceding implementation	(1) study existing risk practices, (2) construct a vision of future risk management, (3) plan the implementation and seek authorization, (4) seek authorization and prepare to get started.
	Elementary components in the development of implementation phases	(1) the Board itself, (2) organizational matters, (3) methods used for managing risks, (4) reporting systems, (5) risk Governance, (6) procedures.
Miccolis. J. (2003). Implementing Enterprise Risk Management: Getting the Fundamentals Right.	Four key questions to determine the appropriate implementation framework	(1) “What are our objectives for ERM?”, (2) “What will be the scope of our ERM program?”, (3) “What kind of organizational structure around ERM will work for us?”, (4) “What specific tools will we need to implement ERM?”.
Insurance Commission of Western Australia (2016).	Steps in implementations	(1) support of Senior Management, (2) development of the risk management framework,(3)

Sample Risk Management Implementation Strategy.		communication/education, (4) managing risks at the strategic level, (5) managing risks at business unit level: divisional, program, project and team, (6) monitoring and review.
Brackett. J. (2011), Enterprise Risk Management: A pragmatic, four phase implementation plan.	A four-phase ERM methodology	(1) risk program development, (2) risk assessment and prioritization, (3) risk treatment, (4) risk validation and monitoring.
Gallagher Higher Education Practice (2009). *Road to Implementation: Enterprise Risk Management for Colleges and Universities*. Rolling Meadows: Arthur J. Gallagher & Co.	ERM implementation steps	(1) building a case for ERM, (2) building an ERM foundation, (3) implementation, (4) sustaining your ERM program.
Institute of Management Accountants. (2007). Enterprise Risk Management: Tools and Techniques for Effective Implementation.	ERM development phases	(1) building a foundation, (2) segment level ERM, (3) enterprise-level ERM.
	Practical implementation considerations	(1) ERM infrastructure, (2) staging ERM adoption for early wins, (3) the role of the management accountant, (4) ERM educations and training, (4) technology, (5) aligning corporate culture, (6) building a case for ERM.

Following the analysis of the specialized literature, it was found that it addressed the implementation of risk management from the perspective of the steps necessary for the implementation of the ERM, the components of implementation, the factors determining the organizations to such a programme, the characteristics of the ERM framework, but also the benefits provided to organizations through implementation.

The authors' proposals range from general stages of the ERM implementation to some precise ones, focusing mainly on the following pillars: leadership of the organization, organizational aspects, risk management methods, reporting system and procedures [7].

Although many sources consider the support, leadership involvement and the appointment of a leader for the ERM initiative, as the first phases of the implementation process [2], [8], [11], [12], there are also sources that argue and describe the existence of activities that precede those previously stated, activities such as conducting an assessment of existing risk management practices in the organization and building a vision of risk management from the results of the evaluation [7], [13], [14].

Therefore, the first stage is a*ssessment of risk management practices* present in the organization. [14] calls this stage "enterprise risk assessment" (ERA), and [8] considers it the center of the implementation process although it positions it after the phases where the management's support is required, the risk leader is appointed, and the composition of the working group is established.

Conducting such an assessment aims at shaping the current situation of significant risk management capabilities, which will become the starting point and the basis of the development of the ERM vision [14].

Since there is no optimal way of achieving the evaluation, organizations can start by analyzing the business strategy, checking documents containing relevant risk information such as insurance, audit reports and health and environment safety reports [13].

Information can also be obtained by organizing discussions that have the theme of the organization's strategy with the leadership, from where it can result in a list of significant risks for the entity [8], a list that can be improved with risks obtained from organizing interviews, surveys and discussions with other people in the company [2], [12].

The next stage treats the *development of a vision of risk management*. To develop a vision of how the organization will look with the introduction of the ERM it is necessary to determine the possible benefits but also the necessary changes [13], [7].

Implementation of risk management can give the organization a wide and varied spectrum of advantages, such as: reducing income volatility, lowering costs and losses, increasing profitability and income, improving the decision making process, a good allocation of resources, increased stakeholders satisfaction [15], the common understanding of the objectives and terminology of the ERM, clear responsibilities of human resources involved in risk management, alignment of the ERM with business objectives, integration of ERM with all functions, strengthening the risk management process [16].

The desired risk management status will focus on identifying gaps and setting ways to improve risk management capabilities to close these gaps [12], [14]. Instead, [8] considers that the vision for risk management should not only address the gaps in risk management capacities, but also the solid areas that can be improved.

The greater the gap between the current state and the desired state of the risk management organization's capabilities, the greater is the need to implement the risk management and the duration of development of such capacities [14].

This stage is found in other research in the form of setting goals and purpose, [17] considers that the ERM objectives range from reactive to proactive, being: compliance with regulatory requirements, defense against risks with effects on strategic objectives, coordination and integration of risk management practices in different silos, and for reasons of efficiency and exploitation of opportunities.

The next step is *creating an implementation plan*. The plan can include an exposure of the need for the ERM implementation, of potential benefits from implementation, examples of good practice, the current situation of capacities and gaps in risk management, necessary human and financial resources, and possible challenges [13]. Further information on the following steps and associated deadlines, the modalities of staff training, possible risks and an estimate of the costs of the implementation can also be included [7].

The implementation plan is handed over to the management and the *agreement and support for the implementation of the* ERM is required [11]. Once the support is granted, the management should: determine the overall business strategy and objectives, to provide resources, to establish target data, to communicate the given support and the importance of risk management and their willingness to increase awareness of risks throughout the company, to give the tonality of the entity's risk culture [12], [18].

Institutionalization of ERM within the company is done either by assigning the responsibilities of the ERM to an existing function, either by setting up a new function, represented by a CRO (Chief Risk Officer), an ERM committee or a working group or a combination of these entities [17].

Appointing a strong leader to lead the implementation of risk management is the next step. The typical qualities of a leader of the ERM include: wide and solid understanding of the business, structure and strategy of the organization, strong working relationships with leadership, knowledge of organization's risks, credibility and respect throughout the company, good project management skills, good communication skills [12], [13].

If such a role (CRO) does not exist in the organization, it is good to use existing resources, for example, the directors of the audit or financial departments, it is not necessary for this person to lead the risk management operation in the long term, but it will lead the initiative [8]. Hiring an outside person in this position can also be considered, someone who will bring a current perspective, new skills and a schedule that is clear and free of other responsibilities [13].

After the nomination of a risk leader, the next stage is f*orming a workgroup*. In comparison to the nomination of a risk leader, the formation of a working group is optional and is used by risk leaders as an effective mean to involve the right people in the organization into the implementation process and to ensure the success of implementation [7].

The committee should also include, besides 'C-suite' directors (Chief Executive Officer - CEO, Chief Financial Officer - CFO, Chief Operating Officer - COO, Chief Information Officer - CIO), the main representatives of business units, to ensure that: there is visible top-down support and a bottom-up agreement, risk management efforts are included in the company's core activities, objectives, risks and controls are discussed from several perspectives to increase the degree of awareness and understanding of their impact on the company [12].

The responsibilities of the risk committee include: communication of risk policy, increased awareness on risk management, acquisition and development of risk management skills, elaboration of specific documentation (forms, register of risk), development of a process of performance management and a process of recognition, rewards and sanctions [17].

The next step involves the d*evelopment and implementation of an action plan* aimed at issues such as leadership, culture, education and training, a risk management vocabulary, risk management methods, technology, reporting system and performance indicators system. Figure 1 presents a description of these issues.

The final step of the process is the *review and improvement of the ERM programme*, given that the completion of the ERM implementation does not mark the completion of the initiative, but the initiation of a continuous process that will become an integral part of the organization structure, strategy planning and decision-making process [15], [19].

Ways to improve the ERM process can consist of: using lessons learnt from the implementation of risk management, regular communications on different types of risks, organizing internal trainings on policies and risk practices for new and existing employees and the organization of training courses on risk skills [12].

Figure 1: Description of the action plan elements on implementation of the ERM.

Leadership	• The ways to improve the involvement of management in the implementation process may involve the co-opting of a director outside the company for extending the management experience, organizing regular meetings on ERM or providing information to management of the ERM concepts.
Culture	• The creation of a risk management culture is the responsibility of leadership, and its characteristics are: openness, favourable to risk management, with consultative leadership, participation in decision-making on risks, organizational learning, knowledge exchange, good internal communication and cultural changes, such as the shift from blame to liability, a transition from withholding unfavourable information to immediate reporting, and shifting from an assessment of the impact of work on the area or unit to an assessment of the impact of work on the whole organisation.
Education and Training	• Trainings may include information related to: the nature of the risk, the legal and regulatory requirements related to risk management, the existing ERM frameworks, the skills required for risk management, the process of identification and risk assessment, realization of risk maps, reporting structures, use of specialized software and performance measurements.
Vocabulary of risk management	• Developing a common risk vocabulary is a critical point in developing a risk communication and culture, it is designed to establish a common understanding of the terms, concepts and phrases describing the ERM process.
Methods specific to risk management	• The improvement of methods used for risk management may include: establishing systems for the development of appropriate risk responses, using a methodical but imaginative and creative approach, establishing systems of monitoring for specific risks for which adequate responses have not been implemented, reviewing and improving the various methods used to manage strategic, project and operational risks.
Technology	• With regards to the development of risk management software, organizations can use their own resources to create a program tailored to their needs, hire consultants to help develop or purchase the software. These, in addition to assisting the organisation with the entire risk management process, also help to collect, model or report data.
Reporting System	• New reporting formats will be developed (where the graphs and colours can be used on a large scale), the new formats can also include a risk dashboard for leadership and their effectiveness can be tested by stakeholders and subsequently revised.
Performance Indicators System	• The risk committee will develop and apply a system of indicators and a mechanism for the continuous monitoring and review of the risk management process.

Source: adapted from [7], [8], [12], [13], [20]

CONCLUSIONS

Implementation of risk management is a recent topic, but interest in the topic is growing both from an academic point of view, by increasing the number of works published on this subject and from the point of view of practitioners who are stimulated to adopt risk management practices.

In academia, the topic of the ERM implementation is treated from the perspective of the process components, the characteristics of the ERM framework, the benefits, the determining factors and the challenges.

Instead, practitioners are channeling their efforts on the actual stages of implementation of risk management in the form of a plan of implementation, phases, steps, methodology, essential elements on the basis of which the implementation steps are determined. The inclination of practitioners to address the actual implementation of the ERM can be attributed either to experience or to the study of the domain for application.

The efforts of the business environment have not gone unnoticed, in 2018, the International Standardization Organization includes in the ISO 31000:2018 Risk Management Standard – Guidelines 10 structured activities in 4 components (plan, implement, measure and learn) related to implementation of ERM [21].

The introduction of information related to the implementation of the ERM within the ISO standard 31000:2018, can be the incentive necessary for organizations to study the process and its benefits, can eliminate the state of indecision of organizations when implementing the ERM or may represent the support for them to begin implementation procedures.

The increase in the trend of implementation of the ERM in the business environment can also represent the formation of a homogeneous basis, with the help of which academics undertake studies, where to obtain real and coherent information about the current state of implementation of the ERM, ways to improve techniques and practices, new practices in obtaining the skills needed in implementing and conducting the ERM process, patterns of the implementation process or challenges and risks of the initiative.

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CORPORATE CHALLENGE FOR TRANSFORMATIVE APPROACH IN PROCESS OF SOCIAL VALUE CREATION

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Abstract: *In conditions of strong global pressure from the socio-economic and environmental demands of the environment, the transformative model of creating social values becomes a growing challenge for the business community. The transformative approach to socially responsible action focuses on the macro (national) level implies the interconnection of social-economic and environmental systems, for which, through deeper changes in national strategies, management is optimized for achieving higher changes in the human and eco-system. This level of approach has the key to essential changes at the societal, organizational and individual levels. The transformative approach to CSR, known as the DNA model for CSR 2.0 is the new holistic approach to strategizing the concept in the current economic conditions - ages of responsibility. The article analyses and evaluates CSR 2.0, and also shows basic differences between the classic and new approach for the concept strategy.*
The focus of scientific interest is degree of creating CSR policies based on the DNA 2.0 model. Research was conducted in 155 Macedonian companies from a deliberate target sample of companies. According to the principles of general methodology and specifics of the subject, research was conducted on two levels: theoretical and empirical level.

Keywords: *CSR policy, CSR strategic dimension, Social shared values*

1. INTRODUCTION

In order to ensure sustainability of the national economy as well as create preconditions for equal participation of organizations in the competitive market globally, countries around the world adopt various economic policies that refer to the purchasing power of the market, the export of raw materials as a basis for survival, the threat of multinational companies, corporate vulnerability, global competitiveness, technology development, etc. However, social changes, with social and political dimension, are a consequence of the intensity of globalization and liberalization, are questioning and emphasizing the responsibility of organizations towards society. In addition to the attention and care that the global business has from the influence of the global economic processes on sustainability and competitiveness, in developing its organizational and business strategies, it simultaneously focuses on the impact they have on the immediate environment, that is, the impact of business activities on the society. Over the past three decades, intensive business development driven by the pressure to generate surplus profits confronts world business leaders with the watchful eye of the public about their relationship and influence on social, ethical, economic and environmental aspects. In order to establish a balance between business activities and care for internal and external stakeholders (employees,

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customers, consumers, suppliers, partners, investors, trade unions, the local community, public authorities, the NGO sector, etc.), the organizations develop socially responsible (SR) approach to action.

Corporate Social Responsibility (CSR) is a complex, multi-faceted phenomenon, which by its nature is a kind of link between business and the social environment (with a social, economic and environmental dimension). For the modern world, CSR is a new model of economic democracy, whose political function is mirrored in pursuing a sustainable development based on economic, environmental and social justice.

With the help of the SR approach, organizations show an innovative approach in their actions towards social and economic challenges, through cooperation with internal and external stakeholders, thus improving their social performance. For internal corporate action, the CSR is a multidimensional philosophy of life in managing the system on a voluntary basis. Aware of the role of their action in and on society, as well as the benefits of a pro-active approach to SR, companies in EU Member States promote their CSR strategies using their instrumental value to send signals to stakeholders about the existence of the social interest, as well as for returning investment in the future based on the volunteer approach.

2. CORPORATE APPROACH TO SOCAL RESPONSIBILITY

The application of the SR in the organization is a tool for channeling the pressure from the various groups of stakeholders. Development within the organization transits a series of short-term reactions ranging from defensive to proactive forms of social behavior. Forms of behavior that the organization will display within the range can be followed by intensive media coverage, be of minimal value to society and without strategic benefit to the business (Porter & Kramer, 2006). The impression is still that the organizations, in the current socio-economic and social conditions, although they understand the contribution of the SR to social progress and the development of corporate image, still have a defensive role. Militaru & Ionescu (2006) point out that, in certain circumstances, organizations consider the SR more of a peril, for an external risk of management and with the least possible investment, rather than for the possibility of a valuable social influence or competing difference. The offensive role of organizations is changing with investments of billions of dollars a year in philanthropy and in SR initiatives. The offensive approach to CSR differentiates the reputation of the organizations, but cannot protect it, unlike the defensive, which can protect the reputation, but not to differentiate it from the competitive environment. For success in the business community, Militaru & Ionescu (2006) point out the need for both approaches to CSR, which requires commitment to achieving social goals that meet social expectations. In their study they point out that organizations in their actions, in order to provide their own benefit in terms of reputation and competitive advantage, need to replace the defensive with an offensive approach to CSR. With the offensive approach and through rising social investments, organizations have impacts that exceed social expectations, compared to the defensive approach, by which the organization achieves significant short-term gains and impacts on the environment that are under social expectations. For Zadek (2002), the levels of manifestation of CSR differ depending on the tools and processes through which the concept is applied, which can be also called generational differences in CSR. They distinguish three generations of CSR legal compliance: the first generation of a low-level business case, the second generation of strategic CSR, and a third generation of changed competitive advantage. Modern management within the model of a business case acts according to the principles of the so-called 'Doing good'. Zadek (2002) support the view that the "win-win" movement provides profits through "good acting" as one single and most important way of doing business.

Gaberman (2007) distinguishes five types of organizations based on the way they perceive and implement the CSR program: "*Unsensitized" organization* - one approach when the organization does not recognize voluntary social responsibility and remains unconnected. These include organizations that adhere to the legislation, only in order not to be a burden on society. "Philanthropic" organizations - act on the basis of moral values and choices of the founder. Charity is not part of the corporate strategy and does not communicate with the public. "*Random sponsor*" is the type of organization that tends to form a good corporate reputation through a given sponsorship. Activities are selected on the basis of proposals and pressure from society, as well as from the offered public opportunities, without any further interaction with the broader strategy. *"Permanent sponsor"* is a type of organization that aspires to contribute to improving the physical and social environment. They choose projects that have a connection to the corporate strategy and involve employees. The active *"corporate citizen"* is an organization that places CSR at the heart of corporate philosophy and restructures the decision-making process in order to serve the concept. In cooperation with other sections, it requires co-operation in order to contribute to sustainable development without requiring short-term profit. Employees in this type of organization are not only internal observers but also an active component in building CSR programs.

The organization's approach to the SR is determined by the attitude of the organization for the SR, which reflects the way managers and employees of the organization see their duty and commitment to make decisions that will protect, enhance or improve the well-being of stakeholders and society in general (Jones & George, 2008). The degree of commitment of the organization to the SR is variable and ranges from low to high. The extremely low commitment of the organization to the SR denotes the *approach of obstructionism*, in which management and employees choose not to apply to the SR way, more precisely behave unethically and illegally, and at the same time do everything that cannot be recognized by their stakeholders for their behavior and from society. Unethical behavior is a major feature of the obstructive approach. Despite attempts at unethical behavior and taking into account only personal interests in relation to health and well-being of stakeholders and above the law, most of the companies that have focused on this approach from the continuum are no longer part of the market. Organizations that manifest their extreme attachment to ethical behavior in their actions show a *defensive approach* to the SR. The company and managers in this modality behave ethically to the extent that they remain within the scope of the law and legal requirements and do not try to be above the legal provisions. Otherwise, these managers, when making ethical decisions, prioritize their personal interests at the expense of the interests of other stakeholders. Responsibility for acting organizations is most often manifested through volunteer programs for employees, which aim to provide employee satisfaction and motivation and better productivity without being exposed to additional investments. In this way, they abide by the legislation and are protected against possible punitive repercussions. The national economic condition moves the need of the organizations towards a higher stage of the SR, which is why they manifest their orientation towards the *approach of adjustment*. The company and the management, in addition to the consent of the organization's ethical behavior as a whole, balance the interests of the stakeholders. At the same time, the demands of the shareholders / managers are seen in a joint manner with the interests of the other stakeholders. Management makes choices of policies and activities that are reasonable for the social environment. Large organizations / companies are oriented towards this approach, mostly to ensure competitive advantage on the market through the SR of its operation. The adaptation approach corresponds with the years of philanthropy in which the access to the SR is termed as charity SR. The organizations that achieve this stage from the development of the access to the SR provide donations and sponsorships for various socio-social and environmental reasons in order to support the community or civic organizations. In the years of misrepresentation, organizations apply the SR for media promotion and as an option to improve their own brand, image and reputation, while the approach itself is also called a promotional approach to the SR. The promotional approach to the SR can be built on the basis of the charity and strategic approach to the SR. Organizations and management, with the active acceptance and application of the SR way of behavior, demonstrate a *proactive approach*. Through this approach, the organization teaches about the interests of different stakeholder groups using its own internal organizational resources and promotes the interests of stakeholders / managers as well as other stakeholders (Jones & George, 2008). Depending on the economic management period, access to the SR implies linking the OO activities with the core business activities (e.g. Coca-Cola water management policy), which is achieved through the support of the social management systems environmental issues that encompass one cycle of policy development for SR, goal setting, stakeholder interaction, program implementation, audit and reporting.

3. TRANSFORMATIVE APPROACH IN PROCESS OF SOCIAL VALUE CREATION

The current economic period known as the years of responsibility from organizations expects to identify and signal the roots of current unsustainability through the development and stimulation of the development of an innovative culture and a revolutionary approach to processes and products / services and through lobbying for progressive national and international policies.

According to Visser (2011), organizations' access to SR is developed through five global economic periods called: years of greed, philanthropy, misrepresentation, management and accountability. In each of these periods, different approaches were developed, degrees of development of the SR, which are called: defensive, charitable, promotional, strategic and transformative approach, which is also referred to as CSR 2.0, systematic CSR or radical CSR. According to him, organizations are striving for a developmental shift in the approach to SR throughout the period, although sometimes they also apply activities that are characteristic for several economic periods and approaches. Contemporary management, in addition to encouraging the business community to transition to transformational CSR, as the peak of the current economic period called years of responsibility tends to develop a new holistic model of CSR called DNA of CSR 2.0. The *strategic approach* to SR is operationalized at the macro (organizational) level (organizational support for social and environmental issues) and, as Visser (2011) says, signifies the compliance of the concept of responsible action with the organizational strategy and the inclusion of the initiatives for SR behavior (social and environmental issues) in the strategy (without making any changes to the strategy). In contrast, the *transformative approach* to SR focuses on the macro (national) level and implies the interconnection of social and social systems and environment, for which, with deeper changes in national strategies, management is optimized for achieving higher changes in human and in the eco system. This level of approach has the key to essential changes at the societal, organizational and individual levels.

For the highest stage of SR approach in the current economic conditions, called *years of responsibility*, the transformative approach to SR, also called the *DNA model for CSR 2.0*, is considered. For Visser (2011), it is the new holistic model of CSR, for which little is said in the literature given its inception over the last decade. It is developed following the example of biological DNA. The bases of the DNA of responsibility are: creating values, good behavior, social contribution and environmental integrity. The most developed form of the SR approach, in addition to its orientation towards responsibility, equally applies to sustainability. The title of the approach is an acronym of the five main principles for its achievement: *Creativity (C)* - a principle that provides the production of a wider framework of opportunities for solving complex socio-social and environmental problems compared to the opportunities provided by the standards for SR, including ISO 26000. *Scalability (S)* - a principle that refers to the need for remodeling the programs - case studies for the SR prior to their introduction into an organization. *Responsiveness (R)* - a principle that requires greater cross-sectoral collaboration and stake-oriented approach to stakeholders at any organizational level, with an unfortunate transformative response to specific industries as to whether their behavior is part of the problem or part of the possible solution to social problem. *Dual activity (2)* - a principle that means "Think globally, act locally", referring to internalizing international norms and standards in a local context and finding local options and solutions that are appropriate to the cultural environment. Using the principle, it is possible to move along the continuum from the point "or-or" the world in one size that suits everyone to the point "two-and-one" force in the world of diversity. *Circle (0)* - the principle of a global economic and commercial system that requires it to overcome all the weaknesses in the design of products, to protect the world from unlimited resource and environmental waste generation. The principle tends to overcome the weaknesses of the design by creating inherently good products.

H: Private sector organizations differ from public sector organizations in terms of access to the process of creating SR policies.

4. METHODOLOGY

4.1 Research approach and instrument

The current growing interest in CSR, both researchers and managers, as well as scientists and practitioners, is a landmark of today. The interest of practitioners for CSR is one step ahead of the SR relationship with the competitive advantage in the context of the developmental economy. Scientific research, from a methodological point of view, has been realized on a theoretical and empirical level, according to the principles of the general methodology and specifics of the subject of research.

The goal of the research is identification of the access of the organizations in the Republic of Macedonia to the SR. For the purposes of the research, in terms of research strategy, the strategy of research that is most closely associated with the deductive approach is engaged. In addition, in order to collect the necessary qualitative data, which are analyzed quantitatively, by applying descriptive and deductive strings, a questionnaire with 36 claims on the process of creating the SR policies is applied.

Taking into account the specifics of the predefined group of respondents, a deliberate (target) copy of the Macedonian enterprises and state institutions (organizations) has been designed, contacted in writing and electronically. When designing a sample of respondents, account is taken of their suitability with respect to the practice of the concept and the already demonstrated expertise in the subject of research.

For the purpose of the research, the descriptive and exploitative method was used, which allowed identification of the general characteristics of the investigated phenomenon, as well as determining the causality between the examined variables of the hypothetical framework.

The univariate level of analysis was achieved by applying descriptive statistics, depending on the level of the measures taken for the independent and dependent variable (e.g. general distribution of responses, central tendency measures, dispersion measures, graphic display).

a. Corporate approach to SR

Graphic illustration (Graph 1) of the data in Table 1 refers to the percentage of organizations to each of the four approaches that the organizations of the sample (N = 155) have in relation to the process of creating the SR policies. Namely, 1.94% of the organizations from the sample manifested the approach of obstructionism towards the process of creating SR policies, 26.45% demonstrate a defensive approach, 34.84% of the organizations from the sample demonstrate the approach to adapting to the SR policies, while the largest percentage of organizations, i.e. 36.77% proactive approach to the process of creating SR policies.

Table 1: Distribution of organizations according to the approach to the process of creating the SR policies

Corporate approach toward CSR	obstructionism	defensive	adjustment	proactive
%	7.74	32.26	38.06	29.94

Graph 1: Percentage distribution of organizations according to the approach to the process of creating CSR policies

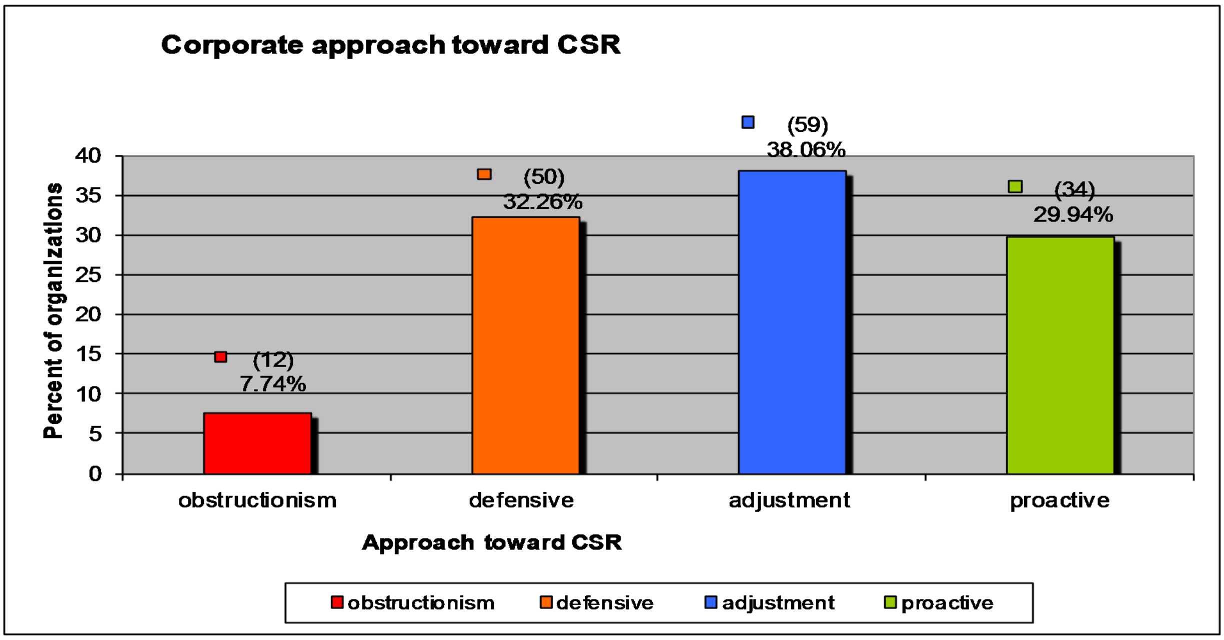
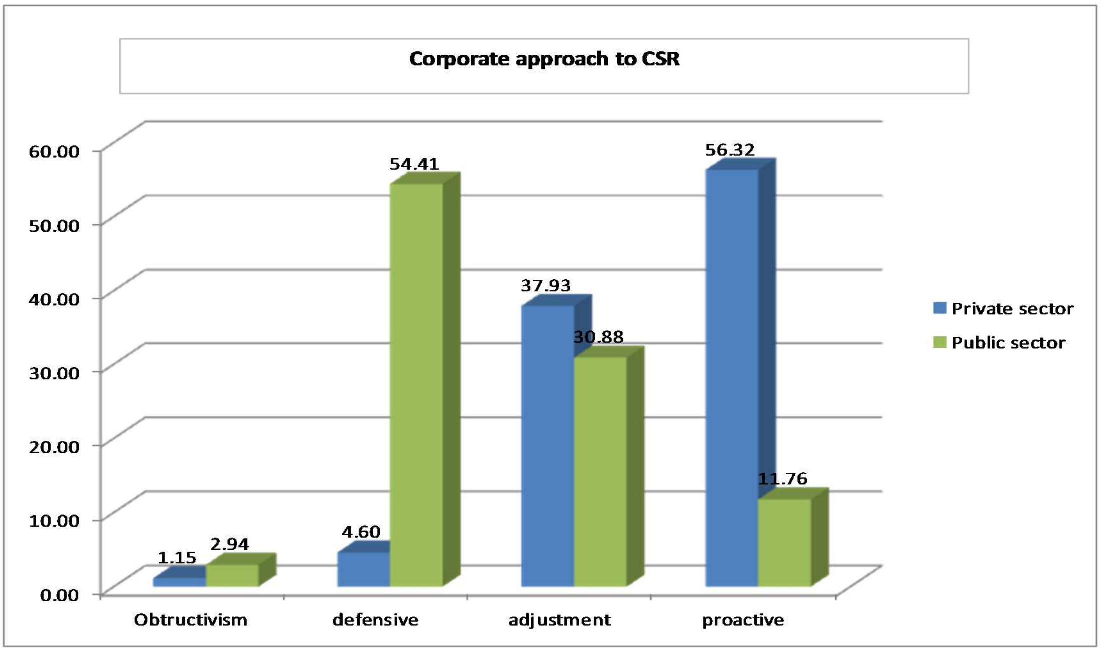


Table 2: Cross tabulation of organizations with different capital origin toward approach to CSR policy creation

Corporate approach to CSR	Obtructivism	defensive	adjustment	proactive	Total
	interval Min- Max (1.20-2.10)	interval Min- Max (2.11-3.00)	interval Min- Max (3.01-3.90)	interval Min- Max (3.91-4.80)	
Corporate origin					
Private sector	1	4	33	49	87
%	1.15	4.60	37.93	56.32	100.00
Public sector	2	37	21	8	68
%	2.94	54.41	30.88	11.76	100.00
Total					155/100

Graph 2: Organizational access to the process of creating the SR policies



The growth of organizations with different origin of capital in relation to access to the subject of research (Table 2 and Chart 2) clearly indicate that 37.93% of those from the private sector and 30.88% of those in the public sector apply the approach to adapting to the SR policies. Private sector organizations, according to the percentage of the manifestation (56.32%), note a development trend toward a proactive approach. The negative trend of the manifestation regarding the defense approach is shown by the public sector organizations, with a percentage of 54.41%.

Table 3 and Table 3a presents the descriptive statistics (N,%, Mean, Max, Min and SD) for the sample of organizations, which differ in origin, ownership of capital and activity. According to the criterion framework, the organizations in the sample differentiate according to the manifestation of the following approaches, as follows: the access of obstructionism to the SR manifests a total of 1.94% of the organizations, out of which 1.29% are organizations from the public sector with a service activity. 26.45% of organizations apply a defensive approach to the process of creating SR policies, of which 23.87% are public sector organizations and 2.58% are from the private sector. 34.84% of the organizations in the sample achieve an approach to adapting to the SR, of which 21.29% are private sector organizations and 13.59% are those from the public sector. The access, within the private sector, with the highest percentage (10.97%) is achieved by organizations with foreign origin of capital and service activity, and in the public sector, 12.26% of organizations are in the service sector. A proactive approach to the process manifests 36.77% of the organizations in the sample, i.e. 31.61% of the private sector organizations and 5.16% of the public sector organizations. The largest percentage of them, or 10.32%, are organizations with foreign origin of capital and production activity.

Table 3: Corporate Approach toward CSR

Organisation origin	Capital ownership	Activity	Descriptive statistics toward CSR policy creation					
			N	%	M	Min	Max	SD
Private sector	**domestic**	**service**	36	23.23	3.19	1.67	4.63	0.692434
		production	35	22.58	3.49	1.96	4.58	0.687356
	foreign	**service**	8	5.16	3.56	2.65	4.4	0.699298
		production	8	5.16	3.58	2.79	4.58	0.686934
Public sector		**service**	63	40.65	3.00	1.23	4.76	0.741703
		production	5	3.23	3.25	2.1	3.91	0.702153
Total			155	100.00				

Table 3a: Corporate Approach toward CSR

Organisation origin	Capital ownership	Activity	Corporate approach toward CSR			
			obstructionism approach %	defensive approach %	adjustment approach %	proactive approach %
Private sector	**domestic**	**service**	2.58	7.10	7.74	5.81
		production	0.65	3.23	11.61	7.10
	foreign	**service**	0.00	1.29	1.94	1.94
		production	0.00	1.29	1.29	2.58
Public sector		**service**	4.52	18.06	14.84	3.23
		production	0.00	1.29	0.65	1.29
Total			7.74	32.26	38.06	21.94

The descriptive statistics (N,%, Mean, Max, Min, and SD) for public and private sector organizations derived using the cross-section for comparison according to the criterion: activity, ownership of capital, size of organizations by number employees. The data for the private sector organizations according to the stated criteria indicates the following: A defensive approach to the SR process as a negative trend compared to other organizations with 4.60% manifested by service organizations, with domestic capital and a medium size. Positive trends in the application of the adjustment approach show organizations with domestic capital, small organizations, out of which 12.60% are organizations with production activity, and 8.50% organizations with service activity. The proactive approach is applied by organizations with domestic capital, with service and manufacturing activity and with a large number of employees, which is 4.60% of them.

Descriptive statistics (N,%, Mean, Max, Min and SD) obtained with the help of the cross tabulation for public sector organizations according to the criteria of activity and size of the organizations and number of employees indicate that: Negative trend in the application of the obstructionism approach show the organizations with service activity and medium size, and which are public institutions / public enterprises according to the ownership of the capital, i.e. 4.41%. 11.76% and 7.35% of the local government organizations with a service activity (small and medium size) show a positive trend in the application of the process of creating the SR policies as an adaptation approach. The proactive approach to the process of creating SR policies is applied by 4.41% of medium-sized service organizations and those are public institutions / public enterprises according to the ownership of capital.

5. DISCUSSION

The SR policies, both at the macro and micro level (national and organizational), are in function of the country's economic development policy and are considered within the entrepreneurship and in the context of securing the competitive advantage of the business community on the global market. SR policies are the highest strategic form for the implementation of the concept. With the help of the strategic approach to the SR, the advancement of corporate financial interests and the avoidance of remarks that management "wastes money" when it comes to investments in the interests of stakeholders that are not related to the core business of the organization is facilitated.

If investment in SR policies is considered as an investment for and into the future, then the approach that organizations use for SR contains an instrumental value on which the expectation is based that will contribute to increasing profitability. The approach that organizations from both sectors manifest to the SR is a reflection of the organization's ethical culture and the built-in responsibility in business operations and in the attributes of products / services, and is in the interests of the well-being of the stakeholders and the society as a whole. The SR approach reflects the level of integration of the SR policies into the corporate strategy through the four aspects, the focal point of which is the stakeholders, the balance and the dynamics between proactive ethics and the personal management interests. Relying on the opinion of Bernardis et al. (2009), we find the justification *for the different approach of the organizations from the private and the public sector* in the Republic of Macedonia to the process of creating the SR policies for three reasons: the different application of the policies and tools for the SR for the creation of values, the development of organizational abilities for the strategic alignment of the concept with the essential processes (i.e. integration of the concept of SR in the core business / business operations and processes), in particular in its strategy, and in the different financial perspectives of the organizations from the two sectors. In this regard is also the claim of Wyver et al. (Weaver et al., 1999), where, in the presence of a commitment to CSR driven by institutional forces, and without the commitment of management to CSR, the so-called "debased" SR activities appear, which are not related to the usual ongoing activities of the organization, which means, are not connected with the core business of the organization. Organizations from both sectors emphasize various aspects of social reports: the private sector focuses on sustainable profitability, while the public sector focuses on effectiveness based on the budgeting system. Entities from the public and private sectors also differ in the scope of the SR practices. The private sector uses CSR practices to demonstrate the sustainability of its business operations, while it depends on the ability of the public sector to produce public values and their sharing with stakeholders in a sustainable way.

The access of the organizations to the SR involved in the research depends on the area of their activities (health, social protection, education, child protection, energy, telecommunications, banking and finance, trade, food production and confectionery, etc.). However, organizations from the same field of action manifest a different approach to the SR due to the different contextual conditions in which they operate, which are determined by the specific competencies of the management, the different internal dynamics of the organizations, the different needs and expectations of the stakeholders, and from the nature of the activity (production or service). The different approach of the organizations towards the process of SR, considering their size (determined by the number of employees), ownership of capital, origin and activity, are due to several influential factors, such as:

- *ownership of the capital (domestic, foreign, state / public), that is, the management of the organization* by the owners / shareholders or officials (e.g., the system of self-management)
- the high level of personalization from the aspect of the influence of personal attitudes and values of the owners / entrepreneurs / politicians (officials)
- the sociotropic character of the relationship with the community (Graafland et al, 2003) (reflects the power of collective thinking over the pattern of egocentric decision-making.) Sociotropic decisions rely on the attitude of how much of the pre-shared activities are "the right things" based on which do not require pure philanthropic activities of the SR or an approach that is independent of the strategic goals of the organization and the structural lack of resources
- the risk of potential economic loss when investing in the wrong form of the SR, especially in small and medium enterprises and in the attempt to prove and strengthen the connection with the community. The relationship between the SR policies and the economic goals of the organization is considered particularly important in identifying the link between the SR policies and the corporate / organizational strategy. Therefore, profit-making organizations that can invest in SR consider that it is best to focus on non-profit-related activities, such as proactive ethical activities (Stahl & Grisby, 1997), the approach of the organization to interactive social control (Lamberi & Noci, 2012), which refers to effective stakeholder dialogue based on the standards they set for channeling expectations. In the last decade, the focus of stakeholder theory is shifting towards social capital, the concept of social capital theory, which is considered the core of the relationship-organization environment, and it denotes the relationship between the individual / social network and the norms of mutual trust, commitment and reciprocity. Fuller & Tain (2006) say that the greater the social capital, the greater the power of the dialogue with the environment. Possession of such capital is a tool for identifying the ethical and responsible behavior of the organization towards the internal and external environment, that is, towards different stakeholder groups.

The empirical data from the survey provided a picture of: a proactive approach to the SR and the approach to the adaptation of organizations from the private and public sector in RM to the SR. Applying the proactive approach to SR is a clear indication of the high level of management consciousness about the importance of the concept, for the development of the strategic integrative dimension of the SR. Organizations, relying on the instrumental values of the concept and responsibility for the consequences of their own actions, place the SR on ethical, economic and legal motives and take steps to provide support for sustainable development of the environment. Despite the reactive nature of communication with stakeholders in most organizations, the general approach to the SR points to the existence of a certain level of self-initiative in terms of seeking opportunities for the development of social capital, which is an investment of own incomes in social initiatives (social, environmental, ethical aspects) with long-term effects. The proactive approach to the SR involves the implementation of the SR through various initiatives, programs and projects, and not only through the support of the community with a philanthropic dimension of the SR, that is, with donations.

The basis for the development of the proactive approach to the SR to the highest level lies in the financial perspectives of private sector organizations coupled with the normative (legal) and moral ethical obligation to reinvest their own revenues. This demonstrates the step taken by private sector organizations to the creation of socially shared values to bridge the gap between the social environment and the SR, and, as Porter & Kramer (2011) says, which capitalize on capitalism and its relationship with society.

One factor that plays a significant role in the development of the proactive approach is the transfer of know-how to the introduction of SR initiatives in business operations, FDI and the incentive for equal participation in the global market through the development of competitive advantage and the development of innovation to the level of good practice. Weaknesses in the development of access to public sector organizations are associated with: financial perspectives centralized budgeting system, profit / benefit management system, accountability to owners / shareholders for the spending of own funds and the nature of the needs of the stakeholders. The approach notes developmental dynamics in those organizations that profit from their activities, which do not have a strictly centralized budgeting system, which are regulated by a model of profit management, and which are service-oriented to the citizens.

In the shadow of organizations that have a *proactive approach* to the SR are the organizations dominated by the *approach to adaptation* to the SR. Organizations where the development of SR attains this level demonstrate a solid balance between their own ethical culture and stakeholders' interests, that is, a balance between ethical culture and the economic interests of the owners / shareholders. The approach to adjustment is dominantly represented in public sector organizations with service activities that are part of the local government. Opportunities for investment in SR initiatives are based on their own financial resources and on the realized profit, but they also rely on partnership relations with organizations from the private and civil sector. Hence, the creation of public values enriched with SR attributes and their sharing with stakeholders confirms the opinion of Bernardis et. al. (2011): “public sector organizations in this way provide their own sustainability and achieve market competitiveness”. The development of the approach points to the positioning of the SR policies in organizational strategies among the four most important internal perspectives (operational processes, management practices, stakeholder management, users and innovation). Within the private sector, access is dominant in large organizations of foreign origin of the capital, which is confirmed by the approach to philanthropy and the realized donations to support the community.

The *defensive approach* to the SR has a dominant manifestation in public sector organizations with a service activity. These organizations achieve their responsibility for the consequences caused by their actions only within the legal requirements. In the interaction with stakeholders, they rely on the ethical dimension of the decisions and focus only on the interests and needs that are related to the core business, while not having an innovative approach to the development of the products / services.

An insignificant percentage of organizations in the sample show an *obstructive approach* to the SR, which calls into question the existence of the organization.

5. CONCLUSION

From the conducted research in the private and public sector organizations in the Republic of Macedonia on the approach to the process of creating the SR policies, it can be concluded that the private sector organizations in the RM show a combined approach to the SR, a combination of the approach to adaptation and proactive approach that has a strategic character, unlike the public sector, which demonstrates a combination of dominant defense approach and adaptation approach, depending on the presence of the characteristics.

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EXPLORING THE OPPORTUNITIES FOR IMPLEMENTING INNOVATIVE IDEAS AMONG YOUNG ENTREPRENEURS

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Abstract: *Every fast-growing economy is identified by its innovative businesses and ever-expanding markets. A vital prerequisite for the development of innovation and creation of a higher value-added economy is the provision and encouragement of independent economic activity. Enhancing entrepreneurial mindsets, skills and attitudes of young people is associated with innovation and risk-taking and is forms an integral part of a country's ability to prosper in a rapidly changing and highly competitive market. In light of this, the purpose of the present paper is to explore and analyze the opportunities for implementing innovative ideas among young entrepreneurs. The results of the research study will help identify the main problems and significant challenges young entrepreneurs are likely to encounter.*

Keywords: *innovative ideas, young entrepreneurs, highly competitive market*

1. INTRODUCTION

Youth entrepreneurship is one of the most promising areas of economic development of every country, which is, in fact, the potential for its development. Naturally, its decisive role and fundamental importance have been presently under very active discussion amongst the respective government, business and scientific communities [1], [2], [3].

In Bulgaria, the problem is not so much the lack of entrepreneurial mindset of the young people, but the lack of prospective field for entrepreneurial activities and realization of their internal capacities and potential. The toughest issue young people who want to develop as entrepreneurs face today, even at the very beginning, refers to the type of the entrepreneurial endeavor they might venture into [4], [5], [6].

Part of the long-term issues a large number of EU member states currently face are the inefficiently functioning link between education and the labour market, the high proportion of inactive young people and the need for reforms in the area of youth employment [7]. The relative share of youth unemployment in the EU has increased from 15% in 2008 to 24% at the very beginning of 2018. The EU statistics show that the rate of youth unemployment in Greece is 60%, in Spain - 56,2%, Croatia - 49,8%, Italy - 44% and Portugal - 40,7%. More than 40% of young people in the European Union prefer to be self-employed individuals rather than employees working under a contract of employment. And yet, the reported success rate in 2016 was only 4,1%, which represents one third of the proportion of all self-employed persons aged 15-64 years [8].

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Regardless of the fact that the statistical data on youth unemployment rate and the percentage of inactive young people have generated a lot of discussion at the European and national levels, the research effort should nevertheless focus on the analysis and evaluation of the opportunities for the implementation of creative business ideas among young entrepreneurs [9],[10],[11].

2. RESEARCH INTO THE OPPORTUNITIES FOR IMPLEMENTATION OF INNOVATIVE IDEAS AMONG YOUNG ENTREPRENEURS

Encouraging active support for the start-ups in the European Union would advance the development of young talents, which, in turn, would ensure the creation of high levels of added value [12]. Approximately 2000 startups have been established over the past five years. Due to the measures adopted by the country, this number is expected to double in 2019.

Surveyed, for the purposes of the present research study, were 90 most responsive attendees at the Techstars Startup Weekend organized by the TU-Varna "Entrepreneurship Club". The anonymous survey contained 10 thematically grouped questions designed to explore the opportunities for implementing innovative ideas among young entrepreneurs. The respondent young entrepreneurs fall into the 20-24 age group. An additional research tool that adds extra support to the survey responses is the on-site interview. Thus, the overall survey responses tend to be more concrete, genuine and highly reliable.

The results of the survey show that 15% of the respondents have undertaken a thorough investigation and analysis of the entrepreneurial environment in Bulgaria at the macroeconomic level, and 12% - at the microeconomic level. The lower relative proportion is predetermined by the lack of sufficient knowledge and by the complexity of the research and analysis of the business environment in our country. 36% of young entrepreneurs have made some inquiries into the opportunities for starting a business training courses, 25% of them – into the available traineeship opportunities and 22% - into the practical opportunities to start their own business. 35% of the respondents state that they are well-informed about the organizations promoting entrepreneurship activities and suggest, further, that more concrete initiatives and specific measures should be taken in order to encourage and foster youth entrepreneurship. 98% of the respondents propose the initiation of local mentoring programs with the active participation of experienced, skillful and knowledgeable people, 92% - the provision of (free) training, legal and administrative assistance, 89% - the establishment of a scholarship fund for young scientists, enabling them to commercialize their scientific discoveries, 85% - the procurement of free/subsidized advisory and consulting services for business development and/or successful application for European and national programs, 82% - simplification of administrative procedures and 75% - introduction of tax incentives for start-up ventures. In addition, 96% of the participants surveyed maintain that organizing a Startup Weekend would be extremely helpful for the development of entrepreneurial skills among young people.

Young entrepreneurs have conclusively identified the most common barriers they repeatedly face: uncertainty in decision-making, lack of financial resources, business ideas and entrepreneurial skills, fear of failure and the general economic climate in the country, as shown in Figure 1.

Figure 1: Barriers to Young Entrepreneurs

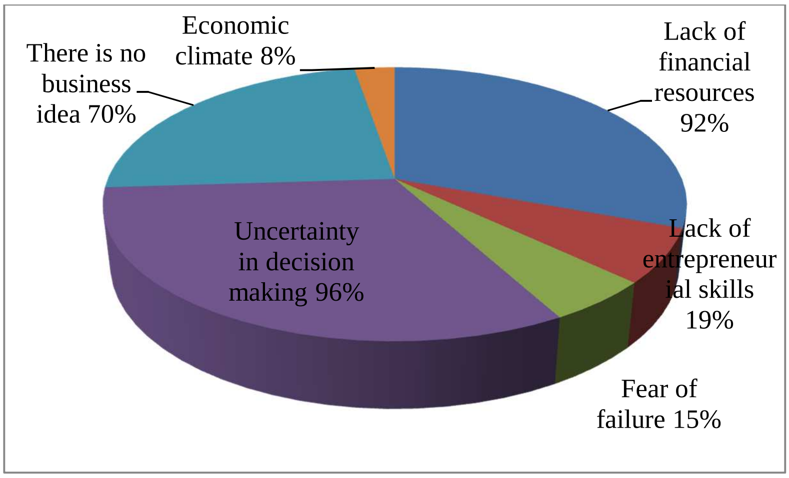
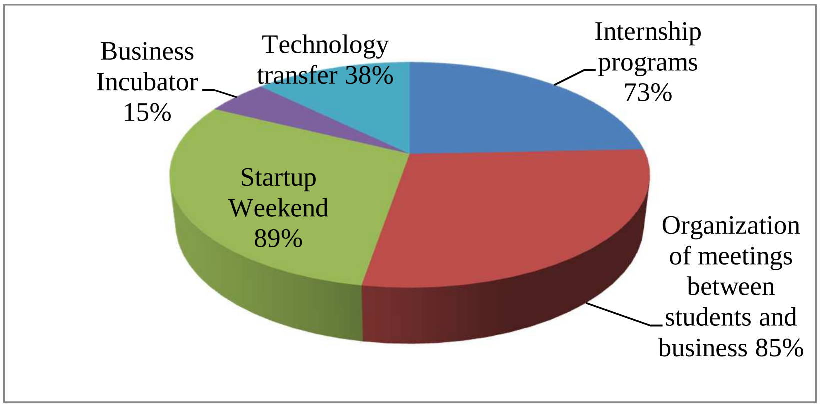


Figure 2 describes the respondents' answers to the question: "What concrete actions should be taken to adapt the higher education so as to ensure equal opportunities for the implementation of innovative ideas?". 89% of the respondents claim that organizing periodic Startup Weekend would give them the opportunity to put their innovative ideas into practice. What's more, 85% of young entrepreneurs specify that organizing meetings between students and businesses will contribute to the adaptation of their educational course syllabi to the requirements of today's employers. The student-business meetings would, in turn, allow for the provision of traineeships (73%), participation in business incubator projects (15%) and technology transfer processes (38%).

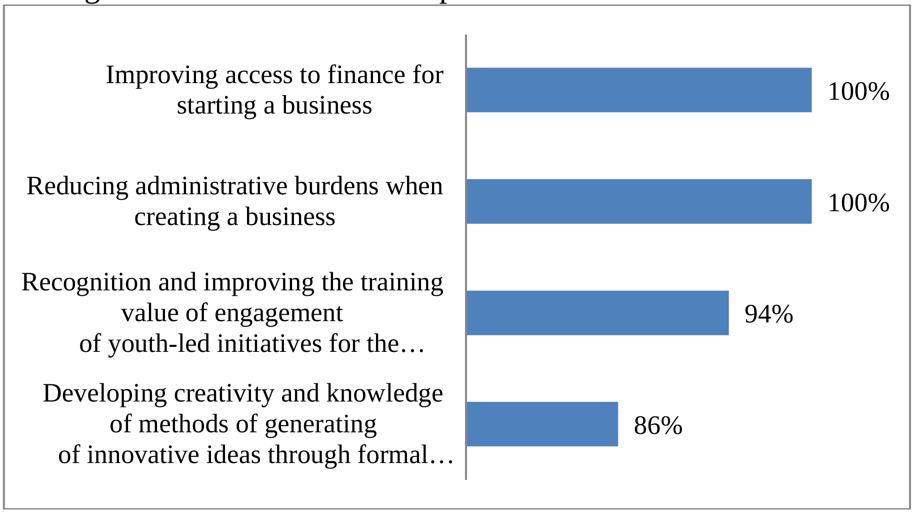
Figure 2: Actions for adapting the education of students



As for the key factors that affect the practical implementation of innovative ideas, the young entrepreneurs give prominence to: the availability of financial resources – 97%; good management and contact with the right people - 95%; technology – 93% and simplified administrative procedures - 91%. The respondents consider the following possibilities of funding their innovative ideas: project funding - 95%; bank lending - 85%; non-traditional sources of startup financing such as business angels – 59% and venture capital funds – 33%. All in all, the young entrepreneurs are more likely to turn to traditional sources of financing, and the reason is mainly because of the less complicated and easier lending procedures.

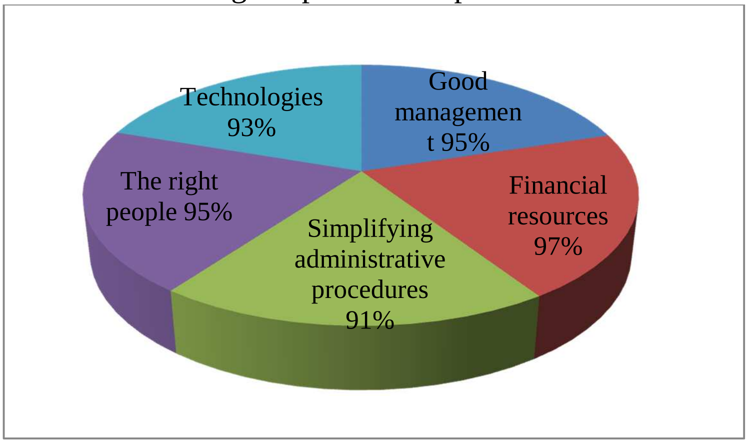
As for the implementation of their innovative ideas, the young entrepreneurs believe that the access to the sources of startup financing should be improved and the burden of administrative procedures placed on startups should be reduced. Of equal importance are such prospects as the direct involvement and active participation of young people in initiatives that contribute to the implementation of innovative ideas, development of creativity and knowledge of the methods for generating new ideas through formal and informal training activities, which is shown in Figure 3.

Figure 3: Measures for the implementation of innovative ideas



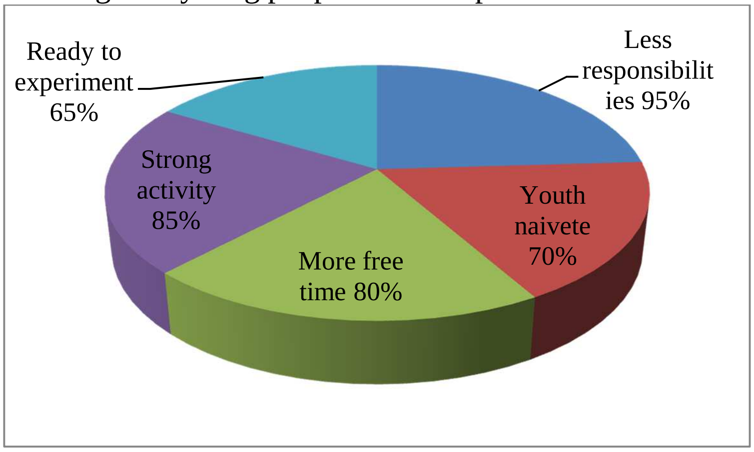
Moreover, the surveyed students also point out that the main factors influencing the practical implementation of innovative ideas are financial resources, good management, establishing contacts with the right people, simplified administrative procedures and access to technologies, as shown in Figure 4. 97% of young entrepreneurs face difficulties in the practical implementation of their innovative ideas. The inability to finance innovative ideas is the result of the high credit evaluation and approval requirements that most of the respondents do not meet. Besides, the lack of financial resources has a strong impact on the access to technology. Lengthy administrative procedures prove to be a serious impediment that prevents the easy implementation of innovative ideas. Entrepreneurs are required to complete a number of documents when applying for funding, and if they fail to meet a certain standard, their project is rejected. To avoid such an option, the respondents may hire special consultants, which, in turn, lead to an increase in the cost of project implementation.

Figure 4: Factors influencing the practical implementation of innovative ideas



As their main advantages, the young entrepreneurs focus on: less responsibilities – 95%; a high degree of activity – 85%; more free time – 80%; youth naivety – 70%; willingness to experiment - 65%.

Figure 5: Advantages of young people in the implementation of innovative ideas



Young entrepreneurs are always ready to do and learn new things. Such eagerness is a considerable advantage especially if it is harnessed effectively and projected in the right direction. Unwillingness to take on greater responsibilities and the availability of ample time for leisure activities is often a prerequisite for the discernible expression of increased activity, which is verified by the high percentage of the responses - 85%. Thus, they proved to be more flexible, more creative, more dedicated and committed to their pursuits. Contrary to expectations, naivety can also be a great advantage because it allows the young entrepreneur to explore new ways and practices to keep ahead of the severe competition, as shown in Figure 5.

3. CONCLUSION

Reached, on the basis of the results obtained from the conducted research study into the opportunities for implementing innovative ideas among young entrepreneurs, are the following principal conclusions (key findings):

- Reached is the conclusion that the respondents encountered difficulties in exploring and analyzing the entrepreneurial environment in Bulgaria due to the lack of sufficient knowledge and skills;
- Proposed, as a result of the survey, are specific concrete measures to help promote youth entrepreneurial activity;
- Identified are the main barriers faced by young entrepreneurs, namely, uncertainty in decision-making and lack of financial resources;
- Distinguished are the factors influencing the practical implementation of innovative ideas among young entrepreneurs.
- Determined are the main problems faced by the young entrepreneurs in implementing their innovative ideas.
- Summarized, on the basis of the survey/interview questions, are the measures to be taken towards successful implementation of innovative ideas.

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WOMEN'S ENTREPRENEURSHIP IN BULGARIA

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https://doi.org/10.31410/itema.2018.779

Abstract: *Women's entrepreneurship continues to play an important role in modernizing societies and changing public attitudes towards women, which in turn will enable governments to make better use of the economic potential of female entrepreneurs. The paper discusses the unique role of women in business and their role as entrepreneurs in one dynamic, turbulent and very often not favorable environment. On the background of a short description of the state of entrepreneurship in Bulgaria is presented and analyzed the role of women entrepreneurs – their characteristics, their motivation. Part of the paper reveals and analysis the barriers before women-entrepreneurs. Special place is given to the business profile and managerial competencies of women-entrepreneurs in Bulgaria*

Keywords: *Entrepreneurship, women, Bulgaria, barriers, motivation.*

1. INTRODUCTION

Entrepreneurship in Bulgaria flourished after socio-economic changes in 1989. It develops in different sectors and traces different levels of maturity. Business activities through development and implementation of entrepreneurship and risk-taking to start a new activity with no guarantee of return on investment, and business success, are wide spread. Because of the emergence and functioning of the entrepreneur, there is a widespread technological innovation, organizational innovation and growth of business in different sectors. Essential in a modern, dynamically changing environment is the support that women and young entrepreneurs have. Encouraging these groups of the society in setting up own business and introducing innovations, leads to improved business performance of organizations in agriculture, as well as to development of rural areas.

2. STATE OF ENTREPRENEURSHIP IN BULGARIA

The period after 1989 is characterized by dynamic changes in all spheres of economic life. During this period, the largest number of small and medium enterprises (SMEs), mainly micro enterprises, are registered.

The Global Entrepreneurship Monitor (GEM) survey 2016/2017 shows that Bulgaria remains among the countries with the lowest entrepreneurial activity in 2016. The country improves its performance from the previous year (2015). Although the level of entrepreneurship in the country remains low, last year (2017) more people started their own business than in 2015. The state has climbed somewhat higher in the Global Entrepreneurial Activity Index (GEAI), taking 62nd position from 65 countries. The previous year the country was in the penultimate place. This is one of the few tier rations where big economies such as Germany and Italy are behind Bulgaria, and the most enterprising are small countries like Estonia, Latvia and Cyprus.

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Bulgaria reported improvement after 2015, and according to the NSI 4.8% of Bulgarians between the ages of 18 and 64 are in the process of being established or have recently created a business. The share of entrepreneurs with an established business that has been active for more than three and a half years is also increasing. There is a negative change in the way Bulgarians view entrepreneurship as a social value. While in 2015, 71.5% of people believed entrepreneurs were well received and enjoyed high status in society, their share dropped to 66.9% last year. Fewer are those who believe that starting a business is a good career choice - 52.9% compared to 57.5% in 2015. Europe generally has the lowest conviction that entrepreneurship is a good career but the average score is higher than that of Bulgaria - 58%.

3. THE ROLE OF WOMEN ENTREPRENEURS – CHARACTERISTICS, MOTIVATION, BARRIERS

Research on women's entrepreneurship has steadily increased over the past decades as the number of female business owners around the world has grown at a moderate pace. Modern literature reveals that while there are many similarities between female and male entrepreneurs, there are also a number of differences, especially in terms of career preferences and business motivations. Different studies of entrepreneurs have contributed to various explanations of why female entrepreneurs are different from male entrepreneurs.

Bulgaria is part of United Europe and the problems, obstacles, and motives to start a woman's business come close to those typical of all women in the world. The crisis hit men harder than their female counterparts, and yet they kept their dominant position on the labor market. The economic stagnation was observed primarily in the male-dominated sectors such as the mining industry, the rest of the heavy industry, and the construction industry. The ladies stay in the labor offices on average 6 months, while the male representatives start work in a new place on average 4.6 months after they lost the previous one. The groups of unemployed people who have been unsuccessfully looking for a new employer for more than a year are mostly female – females are almost twice as many as men in that group [1].[281]

Thus, although the number of people employed in the private sector is significantly increased at the expense of those employed in the public sector, more and more people, including women, work in the informal economy. The objective lack of time that women have (compared to men) for personal development, gaining new skills and knowledge, etc. is the main factor for gender inequality. The limited employment opportunities for women during the transition to a market economy and the building of a working civil society lead to the formation of several negative trends with a long-term effect on society. In the first place, this is the increase of women employed in the shadow economy. Since the early 1990s, this trend has particularly negative consequences due to the persistent discouragement and/or inability of women in the informal economy to re-establish their positions in the formal sector and to claim the corresponding labor rights and equality. Secondly, the lack of employment and production in small settlements and Bulgarian villages makes emigration an alternative, and for many women, low-skilled labor abroad (nursing home workers, housekeepers, maids, farm workers) is the only income option.

Women entrepreneurs have become important entrepreneurs in Bulgaria. Although their number is still small compared to male-owned businesses, this is encouraging. The common attitude has changed a lot, women who balance between family and business are also considered

[281] Ваня Ефтимова Всичката икономическа власт на жените**;** www.karieri.bg/

to have management competencies for the development of a competitive business. It is assumed that female entrepreneurs have made a significant contribution to the economy of the country.

The profile[282] of female entrepreneurs, as it is given in [2], definitely differs from that of men in Bulgaria. Above all, the highly educated and language-intensive among them are significantly more numerous than men. Women enter the business later than men. This leads, on the one hand, to a lower average age (44 years for women and 47 years for men) and, on the other hand, to fewer years of entrepreneurial experience (on average 12 years for women and 15 years for men). The 51-60 generation and the generation over-61 are among the entrepreneurs exclusively represented by men - four out of five SME owners in these age categories are men, while in the lower age groups women are more likely to be found. Half of all female entrepreneurs find a job in the service sector. Female entrepreneurs are typically engaged in micro-enterprises. Today, the Bulgarian woman successfully manages the roles of entrepreneur, politician, scientist, and manager. According to the National Representative Survey on the Condition of Small and Medium-sized Enterprises with an emphasis on Women and Entrepreneurship, the share of female entrepreneurs in the total number of companies ranges between 25 and 30 percent. Such are the trends in the development of female entrepreneurship in the EU countries. The owners of small and micro-companies prevail.

Women with their own business predominate in small and micro businesses, mainly in the sphere of services, hotels, restaurants, and trade. The profile of female entrepreneurs - highly educated women of active age, implies an extraordinary potential for business development. Combined with the strong desire of girls and young women - students who wish to start their own business in Bulgaria or abroad, this leads to the conclusion that the entrepreneurial spirit of women, especially university graduates, can be encouraged to develop a business in the context of the knowledge economy. While the majority of business ladies are experiencing difficulties, the assessment that they make to business conditions and prospects tends to realism and cautious optimism. The services sector dominated by women-owned businesses has a smaller volume, but small and micro businesses are flexible and are expected to survive in the stabilization of the economic environment.

The main motivation of women in Bulgaria to start their own business is to improve their financial status and to feel independent. Having accumulated the necessary knowledge and skills at the university, the vocational school, their previous work, backed up with the necessary self-esteem or bored with the behavior of their former leaders, the Bulgarian women take very easily the decision for self-employment. Female entrepreneurs do not share having difficulties in initial funding and its subsequent development. Many Bulgarian women deal with their own funds and with help from relatives and acquaintances. A large proportion of female entrepreneurs has passed a training/training course or has undergone specialized training for managers (61%). Most women have higher education and a high level of foreign language skills, have computer literacy skills, and use the Internet.

The European practice [3] puts forward the following main motives for starting a business by women[283]:

- **Finding a favorable market opportunity** - Many women who know a good manufacturing, technology, product/service, sector, market or niche market can find a favorable opportunity to start a new business. A financial motive - entrepreneurial

[282] ИАНМСП, Анализ на състоянието и факторите за развитие на МСП, „Българските МСП в условията на криза", София, 2011

[283] European Commission (2004), Promoting entrepreneurship amongst women

activity enables women to earn significantly higher incomes than paid employment, but also involves a risk of financial loss.

- **Accumulation of knowledge, skills and professional experience** - Women who have accumulated knowledge, skills, and professional experience as employees in a state or private organization may decide to use them more efficiently by starting and running their own businesses.
- **Achievement of independence and job satisfaction** - women decide to start a business after assessing all the profits and losses of this activity such as time, money, opportunity for development, satisfaction, etc. Also, the decision to start an own business may be influenced by the desire to self-justify or the need to achieve financial independence. The unreliability of the current job or the inability to develop a career in an organization can be a strong motive for starting up an entrepreneurial activity.

Many women in Bulgaria (37%) point out that the main reason women go to business is the desire to earn more money. Economic independence (27%) and experience gained earlier are the following motives (22%). In this way there is a correlation between the successful transition to a market economy and the transition of women into the business to a survival strategy. Often women are forced to make money because their husbands are unemployed. For example, only women are engaged in trade in the east, as this area of activity is considered purely feminine. An important role is also played by cultural factors (understanding of the entrepreneur by the government, by the society).

Along with motives there are barriers before women to become entrepreneurs, such as:
(a) Economic barriers: The most serious obstacles identified by women entrepreneurs in Bulgaria are: bureaucratic obstacles (26%), heavy taxes (23%), start-up capital (23%), lack of leasing (19%), unreliable and unstable legal basis (9%). The female entrepreneur points to the following serious problems: heavy taxes (90%), unstable legal environment (81%), limited access to capital (67%), corruption (55%).
(b) Cultural barriers: the acceptance by society of a particular economic activity; the lack of traditions that underlie fear of future changes; Discrimination in business.

Summarizing the most significant problems of the Bulgarian female entrepreneurs, it can be built a model that needs to be followed in improving the managerial competencies of female entrepreneurs. On this basis, some of the organizations working to support female entrepreneurship will know the main areas in which to focus their efforts.

5. CONCLUSIONS

Women's entrepreneurship is a concept that is increasingly expanding its presence in an attempt to respond in a new way to growing social and economic needs related to poverty, employment, migration, education, and their different faces in the context of the global and regional economies.

Women’s entrepreneurship in Bulgaria should be promoted, encouraged, and supported, in particular through education and vocational training, promoting ownership among women, networks of woman entrepreneurs, and access to investment and credit promotion, their representation in management bodies, and by creating the opportunities needed to support young people, the self-employed, the part-time workers and often the low-paid females. Women entrepreneurs have a vital role to play in preserving family SMEs with prospects for the future.

New structural policies and incentives are needed to make women work, to allow women to be equal with men in the economic development of our country, and to encourage association as an instrument for developing the entrepreneurial spirit that is needed in Bulgaria. Support for women in Bulgaria should be undertaken in a very short timeframe, which gives us grounds to conclude that the Bulgarian female entrepreneur is at the threshold of many rapid and profound changes.

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PRELIMINARIES FOR DESIGNING A MARKETING STRATEGY IN THE CULTURAL MARKET: THE CASE OF ROMANIA

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Abstract: *The development of the cultural sector and its specific branches has been (and still remains) a problem to be solved by all the involved stakeholders – public authorities, cultural operators or beneficiaries of cultural products, services and activities. The conceptual transition from the cultural economy, through cultural management, to cultural marketing produced in recent years has created important opportunities for adopting a marketing vision that gives priority to the consumer of cultural products and services and places meeting of his or her needs and expectations at the forefront. Cultural operators have thus had to bring their marketing vision to life by designing and implementing a marketing strategy.*
Paper presents the results obtained using the GE multifactorial analysis at the level of the main segments of the cultural market, described by the corresponding cultural activities conducted by the consumers – watching or listening cultural programmes on the TV or radio, reading books, going to the cinema, visiting historical monuments or sites, visiting museums or galleries, attending concerts, visiting public libraries, going to the theatres and seeing a ballet, dance performance or opera performance, in order to identify the overall coordinates of the marketing strategies to be designed and implemented to support the sustainable development of the Romanian cultural market.

Keywords: *Marketing strategy, cultural market, sustainable development, Romania*

1. INTRODUCTION

Scholars have begun to discuss and define the concept of cultural marketing in the 1970s and, since then, the academic literature approaching the subject became more and more extensive. Still, the organizations present in the cultural market, both public and private entities, seem to be only exploring its content and related opportunities. To a certain extent, the situation may be explained considering the ongoing transition from cultural economics, via cultural management, toward cultural marketing – to name the main concepts governing the economic perspective over the sector. On the other hand, the marketing myopia affecting the way in which a relatively important part of the operators active in the cultural market conduct their activities should be corrected by integrating a marketing vision needed to improve their way of performing and a corresponding strategy to improve this performance.

The classical view over the marketing strategy, as described by Kotler and Armstrong (2014), states that designing a marketing strategy involves four steps: market segmentation (dividing the total market into smaller segments with distinct needs, characteristics and behaviors), market targeting (evaluating each market segment's attractiveness and selecting one or more segments), differentiation (differentiating market offering to create superior customer value) and positioning (arranging the market offering to occupy a clear, distinctive and desirable place relative to competing products in the minds of target consumers) [5].

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Aghazadeh (2015) has recognized the essential contribution of the marketing strategy, within the overall strategy, in generating a sustainable competitive advantage for the organization. Thus, the marketing strategy should integrate the resource-based and market-based views, consider the internal capabilities and external position of the organization in order to produce a competitive advantage through the core competencies involved in creating value, attracting and satisfying customers based on a comprehensive model of an intelligent marketing strategy having as support the innovative knowledge employed to achieve superior performance [1].

Particularly in the cultural markets, creativity plays a critical role in developing a marketing strategy capable to generate appropriate marketing performances. As Slater et al. (2010) have found, although dynamic capabilities enabling the appropriate adaptation, integration, and deployment of physical, human or organizational capital to align organization with the changing business environment are a source of competitive advantage, creativity and implementation effectiveness of the marketing strategy are positively and generally connected with the capacity of the business units to achieve their objectives [9].

After getting the formal recognition within the Brundtland Report (1987), according to which the sustainable development was defined as development that meets the needs of current generations without compromising the ability of future generations to meet their own needs [10], the relationships between the sustainable development, sustainability and the marketing strategy have been reviewed in the context of the concern for gaining competitive advantage. Focusing on the concept of marketing strategy, Kumar et al. (2012) have discussed the evolution of sustainability in marketing along with the concepts of sustainability marketing and the issues and challenges related to sustainability marketing strategy and found that, besides the fact that gaining a competitive advantage remains a critical outcome of any marketing strategy, the analysis and evaluation of marketing strategy in terms of sustainability represents a unique objective and requires special attention [6]. Debating the concepts of sustainable and sustainability marketing, Belz and Peattie (2009, in Kumar et al., 2012) have identified and explained the differences between these terms: „sustainable" is related to something durable or long lasting and, therefore, sustainable marketing is „a kind of marketing, which builds long lasting customer relationships effectively – without any particular reference to sustainable development or consideration of sustainability issues", whereas sustainability marketing is more explicitly related to sustainable development agenda and is defined as the „building and maintaining sustainable relationships with customers, the social environment and the natural environment" [2].

Taking into consideration their content and characteristics, cultural markets can be easily assimilated to the emerging markets in terms of building a marketing strategy, particularly in connection to the challenges posed by their five key characteristics presented by Sinha and Sheth (2018): market heterogeneity, sociopolitical governance, unbranded competition, chronic shortage of resources and inadequate infrastructure. The most important marketing problem at the level of these emerging markets (and, similarly at that of the cultural markets) is to diminish the negative impact of these characteristics in order to increase the ratio of first-time users to nonusers thereby resulting in large scale market expansion implementing one of the following eight marketing strategies rooted in a 4 A's framework [8]:

- Affordability through democratizing (offering low cost products for the mass market) and upscaling (enhancing consumer and consumption by adding new product categories or preferring branded over unbranded products or moving up from local to global brands) the offer;

- Accessibility through managing (expanding access to products by penetrating pre-existing marketing channels) and reinventing (innovating to expand access by leveraging and facilitating the use of modern means of distribution) reach;
- Acceptability through cultural (creating innovative products that combines traditional cultural elements with contemporary, global ones to increase product acceptability) and functional (creating innovative products that combine elements of both the developed and developing world in ways that better meets the product functionality needs of consumers) fusion;
- Awareness through building brand identity (by finding the right balance between globalness and localness and education of the consumers about brands) and engaging stakeholders (by actions and initiatives that are targeted at multiple stakeholders, such as the community, suppliers, employees and the environment).

2. METHODOLOGICAL NOTES

Designing a marketing strategy requires a careful assessment of the position held by the organization in the market in terms of the alignment to the marketing and business environment. One of the most powerful tools that can be employed in this respect is represented by the General Electric McKinsey Matrix that aims to offer (McKinsey & Company, 2008) a systematic approach to determine the best investment (and development) paths to be followed by an organization considering two factors that will determine whether it's going to do well in the future: the attractiveness of the relevant industry and the unit’s competitive strength within that industry [7].

The content and significance of the GE McKinsey Matrix variables may be described by the following elements (Jurevicius, 2014):

- **Industry attractiveness** indicates how easy will be for an organization to compete in the market and earn profits on a longer term perspective and may be assessed in terms of one or more of the following factors: long run growth rate of the market, industry size, industry profitability, industry structure, product life cycle changes, changes in demand, trend of prices, macro environment factors, seasonality, availability of labor, market segmentation;
- **Competitive strength of a business unit or a product** measures the competitive strength of a particular business unit against its rivals (whether it has a sustainable competitive advantage and for how long it will be maintained) considering the following factors: total market share, comparative market share growth, brand strength, profitability of the company, customer loyalty, resources capabilities, strength in meeting industry’s critical success factors, strength of the value chain, level of product differentiation, production flexibility [4].

For the purpose of this exploratory research approach, industry attractiveness and competitive strength of the business unit have been assessed considering dynamics (2007-2013) and level of involvement (2013) in the segments of the Romanian cultural market. The segments have been defined in terms proposed in the Special Eurobarometer 399 on Cultural Access and Participation in the European Union [3] and the specific data at the level of the Romanian and EU market have been selected, processed and analyzed.

3. MAIN FINDINGS

The Romanian cultural market has registered a significant decline between 2007 and 2013, the involvement in the cultural activities, respectively at the level of the cultural market, decreasing from 33.3 to 28.0 %, corresponding to an overall average decrease rate of 16 %. This evolution does not represent a surprising one if is to have in mind at least the following factors: the impact of the economic crisis that affected both the resources allocated by individuals and households for the acquisition of cultural goods and services and/or the participation in cultural activities; the similar evolutions occurred at the level of the entire European Union market (although at significantly different levels – an overall average decrease rate of only 5.9 %, as a result of a decrease in terms of the level of involvement in the cultural activities at the level of the cultural market from 46.3 to 43.7 %); finally, the overall low level of participation in cultural activities at the level of the Romanian market motivated mainly by demographic, economic and social reasons.

Table 1. Cultural activities, level of involvement in cultural market segments (2013) and dynamics of the cultural market segments (2007-2013) in Romania

Cultural activities / market segments	**INV**		**MD**
	2007	**2013**	**2007-2013**
Watching or listening cultural programmes on TV or radio	75	59	-21.3
Reading books	58	51	-12.1
Going to cinema	22	20	-9.1
Visiting historical monuments or sites	40	33	-17.5
Visiting museum and galleries	27	21	-22.2
Going to concerts	28	25	-10.7
Visiting public libraries	22	17	-22.7
Going to theatres	20	15	-25.0
Seeing a ballet, dance performance or an opera	8	11	37.5
Overall cultural market	33.3	28	-16.0

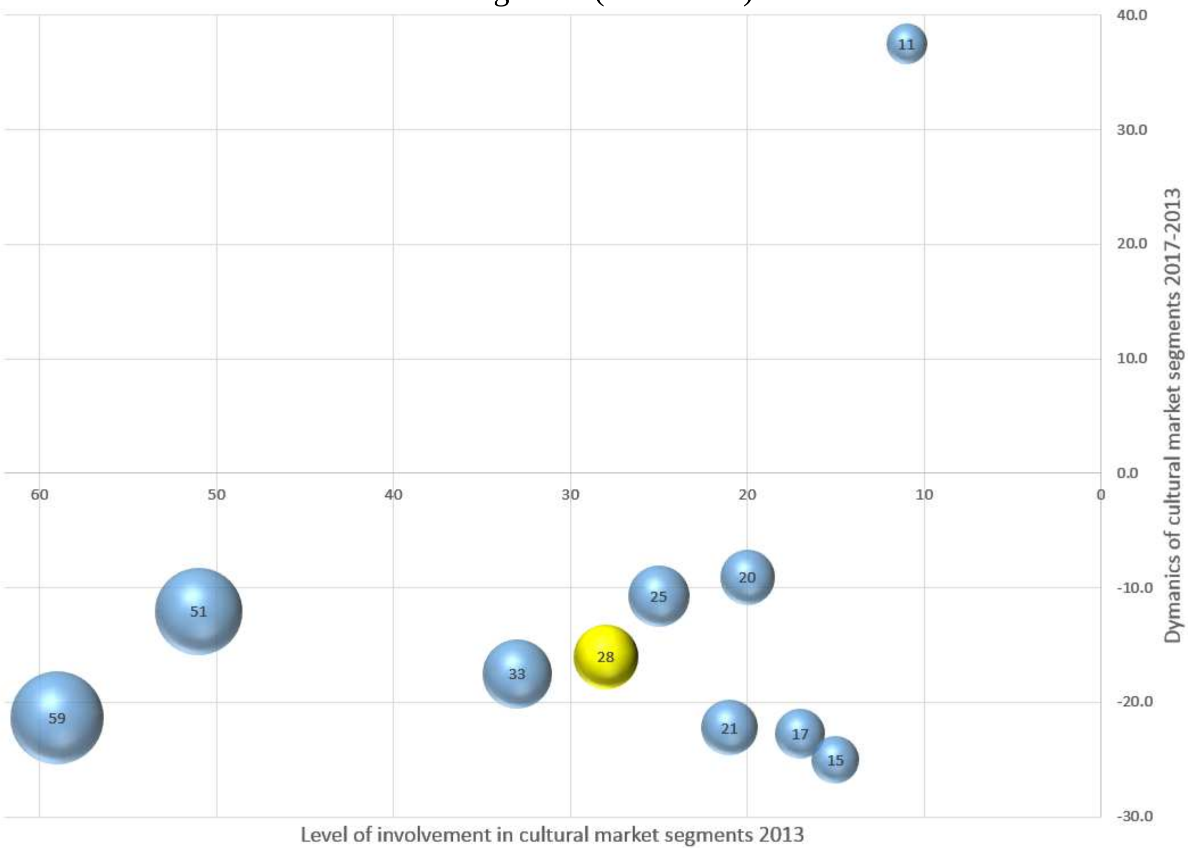
Notes: INV – level of involvement in cultural market segments (percentages); MD – dynamics of cultural market segments (percentages). Data source: Special Eurobarometer 399 on Cultural Access and Participation (2013).

Analysis of the dynamics of the cultural market segments reveals that, between 2007 and 2013, eight of the nine considered segments (and the corresponding providers of cultural goods, services and activities) have registered a relatively significant decline. The most affected segments were theatres (-25.0 %), public libraries (-22.7 %), museums and galleries (-22.2 %), TV and radio cultural programmes (-21.3 %). Less consistent declines were registered by the segments of historical monuments and sites (-17.5 %), book publishers and distributors (-12.1 %), concerts (-10.7 %) and cinemas (-9.1 %). The exception from the rule is represented by the segment of ballet, dance performance and opera providers that has registered an apparently strong increase of 37.5 %; only apparently, as it is about an increase in the level of involvement in ballet, dance performances and opera from 8 to 11 % (this segment being the most fragile in terms of involvement).

Analysis of the cultural market segments allows building a structure including three categories of these segments in terms of market dynamics: first, comprising segments with an average decrease rate of no more than -8.33 % (no market segments included here); second, comprising segments with an average decrease rate between -8.34 and -16.66 % (going to cinema -9.1 %, going to concerts -10.7 %, and reading books -12.1 %); third, comprising segments with an average decrease rate between -16.67 and -25.00 % (visiting historical monuments and sites -17.5 %, watching and listening cultural programmes on TV and on the radio -21.3 %, visiting museums and galleries -22.2 %, visiting public libraries -22.7 % and going to theatres -25.0 %). Seeing ballet, dance and opera performances (+37.5 %) appeared as a market segment totally outside of the cultural market but its evolution did not generate important effects at the level of the whole market.

Analysis of the level of involvement in the cultural market segments allows building a structure including three categories of these segments in terms of involvement: first, comprising segments with an involvement of more than 40 % (watching and listening cultural programmes on TV and on the radio – 59 %, respectively reading books – 51 %); second, a category comprising four segments with an involvement between 21 and 40 % (visiting historical monuments and sites – 33 %, going to concerts – 25 %, visiting museums and galleries – 21 %, going to cinema – 20 %); and third, a category comprising three segments with involvement of less than 20 % (visiting public libraries – 17 %, going to theatres – 15 % and seeing ballet, dance and opera performances – 11 %). The comparison between the levels of involvement in 2007 and 2013 reveals: (a) a significant decrease of both the consumption of cultural goods and services and the participation in cultural activities (for eight out of the nine considered market segments); (b) a structural change of this involvement with a strong decrease of the second category (having as reference the levels of the year 2013) consisting in the reduction of the specific market segments from six to four by transferring two segments in the third category (visiting public libraries and going to theatres). Both these aspects explain to a reasonable extent the overall decline of the Romanian cultural market.

Figure 1. Level of involvement in cultural market segments (2013) and dynamics of the cultural market segments (2007-2013) in Romania



Applying the General Electric McKinsey framework at the level of the Romanian cultural market provides the following conclusions:

- The cultural market, seen as a whole, is positioned suggesting an option between selectivity and earnings. Public and/or private entities operating in this market should weigh and decide whether will implement a selective market strategy or will put into practice a strategy aiming to generate/capitalize earnings produced by the different market segments;
- There is only one market segment positioned in the area of invest and/or grow. Although at a less satisfactory level in terms of buying and reading books, the book publishing industry is in a favored position, at least by comparison to other segments of the Romanian cultural market. The relatively solid habit of reading at least one (or several) book(s) provides the industry members (publishing houses, book distributors, authors) not necessarily reasons but rather hopes that their market of interest will have the potential to grow sustainably on a longer term;
- There are three market segments positioned, as the entire cultural market, in the areas of selectivity or earnings: watching and listening cultural programmes on TV and on the radio, going to concerts and going to cinema. Television and radio provide good opportunities based on the relatively high level of involvement, while going to concerts and cinema compensate the lower involvement by a less accentuated decline. Cultural operators should decide whether will support these activities aiming to get the best possible result in terms of profit or will select one of these segments in which will invest resources in order to grow it and improve its marketing performances;
- Four market segments are positioned in the area of divest or harvest strategy. Visiting historical monuments and sites and visiting museums and galleries have a slight advantage by comparison to visiting public libraries and going to theatres backed by the relatively better involvement of the cultural consumers but all four segments are affected by the severe decline rates. The decision to be made depends mostly by the nature of the entity involved and its level of operation: a public institution with attribution in the field will have to find solutions to support all these segments while a private operator will be able to select the segments or activities to divest or harvest;
- Finally, the segment of ballet, dance and opera performances is positioned outside the classical framework of the General Electric McKinsey matrix due to its impressive growth dynamic. Still, the development potential of this segment is severely limited by its very low level of involvement and its peripheral position in the cultural market.

4. LIMITS OF THE RESEARCH, CONCLUSIONS AND FUTURE DIRECTIONS

The structure of the Romanian cultural market includes segments that differ significantly in terms of their market dynamics and involvement of consumers of their specific cultural goods, services and activities. The clear differentiation between the segments as well as the overall poor level of the market development require a creative and innovative approach in the design of marketing strategy, very close to that specific to an emergent market in terms of the marketing challenges and strategic options to be designed and implemented.

The present study represents just a preliminary exploration aiming to produce an overall picture of the positioning of the Romanian cultural market and its segments under a General Electric McKinsey framework and to prepare the basis for a future in-depth analysis and, later, drafting of a marketing strategy for the entire cultural industry and/or its segments. Employment of just a single variable in the assessment of the industry attractiveness and the competitive strengths represents an important limit of the research and identification of the factors capable to allow an accurate and aggregate measurement of these dimensions represents a future direction of investigation.

Data selected, processed and analyzed were relatively old but there are not available more recent data as a new study of a similar scale with the Eurobarometer on cultural access and participation has not been conducted yet. Still, data available at national level, provided by the National Institute of Statistics and other specialized providers could be employed in order to assess both the industry attractiveness and competitive strength at the level of the entire market and its segments, thus representing another future direction of investigation.

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PRICING INNOVATION: LISTENING TO THE SHOPPER AND CONSUMER

Dora Maria Ciobanu (Morosanu)[285]

https://doi.org/10.31410/itema.2018.791

Abstract: *The objective of the presented research was to analyze the pricing innovation impact on the different industries in Romania, taking into account best practices within the beer industry and the trend of the healthy food industry that rose in the last years. Price innovation is made usually by pack type based on shopping behavior and also by shopper healthy behavior (for example bio products).*
The weight of pricing in shopping decision might be claimed as the most important one but we will detail in the article that the actual importance is different.

Keywords: *price differentiation, innovation, customer, consumer*

Introduction

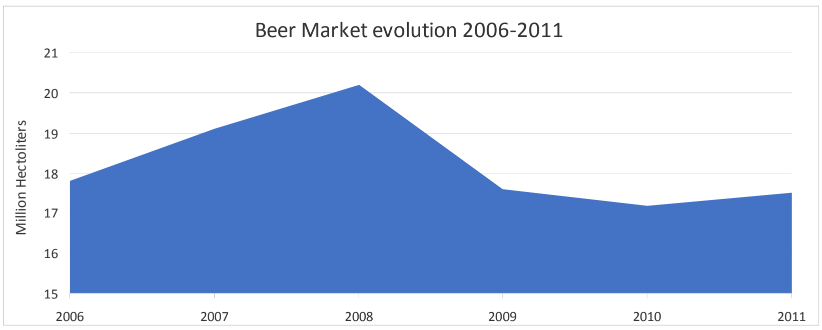
Pricing innovation is a complex concept that came along with multiple innovations among different industries, especially after 2008 crisis. In addition, it is made based on the shopper and consumer needs and decisions and taking into account the profitability of the producer.

This paper examined the pricing innovation concept on the beer industry, how it developed and what was the impact in the last 10 years at company and consumer level.

Analysis

After the crisis from 2008 that hit EU and had consequences on the FMCG industry as well, with the beer market seeing a serious blow in terms of volumes and profitability, only as of 2011 we can see stabilization and timid growth from year to year.

Figure 1: Romanian Beer market evolution 2007-2011



Source: Romanian National Institute of Statistics[286]

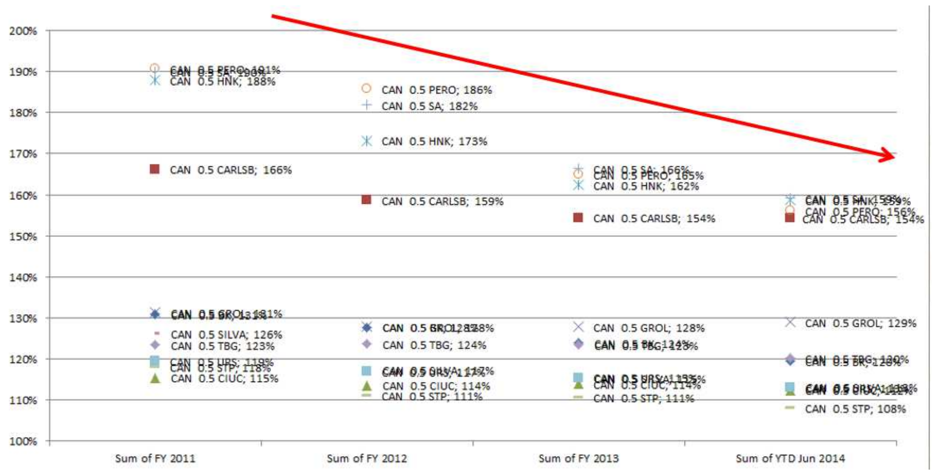
[285] Academy of Economic Studies Bucharest, Street Duetului, no 100, ap 14, district 1, Bucharest, Romania
[286] www.insse.ro

We were writing in 2012[287] that there has been a significant shift in shopper behavior, value brands and private labels brands gaining more than 50% of the volume share in the beer market (almost all of the volumes being source from low profitability sku's, the PET).

Five years later the reign of the PET, which is a driver for value but also core/mainstream segments, is not over and continues to have a significant impact in the volume growth but also in the top line growth of the beer producers.

We have seen across the years a squeeze in terms of price tiers between value and premium segments which basically means that in terms of pricing there is little or no differentiation between segments. In promotional periods, a premium brand can easily touch pricing points that belong to core plus or even core/mainstream. At the same time the consumer/shopper behavior has changed significantly and the beer brand loyalty has lost importance and for each consumption occasion the beer brands are easily interchangeable.

Figure 2: Beer brands evolution



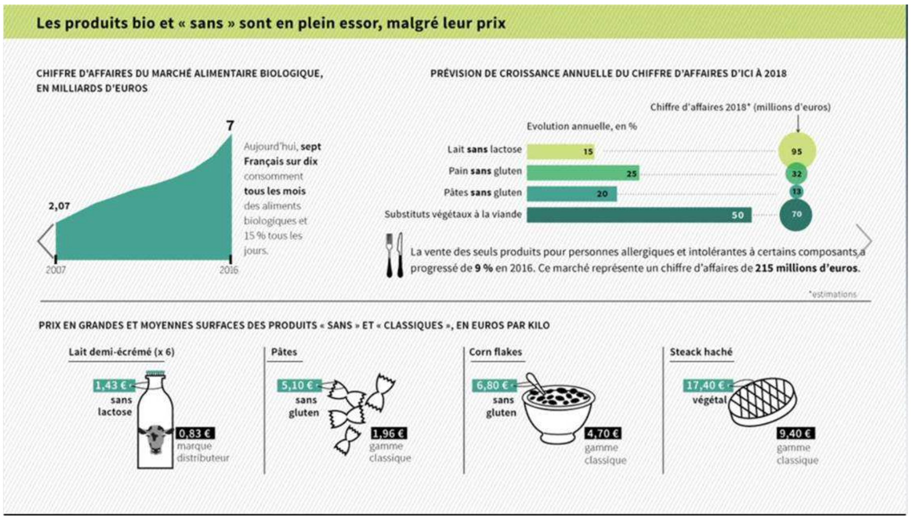
Source: Analysis based on Nielsen Retail data 2011-2014[288]

There are some industries in FMCG that are listening to the consumer/shopper behavior and acting upon it through well thought innovations. The healthy lifestyle focus that is currently growing in most of European countries is being addressed by the food industry with significant uplift in terms of pricing and profitability. For example the lactose free, gluten free, vegetable burgers and so on provides room for the food companies to charge from 145 to 260 (price index) versus regular products. Giving less to the consumer/shopper is actually worth more because it acts upon specific consumer needs.

[287] Innovation impact on the beer market during economic crisis in Romania - Dora Maria Morosanu, Robert Bumbac

[288] Nielsen Retail data- private source

Figure 3: Price differentia



Source: lemonde.fr “Alimentation: a chacun son assiette”[289]

The actions of the food industry are backed by several researches/studies that have found out that the actual importance of pricing is way less than what the shoppers are actually claiming. In the shopping decision the price is around 10% in importance, what matters most to the shoppers/consumers are the product/service features and the overall sales experience, which together counts for almost 60% in purchasing decision.

In order to drive sustainable and profitable businesses, the companies will need to understand more and more that the consumer/shopper is behaving differently that they actually claim, and there is a lot of room to drive profitability by launching innovations that actually listen to the consumer needs and are priced accordingly.

Figure 4: Percent average price importance

Source: Ipsos shopper research 2017[290]

Considering all of the above there is one more thing to be taken into account: innovation doesn’t mean only launching new products but also looking at the sizing and selling story of the benefits. A great example from a fresh drinks/ healthy producer shows how to price profitable smaller sized product. By claiming the “vitality”/ “detoxify” / “wellness” / ”immunity” shot

[289] www.lemonde.fr
[290] www.ipsos.com

aspect of the product together with the "1 bill" tactic they are able to price up to 160 index versus the regular sized product. Main point: there is also price innovation, not only product innovation. So why isn't the beer industry able to activate similar tactics?

Figure 5: Price differentiation by pack type

Source: Photo capture from an international retailer in Romania

In the article from 2012 we were writing about the increase of choices in the flavored beer segment, the producers offering more and more flavored variants: lemon, grapefruit, apple, elderflower and so on. Looking back on the approach of the beer producers we can say that they have acted in terms of driving the flavored category by offering new flavors, in appealing primary (returnable bottle, one way, can) and secondary (4 pack, 6 pack etc) packaging, however the pricing innovation aspect has not been activated – all flavors were priced at the same level regardless of the competitor.

The beer industry has a lot of examples in terms of pricing and product innovation that they can activate. Based on the items we listed above, a couple of suggestions can be highlighted:

- Consumer/shopper are looking for product features – opportunity to price differentiate different flavors based on consumer preferences,
- Sizing differentiation based on shopping mission and consumption occasion- perfect serve and benefit claim combined with "1 bill" out of pocket,
- Healthy lifestyle occasion activation- low/no gluten unfiltered beer propositions,
- Activation/ price differentiation of existing healthy lifestyle proposition – no alcohol/ 0.0% beer propositions,
- Combination of no alcohol/0.0% beer propositions with different flavors.

Conclusion

In maintaining competitive advantage, innovation has a major role in maintaining a company's market share and in consumer/ client loyalty. The frequent changes in consumer behavior and consumer lifestyle also have a strong impact on product development and innovation. Thus, price innovation is associated with the growth and survival of a company.

The causes of price innovation in organizations are especially the need for companies to grow and keep their position on the market being the most important factor because all companies are concerned about maintaining market share and increasing it, and the need to diversify production relative to demand (different pack size).

The product lifecycle has been considerably shorter in recent years as competitors in the market struggle to create and launch new, innovative or improved products through superior or additional features, benefiting from the rapid evolution of technology. This sustained pace of product development has many consequences such as low consumer loyalty, greater product differentiation, increased importance of marketing and advertising, large investment of resources to achieve competitive advantages.

The frequent changes in buying behavior and in consumer lifestyle also have a strong impact on product development and innovation, continuously seeking to meet their requirements and needs.

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THE FUTURE OF HUMAN RESOURCE MANAGEMENT: WHO AND HOW WILL MANAGE TALENTS?

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Abstract: *In order to survive as a business function and profession, HRM will have to manage changes in order to make HRM experts real, dynamic and innovative business partners. The HR department faces a number of challenges. Personnel experts are working under increasing pressure, they need to reconsider, define and evaluate their role. HRM has never been as needed as it is now. Managers are now facing a very competitive environment, and in the future, they will need to ensure the organization's extraordinary value. In order to achieve this, it is necessary to focus on learning, quality, teamwork and other processes that determine how the tasks will be performed and how they will behave towards workers. The research conducted in this paper was a pilot study created in order to explore the changes in HRM that occurred in the last few years. The pilot research was performed in the period between February and March in 2018 in order to collect responses from HR managers regarding several questions about changes in the role of HRM specialists. The questionnaire was developed based on the Deloitte University Press report (2017). The sample of the pilot study consists of 35 companies from Serbia (46%) and Hungary (54%). The authors tried to explore the changes in HR in terms to find out the roles that HR managers will have in the new business environment. The authors used Factor analysis in order to group similar HR roles in dimensions and explore the nature of the new HRM. The results pointed out that HR managers in Serbia and Hungary have to improve the HR profession and employee relations, be good at change management, strategic management issues and technology usage.*

Keywords: *Human resource management, talents, HR roles, factor analysis*

1. INTRODUCTION

Human resource management (HRM) can be defined as a managerial process that consists of several interconnected activities such as job analysis, HR planning, staffing, training and development, career management, compensation and benefits, retirement, health and safety at work, industrial relation, etc. HRM has passed its transformation journey from poor personnel activity in the past to the strategic business partner nowadays. In order to survive as a business function and profession, HRM will have to manage changes in order to make HRM experts real, dynamic and innovative business partners. The HR department faces a number of challenges. Personnel experts are working under increasing pressure, they need to reconsider, define and evaluate their role. HRM has never been as needed as it is now. Managers are now facing a very competitive environment, and in the future, they will need to ensure the organization's extraordinary value. In order to achieve this, it is necessary to focus on learning,

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[293] The University of Novi Sad, Faculty of Economics in Subotica, Segedinski put 9-11, 24000 Subotica, Serbia

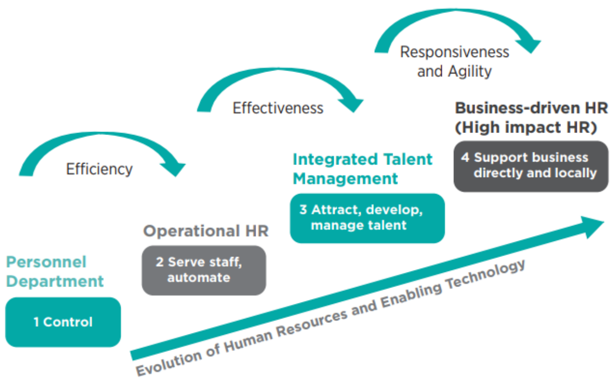
quality, teamwork and other processes that determine how the tasks will be performed and how they will behave towards workers.

The research conducted in this paper was a pilot study created in order to explore the changes in HRM that occurred in the last few years. The pilot research was performed in the period between February and March in 2018 in order to collect responses from HR managers regarding several questions about changes in the role of HRM specialists. The questionnaire was developed based on the Deloitte University Press report (2017). The sample of the pilot study consists of 35 companies from Serbia (46%) and Hungary (54%). The authors tried to explore the changes in HR in terms to find out the roles that HR managers will have in the new business environment. The authors used Factor analysis in order to group similar HR roles in dimensions and explore the nature of the new HRM.

2. THE CHANGES OF HUMAN RESOURCE MANAGEMENT PROFESSION AND HR MANAGERS

When speaking of the HR profession, it is important to highlight the research made by Bersin, who stated that over the last 30 years HR organizations have gone through several transformations, moving from „an operational role (the 'personnel department') to one of 'HR as a service center' to one focused on 'driving talent outcomes'".

Picture 1: The four phases of HR, [1, p. 5]



HRM evolved over time, but besides the function, it is very important to explore the most important demographic characteristics that followed from 1987 to 2012. Those are:

- *Feminization of the profession*. In the last 15 years (from 1997 to 2012), the percentage of men working in HR dropped from 70% to 38%, while the share of women working on these jobs increased from 30% to 62%.
- *Education of HR professionals*. The increase in the educational level of HR professionals.
- *Career development forms for HR professionals*. Economic demands that HR with fewer resources achieve more results (efficiency), application of information technology and outsourcing have changed the size and shape of HR departments. Human resources experts are increasingly individual associates who offer specialist services (34%). HR career can often be in the form of functional knowledge and specialty but in the form of the leading role of the HR manager.
- *A number of years in the HR profession*. Over the last 15 years, an increasing number of HR professionals (25%) have spent less than 5 years in HR positions.

- *The role of HR professionals*. In the last 5 years, there has been a decline in the percentage of HR experts who are generalists (49% to 40%). Recruitment, training, development, HR planning and communication are areas of increased specialization of HR professionals [11, p. 459-460].

The next question that needs to be answered is what competencies are needed for HR managers in order to generate success in this business and to contribute to the organization. According to Ulrich's 1997 study, four basic roles of HR professionals were defined. Each HR role was crucial in achieving partnership relations with top management and contributing to company goals. Human resource management experts are independently responsible for the results of each role, but may also include assistants in performing tasks arising out of the described roles. The following illustration shows the division of responsibilities so that the overall responsibility is expressed with the number 10.

Table 1: HR roles [9, p. 43]

STRATEGIC PARTNER Line managers 5 HR specialists 5	**CHANGE AGENT** External consultants 3 Line managers 4 HR specialists 3
ADMINISTRATIVE EXPERT Corporate HR 5 Outsourcing 3 IT 2	**EMPLOYEE CHAMPION** HR 2 Line managers 6 Employees 2

Dave Ulrich also briefly described the four HR roles in the following form.

Table 2: HR roles, activities, and results [9, p. 25]

Role description	Role title	Result	Activity
Strategic human resources management	Strategic partner	Strategy execution	Harmonization of HR activities and business strategies: "Organizational Diagnosis"
Enterprise Infrastructure Management	Administrative expert	Building an efficient infrastructure	Reengineering of the process: "Shared Services"
Transformation and Change Management	Change agent	Creation of a new organization	Transformation Management and Change: "Ensuring Ability to Change"
Employee Contribution Management	Employee champion	Increase employee loyalty and capabilities	Listening and answering employees: "Providing resources to employees"

HRM experts should learn to think strategically and operatively. The role of employees' champions was changed the most in the recent past. According to the traditional understanding, HRM was solely responsible for employee loyalty. Today, HR experts are expected to train line managers, to adequately respond to the demands of their subordinates and to educate employees to know how to solve problems. Successful execution of HR tasks is largely the task of HR departments. HRM at enterprise level aims to reduce the administrative tasks of specialized HR professionals. More efficient execution of HR tasks is enabled by outsourcing and the usage of information technology. Responsibility for the role of a strategic partner is shared by human resource managers and line managers. HR experts share the task of change agents with line managers and external consultants [8].

According to the latest research by Ulrich, Younger, Brockbank and Ulrich, the roles that an HR expert should have in the organization are the following:

- **Strategic Positioner**. HR experts think and act outside the organization by winning four levels of business. First, they learn the language of business, which concentrates on financial issues. HR professionals must be able to understand the context and essence of business relationships. Secondly, they need to participate in creating an organization's strategy. Third, they need to see and serve key customers of their organization. Fourthly, they need to have a wealth of knowledge of the general business conditions that affect the sector and geographical region in which the organization operates.
- **Credible Activist**. Effective human resource professionals are credible activists because they build personal trust by demonstrating business skills. Credibility is gained when HR professionals achieve what they promise, building personal relationships of trust that they can rely on. They communicate clear and consistent messages with integrity. They also have an adequate view not only of HR activities but also of business requirements. In the end, human resources experts need to be self-aware and dedicated to the development of their profession.
- **Capability Builder.** An efficient HR expert integrates individual employees' abilities into effective organizational capabilities. Capabilities are the institutional strength of the organization and affect its reputation. Capabilities can be expressed in the form of a company's culture, processes, or identities. Such capabilities include customer service, speed, quality, efficiency, innovation, and collaboration.
- **Change Champion**. As champions of change, HR professionals should enable the integration of isolated and independent organizational activities into sustainable processes of changes, which are continuously occurring. They should represent the internal capacity of an organization to manage change. As the change champions, HR experts should allow changes to occur at the institutional level (change in behavior patterns) at the level of the initiative (to make changes happen) as well as at the individual level (enabling personal changes).
- **Human Resource Innovator and Integrator.** Efficient HR professionals need to be innovative and integrate HR practices into integrated solutions for future business problems. They need to know the latest information on the key HR areas that relate to human capital (talent sources, talent development), performance management (performance assessment, awards), organizational design (teamwork, organizational development), and communication.
- **Technology Proponent**. At the core level, HR professionals need to use technology for more efficient work on high-level administrative systems such as benefits and wages, health insurance and costs and other administrative services. In addition, HR experts should use technology to help people stay connected to each other. The growing trend in the use of technologies is also social networks, which need to be included in HRM. HR professionals who understand technology will create a better organizational identity outside the company and improve social relationships within the company. As a proponent of the use of new technology, an HR expert must access, promote, analyze and harmonize technology to achieve information, efficiency and build relationships [11, p. 463-464].

Most famous consulting companies defined the most important challenges to management practice and human resource management in the near future. Ernst & Young's associates in 2015 have identified six trends that will have a significant impact on management practice: digitalization (technological development - changing modes of operation), entrepreneurship, global markets (the spread of global market and the growing gap between developed countries and countries in development), urbanization (urban development), natural resources (an increasing need for them and a growing need for sustainable systems), health expenditures (which are increasingly burdensome, and require new organizational solutions) [7]. The authors of the Boston Consulting Group, based on the research carried out in 2015 in 27 countries of Europe, define five challenges that will significantly influence HR activities of organizations in Europe, including talent management, transformation into learning organizations, harmony between work and private life, managing change and changing culture, and managing demographic changes [6, p. 483].

In the pursuit of achieving business results, the human side of this function is forgotten even within the profession of HRM. HRM is at risk of intellectual and professional impoverishment because of pro-market ontology (immediate shareholder interests of profit-taking) rather than a more inclusive pro-business orientation (a focus on longer-term sustainability of both organizations and people) [4]. HR experts are trying to become business partners with top management and focus on the re-engineering of the HRM process, measuring HRM results, and harmonizing HRM practice with the business strategy of the company, often ignoring the human aspect. Conversely, sometimes it is wrong to think that HRM's sole goal is to make employees happy. However, this business function should build a working atmosphere in which employees will be loyal to the company on the basis of meeting their needs [10].

Based on the above-mentioned, the authors decided to explore the trends in HRM that are important for the future, and the roles that HR managers should have in order to manage employees properly.

EMPIRICAL RESEARCH

The research conducted for this purpose was a pilot study created in order to explore the changes in HRM influenced by digitalization. The pilot research was performed in the period February – March 2018 in order to collect responses from HR managers regarding several questions about HRM.

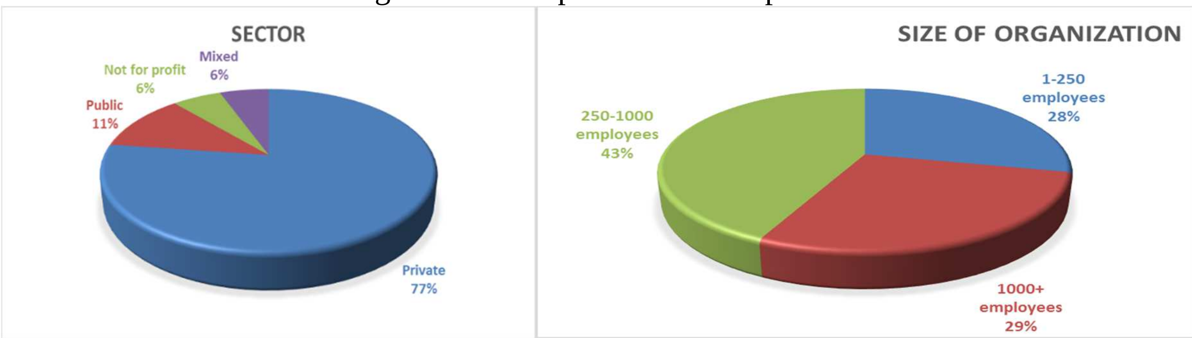
3.1. Methodology

The questionnaire was developed based on the Cranet questionnaire (Cranet, 2017) and the Deloitte University Press report (2017). The first set of questions is related to the size, sector, and industry of the organization. The second part of the questionnaire contains question related to the HRM – the existence of HR department, HR roles of respondents, state of organizational results (profitability, productivity, service quality and rate of innovation). The third part of the questionnaire contains questions related to the importance of the digitalization for organizations, the usage of an HR information system for HR activities, and the rating of the HRM trends for the new digital economy. The questions are created with the predefined answers, where we used a Likert scale (1-5) and dichotomous answers (0-1) in most of the questions.

3.1.2. Sample

The sample of the pilot study consists of 35 companies from Serbia (46%, 16 companies) and Hungary (54%, 19 companies). Picture 1 presents the structure of the sample related to the size and the sector of ownership.

Figure 1**:** Description of the sample



Source: The authors' own design

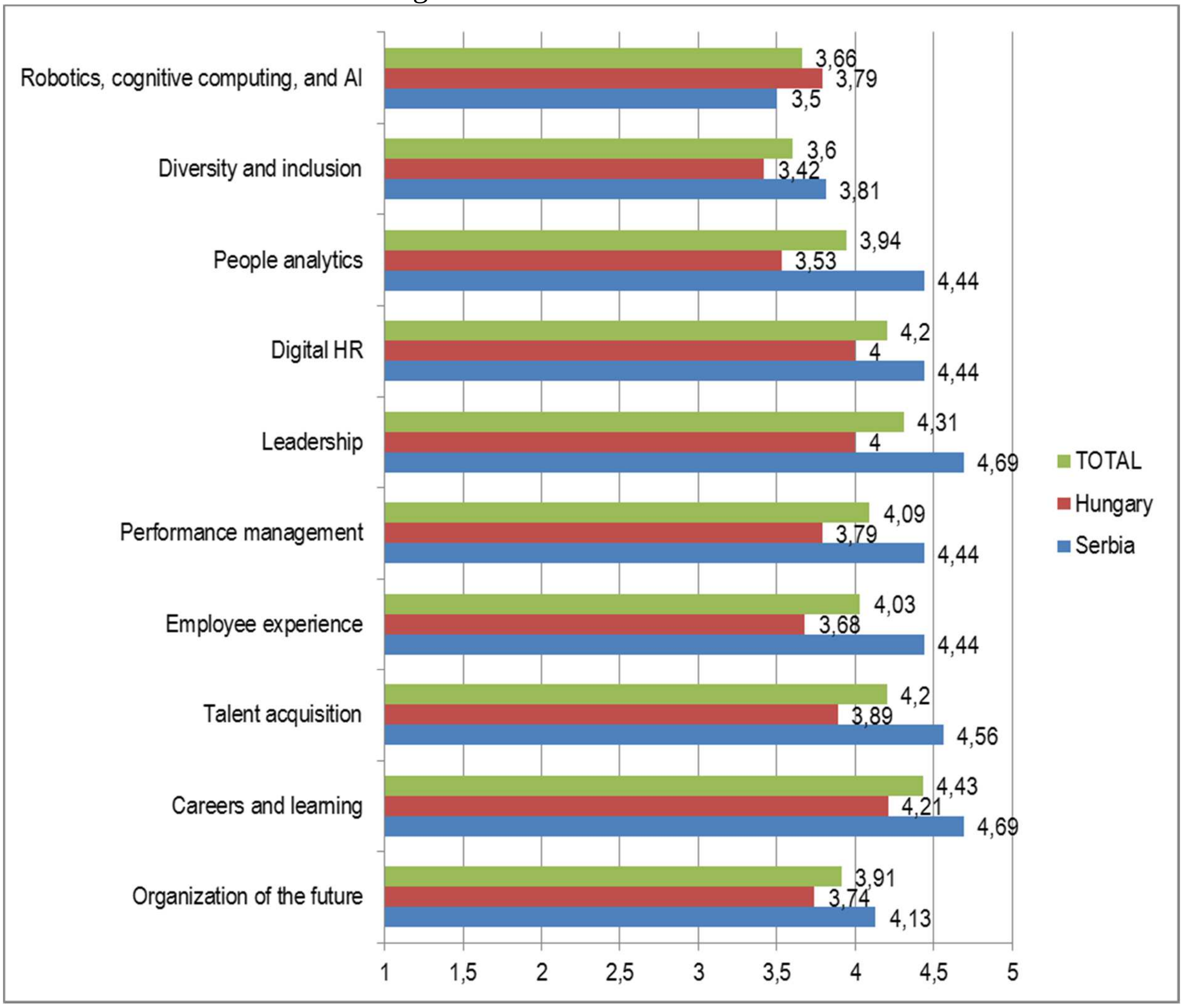
The largest share of the companies has between 250 and 1000 employees (43%), followed by companies with more than 1000 employees (29%) and SMEs (28%). Most of the respondent companies are from the private sector (77%), 11% are public (11%), 6% are mixed (private and public) and another 6% are not-for-profit organizations. All respondents represent one company (managers or HR managers). Best represented in the sample are companies from IT and telecommunications (20%), followed by electricity, gas, steam, and water supply, waste management (11.4%), manufacture of food, beverages, textiles, wood and paper, coke and refined petroleum, and related products (11.4%), and transportation and storage (11.4%). Almost two thirds of the respondents work in the area of services (62%), while the manufacturing sector represents 38%.

3.2. Results

Data from figure 2 point to the ratings of the importance of a certain number of HR trends in 2018/2019. We can conclude that all mentioned dimensions of HR are important for future business. According to mean values of responses (responses from 1-not at all important to 5-very important), it is obvious that career and learning, leadership, talent acquisition, digital HR, performance management, and employees' experience are the most important dimensions of future HRM, in the whole sample and in particular country.

The respondents found that diversity and inclusion and robotics and AI in HRM will be less important than previously mentioned areas. These results are in line with the previous research made by Deloitte University Press [2], [3], that also explored these trends in the HRM.

Figure 2: HR trends in the future



Source: The authors' own design

In order to explore the most important roles of HR managers in the future, the authors used Factor analysis with varimax rotation. Factor analysis was used to summarize several roles of HR managers into a smaller number of underlying dimensions as critical factors. The extraction method was the principal component analysis. VARIMAX rotation was used to transform a set of interrelated variables into a set of unrelated linear combinations of these variables. Only variables with a factor loading than 0.5 were extracted to aid interpretation. Eigenvalues greater than 1 were used to determine the number of factors in each data set. In addition, a reliability test based on Cronbach's alpha was used to test the internal consistency of questionnaire responses.

Table 3. KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,749
Bartlett's Test of Sphericity	Approx. Chi-Square	698,363
	df	190
	Sig.	,000

Source: The authors' own design

Table 3 shows two tests that indicate the suitability of the data for structure detection. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy indicates the proportion of variance in variables that might be caused by underlying factors. According to the data in table 3, KMO is 0,749 which is acceptable and that factor analysis can be done with potential success. Bartlett's test of sphericity tests the hypothesis that the correlation matrix is an identity matrix, which would indicate that the variables are unrelated and therefore unsuitable for structure detection. According to the data in table 3, small values (less than 0.05) of the significance level indicate that a factor analysis may be useful with the present data.

Table 4. Results of the factor analysis

Rotated Component Matrix[a]			
	Component		
	1	**2**	**3**
Improving the utility of HR operations	,838		
Shaping the HR profession	,820		
Shaping organization and communication practices	,803		
Influencing and relating to others	,788		
Improving through self-awareness	,758		
Earning trust through results	,755		
Capitalizing organizational capability	,744		
Driving performance	,730		
Leveraging social media tools	,629		
Sustaining change		,888	
Initiating change		,847	
Creating a meaningful work environment		,710	
Building a leadership brand		,695	
Developing talent		,670	
Aligning strategy, culture, practices, and behavior		,600	
Decoding customer expectations			,862
Co-crafting a strategic agenda			,781
Connecting people through technology			,611
Optimizing human capital through workforce planning and analytics			,594
Interpreting global business context			,565
Eigen values	*11,545*	*2,037*	*1,447*
Cumulative percentage variance (%)	*57,724*	*10,184*	*7,237*
Cronbach's Alpha Based on Standardized Items		*0,961*	
Cronbach's Alpha Based on Standardized Items for factors		*0,856*	
Extraction Method: Principal Component Analysis.			
Rotation Method: Varimax with Kaiser Normalization.			
a. Rotation converged in 5 iterations.			

Source: The authors' own design

Each component has a quality score as an Eigenvalue. Only components with high Eigenvalues are likely to represent a real underlying factor. The authors used Eigenvalues higher than 1 to explore factors. Based on the Eigenvalues, we considered three underlying factors.

In order to explore which dimension creates which factor, we perform the component matrix (the Pearson correlations between the items and the components) as factor loadings. Since in this step we got some cross-loadings, we decided to do the varimax rotation. This analysis tries to redistribute the factor loadings such that each variable measures precisely one factor. The final rotated component matrix showed three factors, which we, based on the variables, described as:

- Factor 1: Improving HR profession and relations;
    - Improving the utility of HR operations,

    - Shaping the HR profession,
    - Shaping organization and communication practices,
    - Influencing and relating to others,
    - Improving through self-awareness
    - Earning trust through results,
    - Capitalizing organizational capability,
    - Driving performance,
    - Leveraging social media tools,
- Factor 2: Change management and leadership;
    - Sustaining change,
    - Initiating change,
    - Creating a meaningful work environment,
    - Building a leadership brand,
    - Developing talent
    - Aligning strategy, culture, practices, and behavior,
- Factor 3: Strategic management and technology usage;
    - Decoding customer expectations,
    - Co-crafting a strategic agenda,
    - Connecting people through technology,
    - Optimizing human capital through workforce planning and analytics,
    - Interpreting global business context.

Described factors are new HR roles that HR professionals should execute in the future.

CONCLUSION

HRM profession passed a long journey from poor personnel office, related to just a few activities (signing work contracts, pay administration, and employees' records) to contemporary business partner role (where HR is seen as an important managerial function that adds value to a company). During that transformation HR changed as a function, but also there are detected changes in the demographic characteristics of people that work in HRM, and in the roles that HR managers should have in the organization.

Based on the results of the empirical research (a pilot research) in Serbia and Hungary, it is found that HR activities such as career and learning, leadership, talent acquisition, digital HR, performance management, and employees' experience will be the most important dimensions of future HRM, in the whole sample and in particular country. On the other hand, diversity and inclusion, robotics, and artificial intelligence in HRM will be less important than previously mentioned areas. This can be explained in the sense that although the AI and IT will take the head role in business, HR will not be replaced just with computers and IT. Human factor will remain the most important part of HRM.

Results of factor analysis showed that all explored variables that present roles of HR professionals can be seen as three factors a) improving HR profession and relations, b) change management and leadership, and c) strategic management and technology usage. The first factor is related to the need of continuous improvements of HR profession in terms of inclusion of social networks in it, creating stronger relationships between employees, and improving HR activities based on new knowledge, skills, and abilities. The second factor is a role of change management. HR professionals should initiate and sustain changes, create a leadership brand in organizations, and develop talents. The third factor, as HR role, is seen as a wider strategic and business partner in terms of understanding the whole business, clients, and customers, and optimizing human capital through workforce planning, analytics, and technology usage.

As it is seen in the research, HR professionals will have some new roles, as added to previous. In this process, IT and business skills will be very important in order to achieve its special position as a business partner that can add value to a company.

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EMPLOYER ATTRACTIVENESS AND THE EMPLOYEE TURNOVER AND RETENTION

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Abstract: *The main goal of this paper is to determine the influence of the employer attractiveness on turnover and retention of employees in the company. In modern business conditions, companies try to identify, attract, motivate and retain the best employees from the labor market, for which many strategies and tactics have been developed. One of the ways is also the employer attractiveness, which can be considered as the overall effort of the company to distinguish itself as a unique place for work, by creating stimulating conditions. Bearing in mind the above, an empirical research was conducted on companies operating in the Republic of Serbia, over a sample of 139 respondents. The results of the research have shown that the employer attractiveness positively affects the attraction of employees, but at the same time it does not significantly affect the retention of employees.*

Keyword: *employer attractiveness, turnover, employees, attraction, retention*

INTRODUCTION

Not surprisingly, the battle for the best employees has become sharper and important as attraction and retention of profitable consumers, as employees are those who provide the company the sustainable competitive advantage. In order to succeed, companies try to apply different strategies and tactics to identify, attract, motivate and retain those employees who have specific knowledge, skills and experience. However, a large number of companies face with the fact that employees will for any reason leave the company. It is actually about fluctuation, which can be understood as the movement of employees in the labor market, that is, between different companies. Fluctuations are inevitable and businesses need to bear in mind that a casual inflow of "fresh" knowledge and experience is needed to ensure innovation and good business performance. However, the problem is if the fluctuation is too high and too frequent, as this points to certain problems that exist in the company for which employees leave. An additional problem is if the company left talented employees, in which the company invested significant funds for creating human capital. How this would not happen, there are a number of options available to human resource managers to best manage fluctuations. One way is to create an attractive employer brand, which can be understood as an effort by the company to distinguish itself as a desirable place to work. Those companies that provides good balance between life and work, competitive earnings, flexible working hours, additional training, etc., they positively affect the morale and commitment of the company, which leads to good business performance.

Bearing in mind the above, the aim of this paper is to examine the influence of the employer's attractiveness on the degree of fluctuation and retention of employees. In order to do this, an empirical research was conducted on companies operating in the territory of the Republic of

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Serbia. The obtained results are of special importance, since such research according to the author's knowledge in this region is limited.

LITERATURE REVIEW

One of the key problems encountered by companies in their business is employee turnover. In general, employee turnover can be defined as their movement in the labor market: between businesses, jobs, occupations, and the transition from employment to unemployment [1]-[2]. Managers often consider turnover as a process of filling out vacancies that arise either because of willing or unwilling employee abandonment of the company [3]. The willing turnover of an organization is the result of an employee's initiative, and is mainly about terminating an employee's employment or retirement. On the other hand, the involuntary turnover of the organization is related to the giving of a dismissal to the employees, but very often, the involuntary turnover of the organization arises as a result of factors that neither employees nor employers can influence, such as loss of working ability, death of an employee etc. [4]. In practice, there are many reasons why employees leave the company. It is mostly about organizational and factors that are related to the job itself. In those organizations where there is high uncertainty, insufficient definition of roles, low level of communication, unclear managerial activities etc., there is a higher degree of fluctuation of employees. When it comes to employee performance, a higher degree of turnover occurs in those enterprises with higher workplace stress, low opportunities for advancement, low compensation, ambiguous roles, constant monitoring, and poor system performance assessment by the management [3]. High turnover mainly involves a series of negative effects. As a result of the constant change of employees, there is a decline in the quality of products and services and the creation of dissatisfied consumers. As a result of dissatisfaction, the profitability rate of the company is falling, which is further jeopardized by negative word of mouth propaganda. On the other hand, since employees change regularly, it is necessary to provide continuous education of employees, which increases the costs of business. Additionally, there is a decrease in the motivation and working morale of employees, as their colleagues have left the company [5]. However, one needs to keep in mind that the company needs a certain level of fluctuation. New employees who have specific knowledge, skills and experience must occasionally join the company, which will enable a higher level of creativity, innovation and achievement of good business results.

As one of the ways that can be used to manage fluctuation is creating working conditions that will be attractive for employees. This is actually an employer attractiveness, which arises as a result of applying internal marketing in a human resource management discipline. Kotler defines internal marketing as the task of successfully hiring, training and motivating able employees to serve the customers well [6]. Internal marketing starts from the idea that the employees are the first clients that the company encounters and whose needs must be satisfied [7]. In order for the company to create satisfied and loyal employees, it is necessary to create attractive working conditions in which there is a good balance between life and work, stimulative compensations, challenging tasks, the possibility of promotion, additional education, working environment in which there are good interpersonal relations etc. [8]. These, as well as numerous other factors, represent the key elements of the so-called employer attractiveness, which can be defined as a set of benefits that an employee receives by employment in an enterprise [7]. As a result of creating attractive conditions, the company is able to attract the best candidates from the labor market, reduce recruitment costs, create an organizational culture in which employees will be ready for change and continuous learning, improve overall performance etc. [9]-[10]-[11]-[12]-[13]. Nevertheless, in the majority of

papers it has been proven that as a result of the construction of an attractive employer there is a decrease in the rate of fluctuation, ie, the attrition of employees, while at the same talents from the labor market are attracted [12]-[7]-[14]-[15]-[16]
Consequently, the following hypothesis can be defined:
H1: Companies that are attractive as the employer realize less turnover rates
H2: Companies that are attractive as the employer attract more employees from the labor market.

RESEARCH METHODOLOGY

In order to test the research hypothesis, the survey method was carried out research on companies operating in the territory of the Republic of Serbia. On that occasion, a sample of 139 respondents was created. When it comes to turnover, the analysis of the structural characteristics of the sample showed that the largest number of enterprises increased the number of employees over the period of 3 years (51,8%). In second place are companies that have not changed the number of employees during the observed period (28,05%), while in the third place are companies that have reduced the number of employees (20,15%). Of the total number, the largest number of enterprises are privately owned (84,17%), while the remaining 15,83% belongs to the state sector.

In order to examine the degree of attractiveness employer attractiveness, a questionnaire consisting of the items taken from the relevant papers dealing with the analysis of employer attractiveness and the employer brand was used: Hanin et al. (2013), Berthon et al. (2005), Highhouse et al. (2003) and Srivastava and Bhatnagar (2010), which achieve a high level of reliability. On the above items, the respondents expressed their degree of agreement or disagreement on the five-point Likert scale, whereby grade 1 was an absolute disagreement, while grade 5 was related to the absolute agreement with that statement. Statistical software SPSS v.23 was used to examine the statistical hypothesis. Descriptive analysis, reliability analysis and t test were applied in the work.

RESULTS AND DISCUSSION

At the beginning of the statistical analysis, arithmetic meanings and standard deviations were calculated, and also the level of internal consistency of the observed variable (Cronbach alpha). When it comes to the reliability of the used statements, the obtained Cronbach alpha coefficient value is 0,895 and, as such exceeds the minimum defined value of 0,7 (Nunnaly, 1978).

The highest level of convenience of the respondents' attitudes was achieved at the statement "*The company has a good potential for development in the future period*", (arithmetic mean = 3,98). The highest level of homogeneity of the respondents' attitudes was achieved at statement "*Other people see the company where I work as a good place to work*", (standard deviation = 1,09). But, employees in observed companies thinks that payed salary is not at very high lever (standard deviation = 1,44). Results of descriptive statistics are showed in Table 1.

Table 1. Descriptive statistics

Number	Item	Arithmetic mean	Standard deviation
EA1	The firm in which I work stands out as an employer in relation to other firms.	3,46	1,42
EA2	This company is attractive to me as a place for employment.	3,35	1,38
EA3	Other people see the company where I work as a good place to work.	3,97	1,09
EA4	Company offers above basic average salary.	2,67	1,34
EA5	Jobs are done in a exciting working environment.	3,42	1,31
EA6	There is a good balance between time spent at work and free time.	3,23	1,44
EA7	Company provides good promotion opportunities to the employees.	3,1	1,4
EA8	Relationships between employees are good.	3,67	1,22
EA9	The company offers high quality products and services.	3,86	1,16
EA10	The company has a good potential for development in the future period.	3,98	1,14

Source: Author

In order to test the research hypothesis, a t test was applied. The results of company comparisons that have increased and decreased the number of employees over time are shown in Table 2.

Table 2. Results of the t test: comparison between companies with increased and dicreased number of employees

Increased vs. Decreased		
Item	Mean difference	p
EB1	0,92	0,004***
EB2	0.99	0,002***
EB3	0,035	0,99
EB4	0,85	0,011**
EB5	0,66	0,051**
EB6	0,8	0,034**
EB7	0,95	0,004***
EB8	0,98	0,001***
EB9	0,79	0,002***
EB10	0,91	0,001***

Note: p<0,01***, p<0.05**, p<0.1*

Source: Author

The results of the research presented in Table 2 show very strong statistically significant differences in the employer attractiveness between the companies that have increased and reduced the number of employees for a period of 3 years. The absence of a difference only occurs with the statement “*Other people see the company where I work as a good place to work*” (p=0.99). An additional analysis showed that the employer attractiveness is higher in those enterprises that have increased the number of employees over time than in those who have reduced this number, which leads to the conclusion that the second hypothesis is confirmed.
Table 3 shows the results of the test t in which a comparison was made between companies that have the same number of employees for a period of 3 years and companies that have reduced the number of employees.

Table 3. Results of the t test: comparison between companies with same and decreased number of employees

Same vs. Decreased		
Item	Mean difference	p
EB1	0,57	0,164
EB2	0,68	0,089*
EB3	-0,11	0,917
EB4	-0,16	0,871
EB5	0,3	0,593
EB6	0,091	0,965
EB7	0,58	0,177
EB8	1,03	0,003***
EB9	0,51	0,113
EB10	0,42	0,001***

Note: $p<0,01$***, $p<0.05$**, $p<0.1$*

Source: Author

The results of the research presented in Table 3 indicate the absence of a difference only in 3 out of 10 findings: "*This company is attractive to me as a place for employment*", "*Relationships between employees are goo*d" and "*The company has a good potential for development in the future period*". Since in most cases there is no statistically significant difference, it can be noted that the employer attractiveness does not affect the employee retention, so first hypothesis was not confirmed.

CONCLUSION AND FURTHER RESEARCH

One way to manage fluctuation is the employer attractiveness. Understood as an effort of the company to create stimulating working conditions, the employer attractiveness involves the creation of good interpersonal relationships at the workplace, giving stimulative earnings, enabling the acquisition of additional knowledge, flexible working hours etc. As a result of these working conditions, companies are able to attract, but also retain the best employees. In this way, an optimal fluctuation is created, which is at such a level that regular inflows of workers with innovative knowledge are provided, but at the same time best employees are kept.

The results of the research on the sample of 139 employees showed that the employer attractiveness does not have a significant effect on the retention of employees. The results obtained can be explained by the fact that competition in modern business conditions is very strong. In order to achieve business goals, companies are actively looking for talents in the labor market, and when identifying them, they apply different tactics to attract them. It is precisely because of the high mobility in the labor market. When it comes to the first hypothesis, a statistically significant difference exists only in the items concerning good working conditions, interpersonal relations and enterprise development in the future period. These are some of the factors that most affect the retention of employees. However, as most of the items did not show difference, it must be argued that the H1 hypothesis has not been confirmed. When it comes to attracting talents, the employer attractiveness is an obvious factor that positively affects the attraction of employees. Businesses apply a number of strategies to gain the best employees, and accordingly, it can be concluded that the H2 hypothesis is confirmed.

The theoretical contribution of work is reflected in the extension of existing knowledge concerning the employer attractiveness and the turnover. A practical contribution is reflected in the provision of information to human resource managers who can use them to create a strategy for attracting and retaining the best employees. The limitation of work is primarily reflected in sample size, which must be increased, but also in his structure. In further research, it is necessary to achieve a balanced structure of the sample, thus providing approximately the same share of companies with different turnover rates. In addition, it is necessary to determine the key reasons why the company is distinguished as an attractive employer.

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FACTORS OF EMPLOYEES' SATISFACTION IN WORKPLACES FROM A METHODOLOGICAL POINT OF VIEW

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Abstract: *In this paper we will deal with the theme of employees' satisfaction with their workplace from the methodological point of view. Business satisfaction is one of the most researched topics in the field of people's behavior in organizations. The reason for this is the belief that a worker is a productive worker and that the organization's performance cannot be achieved with dissatisfied employees. In order to anticipate someone's satisfaction with the work, we must take into account not only the satisfaction of certain aspects of the work that the individual is dealing with, but also his expectations of the job. The total satisfaction with the job is caused by a disagreement or deviation of satisfaction from expectations in relation to certain aspects of the job, and not the level of satisfaction with these aspects, by themselves. All satisfaction factors can be grouped into two categories: organizational and personal satisfaction factors.*

Keywords: *factors, satisfaction, employees, workplace, methodology.*

INTRODUCTION

The most important among all employees' attitudes is the attitude towards the job. This attitude is called job satisfaction and can be defined as the "cognitive, affective, and evaluative reactions of an individual to his job" (Nadoveza, 2001: 84). Job satisfaction is, therefore, a complex attitude that includes certain assumptions and beliefs about the job (cognitive component), feelings towards work (affective component), and job evaluation (evaluation component). In order to predict someone's satisfaction with the work, we must take into account not only the satisfaction of certain aspects of the work that the individual is dealing with, but also his expectations of the job. The total satisfaction with the job is actually caused by a disagreement or deviation of satisfaction from expectations in relation to certain aspects of the job, and not the level of satisfaction with these aspects, by themselves. All satisfaction factors can be grouped into two categories: organizational and personal satisfaction factors.

Organizational factors of job satisfaction are: job by itself, reward system, pleasant working conditions, colleagues at work and organizational structure. People are more satisfied if they do a job that is mentally more challenging than if they perform a simple, routine job. The challenged job has three characteristics: it enables an employee to perform a variety of tasks, gives freedom of work to the employee, and provides feedback to the employee on how he / she have done the job. Regarding the reward system, it is as if the salary is higher, people are generally more satisfied with the job. It is important to note that the perceived fairness of the reward system is a more important factor than the salary itself.

The more work conditions are, the better the worker satisfaction is. It is bigger not only because it is physically more pleasant to them, but also because better working conditions create a

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greater possibility for better performance of work tasks and success at work. The social atmosphere is also an important factor of satisfaction at work. Employees are more satisfied with their work if they work with colleagues with whom they personally have very good relationships and if a pleasant social atmosphere is at work. Within this factor is also the attitude of the employees with the direct manager (boss).

Personal satisfaction factors are: harmony between personal interests and work, work experience and age, position and status and overall satisfaction with life. More satisfactory jobs are those workers whose personal profile, knowledge and abilities they possess better respond to the needs of the workplace they are in. Older people and people with a higher work experience tend to be more satisfied with work than those with a lower work experience in a particular job. This happens not only because a man becomes better and better in his work and he gives more results during a time, thus he is more rewarded. Actually this happens because of the effect of cognitive dissonance.

Even though, those who were not initially satisfied with their work, if they stayed for a long time, rationalize their calmness by convincing themselves that they are satisfied with this job. The higher the hierarchical level of the employee, the more satisfied he is with the job he deals with. The cause is also certain. The higher incomes, status and certain status symbols: higher power and social influence, the greater is satisfaction with the work. Research has proven the effect of "spilling" (Robins, 2003: 54) of satisfaction. Satisfaction with a lifetime positively reflects on the satisfaction of the job that a person deals with and vice versa, and satisfaction with the job has a positive effect on total satisfaction with life.

Job satisfaction is not the purpose for itself. Although there are more and more theories according to which the social responsibility of a company implies its obligation to satisfy employees, however, most authors deal with this problem, since it starts from the assumption that a more satisfied worker is a more productive worker. Employee satisfaction has three main effects: satisfaction and productivity, absenteeism and fluctuations. It is logical to assume a positive correlation between satisfaction and productivity, although this relationship is not as strong as it used to be. The correlation coefficient in all studies is about 0.17.

1. THE LINK BETWEEN EMPLOYEES' SATISFACTION AND PRODUCTIVITY

There are many reasons why the link between employees' satisfaction and productivity is not stronger and more direct. First, it is possible that other factors, not just employees' satisfaction, are affected by productivity. A possible explanation for the weak correlation of the satisfaction and productivity of the worker is the direction of the cause-effect relationship of these two phenomena. Some studies show that perhaps the increase in productivity is the cause, not the result of employees' satisfaction. Increasing productivity causes performance improvements, which increases employees' rewards, which leads to an increase in their satisfaction. Satisfied workers will be less absent from work. This hypothesis is also confirmed by empirical research, although the (negative) coefficient of correlation is not as strong as expected. It has been found that satisfied workers will leave the job less than dissatisfied, which is very common sense. The fluctuation rate in companies with high employee dissatisfaction is considerably higher than in those with a lower degree of dissatisfaction.

2. THE RESULTS OF THE EARLIER RESEARCHES

According to a survey conducted by the Minnesota Natural Resources Department (Molina, 2007: 68) in the period 2004-2006, on the sample of 850 employees at the Institute for Science and Development in Minnesota, USA, we have come up with results that show that majority of respondents consider it important that their quality work be noted and valued and that they need recognition for their work. Previously mentioned controversy about the factors that drives employees in the direction of greater satisfaction at work, and therefore more efficient and effective solving of tasks is the subject of research of a wide scientific population. Almost all studies agree that different motives trigger different needs, and hence employees' satisfaction differs and depends upon a number of factors that companies respond with appropriate managerial strategies in order to satisfy them.

“Kranet” is an international organization for comparative research in the field of human resources management, founded in 1989, based in England (Šušnjar, 2005: 154). In the research conducted in the period 2003-2005, 7914 organizations from 32 countries participated. From Europe, these are the following countries: Austria, Belgium, Bulgaria, Iceland, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Norway, Slovakia, Slovenia, Spain, Sweden, Switzerland, the Netherlands, Turkey and Great Britain. And from the rest of the world, the participants were: Australia, Canada, Israel, Nepal, New Zealand, Philippines, Tunisia and the United States. Crane research was conducted in the period from 2003 to 2010 and it presents a dominant remuneration practice as the main factor affecting employees' satisfaction in workplaces applied in most European countries (Kranet, 2011: 75). The obtained data confirm Bruder's scientific analysis (Bruster, 2007: 142) according to which modern forms of variable earning are gaining in importance and contributing to the success of the company.

In Japan, business philosophy is largely based on contributions to the wider community and the state. Even in companies where there is no business philosophy, a unique corporate culture has been built, and in fact it represents the unity of thoughts, visions and norms for actions that have been built for years and taught as a tradition of the company. Some of the most common working groups in most Japanese companies are "quality control circles and groups" (Dimitrovski, 2010: 78). Instead of solving some quality problems, Japanese companies are focused on improving the quality of work as a whole, because only in this way can the company achieve its goals.

The results of previous research in Serbia are the following data. In a company called "Faculty of Management", headquartered in Sremski Karlovci, in the period 2011-2014, a team of research associates from the international organization Galup, headquartered in Lisbon, conducted a survey of 92 employees. Generally speaking, employees are very satisfied with the workplace. Observing the aggregate average response values by categories of survey statements, the highest values were obtained in terms of employees' satisfaction with development opportunities and interpersonal relationships.

Then, almost the same high value was obtained in terms of employees' loyalty and their satisfaction with secured working conditions. Then the satisfaction of employees with their own workplace and the way in which corporate communication takes place. As stated above, the highest values were obtained in terms of employee satisfaction with developmental capabilities (Robins, 2003: 98).

In terms of development opportunities, they have very high values, so it is impossible to say what could be possible points of improvement, except for the recommendation that the company continue to do so. By synthesizing the above mentioned research results, we have come to the conclusion that: evaluation of work, recognition, reward system, corporate culture, development opportunities and interpersonal relationships are key factors that influence the satisfaction of employees with workplaces.

3. THE SCIENTIFIC IMPORTANCE OF THIS RESEARCH

The scientific significance of this research is reflected in the fact that it should contribute and complete the fund of scientific knowledge about the factors that influence the satisfaction of employees with their workplace.

The results of the research will be used to provide answers to the questions how the internal and external factors influence the satisfaction of the employees. In addition, the results of this research should provide us with valuable materials for a more complete understanding of the given issues and continuous improvement of the research practice in this plan, so that the information that comes in this way from year to year is becoming more and better for the participating firms. The scientific component of this research completely belongs to the field of human resources management, and partly to other areas of management, such as communication, organizational behavior and change management.

4. THE SOCIAL IMPORTANCE OF THIS RESEARCH

The research will have its social significance, as it will point out the very complex problem that is present in society. Only a satisfied worker is a productive worker. The significance of this research is that it will affect changes that can contribute to the improvement of the current situation. This type of research aims to promote and popularize this kind of research with us. The research should provide valuable material for a more complete understanding of the given issues and continuous improvement of the research practice in this plan, so that the information that comes in this way from year to year is becoming more and better for the participating firms. In addition, the social significance of this research is that the best companies in Serbia are recognized and rewarded.

5. HYPOTHETICAL ATTITUDES ABOUT THE PROBLEM

The most important among all employees' attitudes is attitude towards their business. This attitude is called job satisfaction and we can define it as "cognitive, affective, and evaluative reactions of an individual to his job". Job satisfaction is, therefore, a complex attitude that includes certain assumptions and beliefs about this business (cognitive component), feelings towards work (affective component), and job evaluation (an evaluative component). Job satisfaction is one of the most explored topics in the field of human behavior in organizations. The reason for this is certainly the belief that a worker is a productive worker and that the organization's performance cannot be achieved with dissatisfied employees.

Therefore, the satisfaction is not affected only by the size of the award, but also by the recipient receiving the award, or whether for the work done, the worker receives those awards he appreciates. According to this theory, workers who have a small salary do not have to be dissatisfied if their pay is not the most important factor of job satisfaction. If, for example, creative, young engineers in development are likely to be satisfied with the job, even if they have a small salary, if they have the opportunity for creative work, training, learning and promotion because it is what they value at work. In order, therefore, to anticipate someone's satisfaction with the job, we must involve not only the satisfaction of certain aspects of the work that the individual is dealing with but also his expectations of the job.

The overall satisfaction with the work is really caused by a disagreement or deviation of satisfaction from expectations in relation to certain aspects of the business, and not the level of satisfaction with these aspects themselves. Someone may be dissatisfied with the job even though he has a high salary and is pleased with the salary, if he does not have high expectations regarding the height of the salary itself, but in terms of career progression. Lok's theory draws attention to another important phenomenon. People have the tendency to tie the level of satisfaction to certain aspects of the job to the extent of the discrepancy between expectations and satisfaction. Namely, in those aspects where the lack of expectation and satisfaction is a great and absolute level of satisfaction, the tendency is falling.

6. THE FACTORS OF JOB SATISFACTION

Factors can be grouped into two categories: organizational and personal satisfaction factors. The organizational factors include:

1. Job itself. People are more satisfied if they do a job that is mentally more challenging than if they perform a simple, routine job. The challenged job has three characteristics: it enables an employee to perform a variety of tasks, gives freedom of work to the employee, and provides feedback to the employee on how he / she have done the job.
2. Award system. The higher the salaries, employees are generally more satisfied with the job. However, it must be noted immediately that the perceived fairness of the remuneration system is a more important factor than mere salary. This has also been shown in all research carried out in domestic enterprises. Workers are more satisfied if they perceive that the reward system is fair and equally treats all employees. From the fairness of the reward system, the expectations are higher than the salary itself.
3. Pleasant working conditions. The better the conditions of work, the more logical the employee's satisfaction is. It is bigger not only because it is physically more pleasant to them, but also because better working conditions create a greater possibility for better performance of work tasks and success at work. People are often dissatisfied with poor working conditions not so much that they are personally uncomfortable for them because they interfere with them to achieve the expected performance.
4. Colleagues at work. The social atmosphere is an important factor of satisfaction at work. Employees are more satisfied with their work if they work with colleagues with whom they personally have very good personal relationships and if a pleasant social atmosphere is at work. This particularly applies to people who are not much interested in a career. Within this factor is also the attitude of the employees with the direct manager (boss). If the employee has a closer relationship with the boss, if the boss praises the employee more often, follows his work and builds open relationships with him, then the employee' satisfaction is even greater. It should also be noted that national culture can have an impact on the importance of this factor of job satisfaction. In collectivist cultures it is logical to assume that the importance of a pleasant social atmosphere and the absence of conflict is a very important factor of satisfaction with work in most of the employees, even more important than the amount of salary. Some studies show that this is valid for all our companies. In every domestic company, the most important aspects of work, the ones most expected, are in fact related to the social environment: good relations with colleagues, good relations with the boss, absence of

conflict, socializing with colleagues after work, etc. The conclusion is that the satisfaction with the work of our employees is influenced by the social environment more than the level of salaries, which, among other things, can explain the relatively few strikes and dissatisfaction of workers compared with the size of their standard of living.

5. Organizational structure. Research in the United States has shown that employees are more satisfied if the organization is more decentralized and given more opportunities for participation in decision-making. This argument seems quite logical, but one has to bear in mind the possibility of its cultural limitation. Namely, decentralization can be a source of employee satisfaction only if they have a presumption and expect that power should be as much as possible distributed evenly in the organization. This is, however, the case only in national cultures with a so-called distance of power.

In high-crop cultures, employees do not expect and do not prefer their involvement in decision-making, and decentralization is likely to remain unaffected by their satisfaction. Research in our companies has shown that one other feature of the organizational structure is the source of employee satisfaction - transparency and stability. Employees in our companies are more satisfied if the organizational structure is clear, familiar and stable. This can be brought about in connection with another feature of our national culture - the ailing of uncertainty. Our workers do not like change, uncertainty, ambiguity, and it is logical for the structure to expect them to spare them. If it is such, it will be a source of employees' satisfaction, if not a source of dissatisfaction.

6.1. Personal satisfaction factors

A fund between personal interests and work. More satisfactory jobs are those workers whose personal profile, skills and abilities that they possess are better suited to the needs of the workplace they are in. In this case, the employee feels that the job allows him to express all his knowledge and skills, to show his personality and abilities, and be more satisfied. The influence of this factor is also indirect. The balance between skills and job requirements will lead to better performance results, these to higher rewards and all together will lead to greater employee satisfaction.

1. Work experience and age. Older people and people with a higher work experience tend to be more satisfied with the job than those with a lower job position. This happens not only because, in time, the man becomes better in his work, he gives more results, he is more rewarded, but also because of the previously described effect of cognitive dissonance. Even those who were not initially satisfied with their work, if they stayed for a long time, they rationalize their passivity by convincing themselves that they are satisfied with the job. Research has shown that job satisfaction is growing with years of seniority and age, but not liner. First, the job satisfaction is rising rapidly through the thirties, because the man is becoming more and more successful in his career and progressing in his career. Around 40 people reach zenith in work, loses many illusions about it, and is less satisfied than in the second half of the fifties and until the retirement, employee will again be happy with work.
2. Position and status. The higher the hierarchical level of the employee, the more satisfied he is with the job he deals with. The cause is also certain that higher positions go with higher incomes, as well as with certain status symbols, greater power and social impact, which leads to higher job satisfaction.
3. Overall satisfaction with life. Research has proven the effect of "spilling pleasure". Satisfaction with the overall life is positively reflected on the satisfaction of the job that

a person deals with and vice versa, satisfaction with the job has a positive effect on the overall satisfaction of life.

4. Employees' satisfaction with workplaces. While it is logical to assume a strong positive correlation between satisfaction and productivity, this relationship is not as strong as it used to be. The correlation coefficient in all surveys is about 0.17. There are several reasons why the link between employees' satisfaction and productivity is not stronger and more direct. First, it is possible that other factors are affected by productivity, and not just the satisfaction of the workers. There is a technology where a worker can affect productivity only a little because the technological process determines the speed of work. Employers' satisfaction or dissatisfaction can then slightly affect productivity. A possible explanation for the weak correlation of worker satisfaction and productivity is the direction of the causal link between these two phenomena.

Some studies show that perhaps increasing productivity is a cause rather than a consequence of employees' satisfaction. The increase in productivity results in improved performance and this increase in employees' benefits leads to an increase in their satisfaction. Finally, it has also been shown recently that productivity is only one aspect of improving performance under the effect of employees' satisfaction. A satisfied worker will not only be more productive but will, as it is sometimes important, create a better atmosphere at work and positively affect the work of other colleagues.

<u>Absence from work.</u> Satisfied workers will be less absent from work. This hypothesis was confirmed by empirical research, although (negative) coefficient of correlation is not as strong as expected. The probable cause of a weaker link of employees' dissatisfaction and their absence from work is that other factors have an influence on the decision to leave the work. Sometimes a very satisfied worker must be out of work. On the other hand, there are several factors that force the disgruntled worker to come to work - the fear of losing work, responsibility towards colleagues at work or towards the client.

<u>Fluctuation.</u> It has been found that satisfied employees will leave the job less than dissatisfied, which seems to be very common sense. The fluctuation rate in companies with high employee's dissatisfaction is considerably higher than in those with a lower degree of dissatisfaction. Nevertheless, there are also a lot of median variables that can complicate this relationship. An unhappy worker may remain at work because there are no other options. This means that the correlation of employees' satisfaction and fluctuation is influenced by the general economic conditions and the level of unemployment in the economy. It has also been established that the tendency of abandoning work is also affected by general satisfaction or dissatisfaction with the worker's life. This influence is contrary to what might have been assumed at first glance. Workers who are generally satisfied with life (but dissatisfied with work) are easier to leave than those who are dissatisfied with both work and life as a whole.

6.2. Factors of productivity and fluctuation

1. Prior working conditions - If the conditions of work are better, it is logical that the worker's satisfaction is greater. It is bigger not only because it is physically more pleasant to them, but also because better working conditions create a greater possibility for better performance of work tasks and success at work.
2. Organizational structure - many studies have shown that employees are more satisfied if the organization is more decentralized and that employees are given more opportunities to

participate in decision-making. This argument seems quite logical, but it must also bear in mind the possibility of its cultural limitation.

3. Improving the performance - a satisfied worker will not only be more productive but, as it is sometimes important, creating a better atmosphere at work positively affects the work of other colleagues.
4. Absence from work - satisfied workers will be less absent from work. This fact is confirmed by many empirical researches, although the (negative) coefficient of correlation is not as strong as expected. The probable cause of a weaker link of employees' dissatisfaction and their absence from work is that other factors have an influence on the decision to leave the work.
5. Work experience and age - satisfaction with work grows with years of seniority and age but not linear. First, the job satisfaction is rising rapidly through the thirties, because the man is becoming more and more successful in his career and progressing in his career. Around 40 people reach zenith in work, loses many illusions about it, and are less satisfied that in the second half of the fifties and until the retirement, when they will again be happy with work.
6. Position and status - satisfaction with a lifetime positively reflects on the satisfaction of the job that a person deals with and vice versa, satisfaction with the job has a positive effect on the overall satisfaction of life.
7. Personal dissatisfaction with the employee - personal dissatisfaction can negatively affect the work performance of the employed person.
8. Employees' dissatisfaction - inadequate position or employees' dissatisfaction with what he or she is doing, what they do is badly affecting the job.

The research is interdisciplinary. It will be implemented in the field of human resources management and partly in other areas of management, such as communication, organizational behavior and change management. The survey will be implemented in the period from 2005. to 2015. The research will cover a period of 10 years on the territory of the city of Novi Sad in two companies. The survey will be done on a sample of 10 respondents, 5 women and 5 males.

7. GOALS OF RESEARCH

7.1. Scientific goal of research

The scientific goal of the research is scientific discovery in a specific research enterprise. Scientific discovery as the objective of this research should contribute to the identification of cause-and-effect relationships that exist between factors that affect the satisfaction of employees with their workplaces, but also to provide new scientific knowledge concerning this problem, and which were not reached by researchers who previously dealt with this issue. Scientific descriptors as the lowest level of scientific knowledge enable us to describe satisfaction factors: a system of rewarding, pleasant working conditions, a job by itself, colleagues at work, organizational structure, etc. which affect employees' satisfaction with their workplace and classify them into two or more categories. (Milosavljevic, 2006). The scientific goal is a theoretical and practical analysis of employees' satisfaction factors in their workplaces. For modern employees, in order to effectively create and work, it is crucial to be satisfied with their employment and the type of work they perform. Therefore, the significance of this research is to draw attention to all the factors that affect employees' satisfaction with their workplace. The future of the company depends on the level of employees' satisfaction and their motivation; therefore, it is of a great importance that every work contributes to the research of this complex area. In fact, by researching methods and techniques that affect employees' satisfaction, we provide an insight into the future trends of the organization's modern business.

7.2. Social goal of research

The social objective of this research is reflected in:

- To examine the extent to which the characteristics of the work and organization are present as a factor of employee's satisfaction,
- Examine the extent to which material compensation and benefits are present as a factor of employee's satisfaction,
- To examine the extent to which the relationship with the superiors and colleagues is present as a factor of employee's satisfaction,
- Examine the extent to which the required competencies are present as a factor of employee's satisfaction,
- Examine the extent to which employees' readiness for additional learning and responsibility is expressed.

8. RESEARCH METHODS

In accordance with the scientific goal, the hypotheses and scientific justification of this research, we will primarily deal with the theoretical and practical analysis of the factors of employees' satisfaction with their workplaces. Modern employees should be satisfied with their employment and the type of work they perform. Therefore, the significance of this research is to draw attention to all the factors that affect employees' satisfaction with their workplace. Also, in accordance with the hypothesis and scientific justification where it is assumed that the external and internal aspects of the workplace are present as factors of employees' satisfaction, and if the working conditions are better, in so doing, the productivity of employees will be higher, as the fluctuation will be less if employees are not satisfied with their personal lives. This research is scientifically justified by the fact that it will deepen and complement existing scientific knowledge of factors that affect the satisfaction of employees with their workplaces, but also enable them to reach new scientific knowledge concerning this problem, which were not reached by researchers who had previously dealt with these topics. Therefore, various methods of research will be used in this paper to satisfy the basic methodological requirements: generality, reliability, objectivity and systematicity.

In order to prove the hypothesis, we will use analytical and synthetic methods, a hypothetical-deductive, comparative and descriptive method. In this paper, we will use a descriptive method to describe the subject and factors we have learned about during the writing process.

We will use the analysis to explain the object of research to its constituent parts, that is, to the factors of structure, function, relationships in a given space and within a certain period of time.

Also, in the paper we will use the hypothetical - deductive method as an experimental method whose cognitive and, in particular, the scientific and cognitive basis of the overall social, organizational and scientific dimension which must be general, tested and verifiable. At the same time, it is changeable and developmental.

For the explanation, comparing identical, similar and different phenomena, we will use a comparative method. In this paper we will use the method of data collection.

The techniques of research that will be used in this paper are the techniques of assignment. The research tool to be used in this paper is a questionnaire. Items in the questionnaire will be closed-type questions. When drafting and applying the instruments, the rules of proper design and assignment will be respected. Responding to a questionnaire will be anonymous.

9. SCIENTIFIC AND SOCIAL EXPLORATION OF RESEARCH

This research is scientifically justified by the fact that it will deepen and complement existing scientific knowledge of factors that affect the satisfaction of employees with their workplaces, but also enable them to reach new scientific knowledge concerning this problem, which were not reached by researchers who had previously dealt with this topic. On the other hand, the scientific justification of this research is also reflected in what it will contribute to the development of methodology as a science. This development will contribute to the application of the aforementioned methods in the research of topics that are still insufficiently explored in scientific circles and will contribute to the development of other sciences in the field of human resources management, to certain areas of management, such as communication, organizational behavior and change management.

CONCLUSION

This research is socially justified because it will provide results on the basis of which concrete actions could be undertaken aimed at improving the current situation, that is, actions aimed at raising awareness of working and social organizations in improving working conditions, working climate and increasing the level of employees' satisfaction working organizations, as well as more active involvement of the community in problem solving. With the help of the results obtained by this research, it could influence the improvement of the factors that influence the increase in employees' satisfaction with their workplaces.

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ACHIEVEMENT MOTIVE AND SOCIAL INTELLIGENCE IN THE SELECTED WORKING AREAS

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Abstract: *The research study analyzes the motivational factors of employees in the work process and the related characteristics. Motivational factors are analyzed in terms of the work areas. Consequently, we focus on the description and results of employee motivation research, as well as on specific examples in the work process of the selected sample of respondents. The research sample consisted of 79 employees (M= 36,46 ; SD=7,59), specifically 21 executive employees, 37 employees from education and 21 employees from production. The research data were collected through MESI methodology [2], which measured social intelligence and DMV questionnaire [2], which measured achievement motivation. We did not find statistically significant differences in the level of achievement motive between employees working in selected working areas. We did not find statistically significant differences in the level of achievement motive and in the level of social intelligence between employees younger than 35 years and employees older than 36 years.*

Keywords: *achievement motive, social intelligence, working areas*

1. INTRODUCTION

The perception of the performance motive as a system of functioning of the organization, in order to achieve its goals, is now based on working with people, because people are the most important element of the organization. We meet situations when even after creating all the formal, material and personal prerequisites for the functioning of the company its performance does not reach the desired level.

The most of employees experience their existence within organizations, under their influence or in interaction. Even professional life of most part already adolescent population is taking place in the context of the enterprise. Employees are integrated into the structure of professions and functions, their positions are set in the formal relationships hierarchy, there are defined the rules of cooperation and ways of mutual communication. Often there are defined desired ways of working behavior and so on. By specific level of technology, working conditions, prevailing social climate and a number of purposeful activities the organization affects the attitudes of employees and their willingness to work, their efficiency and satisfaction [19].

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The motivation as a process activates the employee to carry out his activities with the intent to achieve the stated goals. Motivation can also be understood as a chain of reactions that follow. Unfulfilled goals and desires create a sense of tension [4]. This condition causes the emergence of activities that are directed towards achieving the needs. The ultimate consequence of the motivation process is to achieve satisfaction.

We understand the motivation of human activity as one of the basic personality substructure. The motives orientate the activity of the employee, activate it and maintain [1]. In addition to the emotional component that is based on the feeling of lack of something, motivation has also a cognitive component, when an employee is aware of what he is doing and with what overall result.

Employee performance affects particularly those inner motives that are associated with a high level of internal aspiration. By aspiration we understand the personally significant amount of entitlements that the employee places on his work performance [1]. The employee chooses and decides what, how much and what quality would like to achieve. This in fact reflects his view of his abilities, qualities and possibilities to achieve the set goals. The overall higher level of life demands is manifested by perseverance and the ability to overcome the obstacles of life [3]. Aspiration by its effect adds to the motivation of the employee a certain belief that the task is realistically achievable for him.

Fatigue and stress also contribute to changes in employee achievement. Often, professionals also admit that under their influence they are unable to concentrate to perform satisfactorily. However, fatigue and stress may be a motivational incentive, especially when the stated objective is attainable at a certain time. An exhausting environment, such as demanding work, deadlines or success orientations, leads to deliver the best of performance of most employees [15]. The real problem with stress starts when under its influence an employee becomes overloaded. Nowadays, it is often a problem to avoid stress, but it is possible to eliminate it. That is why one of the requirements for the work of the employee is also the ability to work under pressure. Tasks whose importance increases proportionally to management level and focus on the successful fulfillment, create a certain amount of tension for the employee in relation to time. An appropriate way to reduce this tension is optimal arrangement of working time, what is called time management.

Robbins and Coulter [16] assume that there are three elements needed to achieve the set goals of the enterprise, which is the effort, the organizational goal and the need. Effort is a measure of intensity or inner strength. A motivated employee is seeking very intensively and reliably. But the high level of effort does not lead to high performance if it is directed in a different direction than the objectives of the enterprise. Therefore, it is important to know that the quality of effort is as important as its intensity. Motivation is essentially a process of meeting needs. Nákonečný [13] emphasizes the aspect of the expected results of the activity, which means:
• Whether the given job will be met;
• What reward values I can get;
• What costs will be associated with it (i.e. effort and time).

Brooks [4] highlights the coherence and performance of the group. We can understand the coherence of the group as its pulling power, the ability to retain its members.

2. METHODOLOGY

The main goal of the research is to compare achievement motive and social intelligence in the selected working areas of employees.

Research sample consisted of 79 participants aged from 34 to 53 years (average age was 36.46 with standard deviation of 7.59). The proportionality of gender was uneven- the sample contained 44 women and 35 men. Research sample consisted of administrative employees (21 participants), employees working in education (37 participants) and employees working in production (21 participants).

D-M-V Questionnaire

The questionnaire of achievement motivation [14] consists of three subscales (scale of achievement motive, scale of anxiosity supporting achievement and scale of anxiosity braking achievement).

We used scale of achievement motive for research purpose, which contains 24 items, which are considered in 6-points scale (1- "totally not for me", 6- "totally for me"). The scale of achievement motive captures level of aspiration, effort of high social status and time- based orientation for the future with Cronbach´s alpha= 0.876.

MESI- Manipulation, Empathy and Social irritability

The MESI methodology is inspired by PESI methodology, which was developed by Kaukiainen et al [9]. The original methodology was created for children of same age or their teachers to identify the level of perception of social intelligence. It contains 10 items within its internal consistency (Cronbach alpha is 0,90). The methodology MESI contains 21 items, which are considered in 5 – points scale (0 – never, 4 – very often). By factor analysis were extracted three main factors – empathy, manipulation and social irritability. Frankovský and Birknerová [6] extracted 3 factors of social intelligence:

Empathy: The individual with higher scores know how to identify intentions, feelings and weakness of the others. They can adapt to new people and fulfill their expectations.

Manipulation: The individuals with higher scores in this factor are able to convince others to do what they need. They know how to use them and convert them to stand on their side. They do not hesitate to use lies as a resource for their own benefit.

Social irritability: Persons with higher score in this factor are annoyed by communication with other people, not able to adapt, can't stand weakness.

These factors by number and content correspond with results of MESI methodology on Slovak research sample [2]. Extracted factors showed 47,7 % variance, which is acceptable and allowed to specify factors by content. Internal consistency of individual factors was determined by Cronbach coefficient and the values are acceptable.

2. RESEARCH RESULTS

The objective of the research is to compare achievement motive and social intelligence between employees under 35 years and employees older than 35,01 years. The results were processed in statistical program IBM SPSS 20.00 and assessed by using nonparametric equivalent of One-way Analysis of variances called Kruskal- Wallis test and t-test for two independent samples.

Table 1: Comparison of statistically significant differences in the level of achievement motive in selected working areas

Dependent variable	***Independent variable***	***N***	***Mean***	***Standard deviation***	***Average rank***	***KW***	***p***
Achievement motive	Administrative employees	21	3.94	0.53	40.69	0.11	0.94
	Employees in education	37	3.92	0.50	39.09		
	Employees in production	21	3.93	0.54	40.90		

Results analysis between selected working areas did not show statistically significant differences between administrative employees, employees working in education and employees working in production. Comparison of average rank did not show statistically significant differences ($p= 0.94$, $KW= 0.11$).

Table 2: Comparison of statistically significant differences in the level of achievement motive and social intelligence considering to age

Dependent variable	***Age***	***N***	***Mean***	***Standard deviation***	***t***	***Degree of freedom***	***p***
Achievement motive	>35 <35	37 42	3.89 3.97	0.41 0.64	-0.68	77	0.50
Social intelligence	>35 <35	37 42	3.08 3.33	1.01 0.93	-1.15	73.67	0.25

Table 2 did not show statistically significant differences between employees under 35 years and employees older than 35,01 years in the level of achievement motive and social intelligence. Specifically in the level of achievement motive was $p= 0.50$ and $t= -0.68$ and in the level of social intelligence was $p= 0.25$ and $t= -0.25$.

3. DISCUSSION

Comparisons of employees in each work field did not indicate existence of statistically significant differences in achievement motive as a part of achievement motivation. Results of study [10] points out that achievement ambition correlates with neuroticism, conscientiousness and openness to new experiences. Authors of the study found out several connections between personal characteristics and aspects of achievement motivation. Highly successful people are more likely to set their own efficiency goals. Different level of success needs has significant influence on efficiency [17]. Research results of administrative employees, employees working in education and employees working in production did not show statistically significant differences in the level of achievement motive which is a part of achievement motivation. Based on results is not possible to give evidence if they get higher level of ambition to reach success or higher level of fear of failure.

Comparisons of employees under 35 years and older than 35.01 years did not indicate existence of statistically significant differences in achievement motive as a part of achievement motivation and in the level of social intelligence. Individuals with higher success need explain success as their own high ability level and the effort spent. On the other hand they explain failure as a lack of effort. It is a reason why are people with increased fear of failure described as ones, who refer success to low level of task difficulty or to accident and they explain failure as a lack of ability [5]. Research [12] proves that people usually do not perceive negative aspects of behavior as a part of social intelligence. Other research findings prove that social intelligence construct can be predictor of ethical or unethical behavior [3]. Also researchers [11]; [9] assume that social intelligence has neutral charge, it involves also using of social techniques to manipulate others ergo and it is a construct than can be used in social positive sense as well as in social negative sense. Researchers [6] conducted analysis of relation between social intelligence factors and factors of Machiavellian intelligence. They found that higher rate of cynicism and use of lie for own benefit is linked with higher rate of ability to persuade others, to use others for own benefit and to manipulate them. Also higher frequency of cynicism expression was connected with higher level of social irritability. In this context, we can explain cynicism as a defense mechanism when person has a difficulty in social contact.

SUMMARY

Comparisons of employees from selected working areas and employees under than 35 years and older than 35,01 years did not show existence of statistically significant differences in the level of achievement motive and in the level of social intelligence. Research of achievement motivation highlights support of employees to achieve high-quality results. Accordingly, one of the essential organization´s objectives is to ensure that employees work for company with maximum use of their skills. One of the options how to reach goal is to use appropriate system of rewards. The reward is employee´s compensation received for work done. It can be provided in tangible or intangible form but the major part is financial reward earned by employees in the form of wages [8].

Financial reward of employees is important factor that influences work comfort and significantly support whole work place [7]. For a certain part of employees it is a major variable that affects overall happiness. But it is not applicable for everybody and in every situation [18].

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HOW IS BANKING SECTOR IN ALBANIA ADDRESSING THE MILLENNIAL EMPLOYEES EXPECTATIONS?

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Abstract: *In today's changing environment, expectations of the workforce toward its employer have changed. Generations that are now part of the workforce differ from each-other, but the newest one, called Millennials (Generation Y), seem to be the most discussed because it differs a lot from the previous ones. Attracting and retaining Millennials employees, is a very big challenge for every company, and as any other industry, banking sector in Albania is exposed to that. This paper presents analysis of some of the most important activities that banks are engaged to get in with Millennials expectations, while keeping the expected norms of turnover and job satisfaction. Internship programs, participation in work and study fairs, use of social networks are some of the activities that private banks in Albania are mostly using to help on this, but are they attractive enough to Albanian Millennials?*

Keywords: generation, Millennials, bank, student, expectations, attract employee.

Introduction

In today's highly competitive environment, companies have to compete not only for their products and services, but also for attracting and retaining employees. The actual workforce consists of 3 generations: baby boomers, generation X, and Millennials (Generation Y). Although there are no precise timeframes about the years of each generation, demographers and market researchers refer more or less to the same years. In this article we will focus in the newest generation, Millennials, which according to Strauss and Howe (2007), were born in the period 1982 to roughly 2005. In order to decide what to do, what to offer to them, and how this can be done, companies have to be aware of their characteristics and their expectations.

Referring to Schweyer (2015) some of their characteristics/stereotypes are listed as below:

- Continuous (mostly) positive feedback and recognition,
- Career oriented, hard work, achievement, but with balance,
- Seek recognition, detailed feedback,
- Community orientation (global & local),
- Work/life blending.

Referring to different studies, the author of the blog Lucky Attitude, in May 2018 listed all the following characteristic of Millennials: the most educated generation in western history, technologically savvy, civic-oriented, conscious, global citizens, entrepreneurial, flexible, pragmatic idealists, authentic, transparent, frugal, liberal, compassionate, progressive, confident, diverse, practical and results-oriented, team-oriented, non-religious, multi-taskers, nomadic, impatient, adventurous. "The millennial generation may expect so much because they

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were never denied much. From the nursery onward, Millennials were indulged and made to feel special by parents, coaches, and teachers” said Alsop in 2009.

Companies are facing higher turnover in the early years of employment among the new generation employees, and so they have to be focused on how to retain this generation longer. Deloitte found out in the survey conducted in 2018, that 43% of Millennials plan to quit their current job within 2 years. There are industries, which are having difficulties not only in retaining Millennials, but also in attracting them. Banking sector seems to be one of them. Ghosh in 2016, referring to different sources, considered banking sector as the most potentially disruptive sector. This is an important reason why banks have to consider not only the promotion of their main business, product and services, but also the promotion of the workplace, organization culture, transparence and communication, flexibility at work, life-work balance, opportunity for training and career development, orientation to teamwork, continuous feedback, recognition and rewards.

The Albanian post-communism private banking sector can be considered as relatively new. The two level bank system in Albania was created in April 1992, when the Law no. 7559 “For the Bank of Albania” was approved. In june of 1992, as for this Law provisions, the Bank of Albania (Banka e Shqiperise) was performing as a national bank, following European model, and Banka Kombetare e Shqiperise (National Bank of Albania) began operating as the second level bank. Legal regulations opened the way to foreign and national private capital. In December 1992 the first licenses for private banks were given (BIA Banka Italo Shqiptare-The Italian Albanian Bank, and BASHI Banka Arabo Shqiptare Islamike-The Arab Albanian Islamic Bank). They were joint ventures between one of the state banks and foreign private capital (Banca di Roma, Bank of Islamic Development, individuals and institutions from Arab countries). In December 1993 the private Kosovar-Albanian Bank, named Dardania, was created (Albanian Association of Banks, 2012). The boom of second level banks in Albania was in year 2000, when almost all the current banks were opened and began expanding their net all over the country.

The sector was growing very fast and began to accommodate a lot of graduates. At that time it was one of the most attractive sectors to work in, with attractive payment, great career possibilities, brand new work environment, and with all the safety given from working in well-structured companies, while small business and self-employment was the main characteristic of the labour market out of it. Young people coming from different fields of education had an opportunity to develop and make their career within it. Recent years the banking sector has seen stagnation, by not opening new jobs, unlike the flourishing period up to 2008 (Hackaj, 2015). Financial crisis of 2008, have had its effect even in Albania in terms of expanding the bank network and shrinking employment possibilities, but anyway the sector is still consolidated and a good employment opportunity for young people. According to INSTAT, the Finance and Banking is the third largest sector employer, in the list of the 100 major employers in the country. Currently there are 16 private banks operating in Albania, but the number will decrease as some of them are expected to be merged. Two of them are now confirmed to be bought by two other banks, and are going through the merging process. Referring to the last Annual Report of Albanian Association of Banks (AAB), private banks in Albania counted 6,878 employees at the end of 2017, but with the latest developments of merges and new technology adoption, the number is slightly decreasing.

Millennials are an important part of manpower in this industry with approximately 60% of the total number of banking employees. Their way of doing, stereotypes and expectations are a discussed topic among middle and senior managers as well as the HR Management of the Albanian private banking sector that feel “difficult to keep these young employees for more than one year and sometimes six months, as they have no patience to construct a career within bank and leave for lucrative payments in call-center industry or some dubious identity organizations” (manager at Card Department, FIBANK, 2018, interviewed for the purpose of this study). 63% of sample of students that just finished their studies or are at the end of their studies expect that promotion will come within their first year of employment. (Mitllari E., Kasimati M., 2018). Under the care of Albanian Association of Banks (AAB), “Human Resources Management in the Digital Banking” forum was organized at the end of the year2017, where some of the most concerning topics with millennial generation were discussed. This Association (AAB) in collaboration with the non-profit organization Partners Albania have launched the program “Education of young job seekers in banking sector”. This Program, launched two years ago, promotes employment of youngsters in the banking system as well as intents boosting human capital in the sector. Attracting and most important, keeping employees, has been a strategic effort of the private banks in Albania, as the “within sector turnover” had begun to become present in the beginning of years 2000. A lot of money and attention, paying education fees (MBA or CIA), preferential lower interest rates for employee loans, fringe benefits like sports teams, car from the company, paid cell phone, etc., up to action shares related to seniority are reported to be used by the banks in Albania to increase organizational commitment and lower turnover. But is there any special effort to officially address the Millennials’ expectations within the private banking sector in Albania? This was the research question for this paper and will be discussed in the following sections.

Methodology

A literature review was conducted to understand some of the characteristics of Millennials, difficulties and challenges that employers are facing with the newest generation in the workforce, and what is needed to be done in order to attract Millennials. This was followed by careful view in 13 banks’ official websites (81% of total population) to understand what activities they are taking to attract Millennials, are they considering their expectations and are they promoting what they offer to this generation. The look in official websites of the private banks in Albania, as a way to collect information for this, was intentional; we wanted to do as a millennial does when it comes in deciding the employer to apply and work for. The search was conducted in summer 2018, by browsing in the web page and mostly focused in banks’ “Human resources” or “Career” menu, in their Strategies-mission, vision, values and Annual Reports. After visiting all possible, 10 biggest private banks in Albania were taken in consideration, and all analysis refers to this sample (63% of population).

Analyses and findings

In this section is presented all that was found in the official websites of 10 biggest private banks in Albania according to a thematic search, mostly focused on what they are doing to attract employees, and analyze if that is according to Millennials’ expectations. For ethical purposes, names of the banks are only listed in the end, and are avoided during discussion.

Incorporating employees with business strategy

Employees of every generation need to feel that their employer take care of them, but Millennials seems that they want more and more attention; that’s why expressing their attention towards their employees in their strategies, companies’ mission, vision or values is getting very important. In 10 private banks taken in analysis, four of them (40%) do not express anything about their employees in the mission, vision or their values, and for two of them couldn't be found information about mission, values, or strategy either in the respective menu, or in their Annual reports. That doesn't necessarily mean that actually they don't show attention to them, but in the perspective of a millennial this can be meaningful, as they want things to be evident and transparent (Karapetian, 2017). Referring to authors experience with students and young people who are entering now in the workforce in Albania, cannot say for sure if they actually properly evaluate information about *strategy* and *values* before applying or deciding which employer to work for, but as strategy is strongly related to internal policies, and being aware of the characteristics of this generation, banks have to give a greater attention in it.

Social Responsibilities

Taking care of social responsibilities is a very important activity in today's company operations, and it means a lot to relationship with stakeholders and employees. As it comes out from previous research (Schweyer 2015, PwC's Next Gen2013) Millennials are community oriented; they care not only for the working life. Being part of a company that invests and takes care of community make them feel better. All the 10 private banks taken in consideration are active in this kind of activity. Eighty percent of them have a specific *menu* for social responsibility in the web page, where all the activities in this context are presented. The other twenty percent of banks report their social activities in their websites or in their Annual Report. In general, all of them are engaged in activities such as: education, environment, technology, donation and charity, new entrepreneurship. These are all topics that the new generation value.

Internship programs

Internship programs can be a very good strategy to attract the best students while they are still studying or finishing their studies. Albanian universities and education institutions in general, in the past years "lacked the possibility to offer students more practical programs" (Deputy Director of HRM in Union Bank interviewed for the purpose of this research). Education and training systems that lack elements of involvement of employees, as well as education and training systems that lack components of hands on experience, are considered to be among main reasons why youth in Albania have a long period of career instability (broadly referring to Hackaj 2015).

Eight out of 10 biggest private banks in Albania in focus of this study (50% of total population), have offered or are still offering internship programs for students, in collaboration with universities and other institutions as well as the local government. According to Hackaj (2015), regarding the number of employees under 25 years old that work and study at the same time, 22,2% of Finance and Insurance polled employer companies say they have none in their enterprise. As not all banks include data about interns in their Annual Reports, it is not possible to make estimations on annual number of Millenials having internship in the sector.

In internship programs students can learn more about banking sector, their product and services, their operations, and of course can understand if they want to make a career in this sector after that. At the other hand, by investing in the education and attraction of new generation in the banking sector, banks prepare their future employees. During these programs, banks have more time to evaluate their behavior, abilities, performance and desire to work in this sector, compared to information that can be gathered by a mere job interview. Those evaluated the most, can have the opportunity for a job in the bank at the end of internship. This can be also an attempt for decreasing future turnover in this generation.

All banks that have offered or are offering internship programs to students have mentioned these in their Annual Report, and some of them have mentioned also the number of interns and of those employed through internship programs. It is not possible to make a head count of students that have gone through this, as not all banks have given numbers in their Annual Reports. There are three out of these 10 banks (30%) that are investing in longer and specific programs. These programs last at least six months up to one year, or for as long as the graduation programs last, and include a payment for performance according to full requirements of a job position. It seems that most of the banks are considering it as a way of attracting Millennials, especially the ones who are entering in the workforce in the last years.

Participation in work and study fairs

In their everyday operations, Human Resources Departments of the private banks in Albania take job applications through predicted channels. Different banks apply different forms, but in general they can be accessed through mail, email, and online application. It's obvious that only those applicants who meet the criteria make it up to an interview; this is usually stated in the job announcements or in the banks recruitment procedures. In the latest years, in order to encourage employment, Government, municipalities and Tirana Chamber of Industry and Commerce are organizing respectively the annual Work Fair and Work and Study Fair. Some of the banks operating in Albania are participating almost every year in these fairs. What they are considering more recently are work fairs organized by University of Tirana, mostly Faculty of Economy, and also other private universities. In general, work fairs organized by universities are free of charge for companies, so they can use it for marketing and also for attracting and being near young generation. Another trend of the last two years is *virtual fair*, where few banks have participated. Taking into consideration technology advancement and how addicted Millennials are to it, virtual fairs would be more important in the next years as a way of relating both parties.

Announcing a job vacancy in social network

People today can find a lot of information while navigating in the social media, and they are getting more and more addicted of them. In the latest years, with the massive use of social media, almost every business has its own profile in pages such as LinkedIn, Facebook, Instagram, etc. According to Schawbel (2013) 62% of HR professionals reported to use job boards and corporate websites to recruit Millennials, 9% LinkedIn, 3% for Facebook and a mere 1% cited Twitter. For the purpose of this study, a look on LinkedIn and Facebook brought out that each of the 10 private banks taken in this study has their profiles in these social medias. Banks use them to come faster to their customers and potential customers, to promote their business, products and services. They are also using LinkedIn and Facebook as channels to announce their job vacancies. As LinkedIn is a professional network, and perceived more easily to find job announcements, the interest was to see if banks are using also Facebook for this purpose, as the youth now is more addicted on this profile than in LinkedIn. A review in the banks' Facebook profiles for three consecutive months (july-september 2018), brought out that six out of the 10 banks (60% of the sample) announce their job vacancy in this media. There could not be found job announcements in Facebook from the other four banks, even though they might have had job vacancy announcement in their official websites in the time of this study.

Financing studies

Students in Albania usually finance university with parents' budget. Although there is not a trend, in the latest years more young people are working during their studies, as they want to become independent from their families and sometimes they merely prefer to work and study simultaneously. In a research conducted with graduates from Tirana University, as well as students in their last year of education, it came out that 43% of the sample although did not have a job at the moment, have worked before for at least three months (Mitllari, Kasimati, 2018). Financing their studies could be very helpful for most of the students, and with benefit for the financing companies too. From all the 10 private banks in focus, two banks only, promote the educational financial support, one for masters' degree and the other one for bachelor's degree, in their website information. The latter has been doing this for the last 11 years. In joint efforts with one public university in Albania, this bank offers integrated theoretical and practical studies in banking profile. This helpful practice is in contrast with the fact that Albanian universities, as mentioned above, in general have lacked to relate practice with the studies. At the end of graduation, the bank offers employment to the best students. This is a way of investing in banking education and in attracting and retaining new generation within the company. Probably there are other banks that are offering financial support for their employees' post university studies, which are not mentioned in the information that they post in their websites.

Transparency in recruitment, opportunity to develop and other benefits

Stated that Millennials appreciate communication and transparency in all kinds of relations, the focus in this section is to discuss the information posted in banks' official websites for personal development topics concerning employees such as recruitment process, opportunity for career development and training, work-life balance, benefits, etc. Most of the banks address the need for transparency with the stakeholders, but is this translated in more information towards young potential employees? Millenial graduates or pre graduates in a sample of 71, when asked to choose among a list of reasons for which they would leave an organization, reported that they would move for unmet expectations in salary rise 35% of them, in work and life lack of balance 29% of them, in lack of promotion 25% of them, inappropriate or lack of training 9% of them (Mitllari and Kasimati, 2018). Companies should consider giving information on these elements in their websites to attract young people in their companies. In the website review of the 10 private banks in Albania conducted for the purpose of this research, came out that 100% of them do have a dedicated *menu* of Human Resources (known in some cases as Career menu), but not in all of them applicants can find full information for the above topics. Half of them are using this *menu* for job announcements only.

Recruitment process

Only 40% of the banks from the sample (or 25% of all population) give full information of the recruitment process, phases in which an applicant should go from the application to employment. Only three of these banks (75% of the above) include information about the number of the new employees for each year in their Annual Report. Information on recruitment procedures, paired with the number of new employees per year, can be a sign of the company's progress and assures applicants about organizational justice.

Career development and trainings

50% of the banks in the sample (31% of the total population) give information in their websites about possibility for development, career, and training. In some cases, this information is generic, intending a certain promotion of the bank's employees. If we cross information with additional information that comes from their Annual Reports, something more can be said about fields of training, specific programs for managers or talent management. In three out of all 10 banks, there can also be found statistics about employees promoted within each bank in the previous year. Almost 50% of the banks give specific details about training themes, number of hours provided to their employees. Two of the banks have mentioned even e-learning as a way of training their employees.

Work and life balance

It was difficult to find something about this subject in the information made public by the banks about themselves. Only one bank has mentioned this topic in the human resources *menu*, providing general information about employees' social activities. There couldn't be found any information about banks offering flexible hours, or supporting maternity, or anything of this kind.

Rewards/ benefits

Only one bank has listed some of the rewards/benefits employee can have while working there. In a few cases, some scarce information about monetary reward and bonuses, and general criteria for achieving them could be found.

Conclusions and Recommendations

Albanian private banking sector is an important sector of employment, but it is exposed today to a higher turnover than in previous years, especially in the young generation. Important part of employees in this sector are Millennials, born between the early 1980s and 1990s. Aiming to decrease the turnover, banks are focusing in adaption of retaining strategies, which for Millenials need to have some specificity. Private banks in Albania need to be smarter in attracting young employees, as the sector seems not as much attractive as it was 10 years ago, and "the most educated generation in western history, technologically savvy, multi-taskers, civic-oriented, conscious, authentic, results-oriented, team-oriented" Millenials are also "transparent, entrepreneurial, flexible, pragmatic idealists, frugal, liberal, compassionate, progressive", and also "confident, impatient, nomadic, adventurous, practical and results-oriented."

Through a review conducted in the official websites, covering 63% of them, it can be found that private banks in Albania are engaged in activities that help them attract Millennials, such as internship programs, participation in work and study fairs, social responsibility, and also in providing trainings, career development opportunities, and other benefits. Although they can provide better possibilities than other sectors in the country, they still need to try harder in promoting all these, as the information made public, is mostly vague and not representing what really happens behind the doors. Referring to Millennials' characteristics, considerable number of banks do not provide enough/or structured information in their human resources *menu* for all the benefits and rewards they offer to their employee, lacking a powerful tool for attracting young valuable people. The recommendation is that banks work on it, by giving information on recruitment processes and benefits, and also interface their approach for employees with the main strategies. That is not a guarantee for attraction, but it can help.

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WHY DO COMPANIES USE FLEXIBLE FORMS OF EMPLOYMENT?

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Abstract: *Every company wants to be profitable and have the best employees working for them. In order for a company to attract the best work force, they have to adapt themselves to current demands of labor market trends. There are many ways of attracting and motivating current and future employees such as providing various financial and non-financial benefits. One of the benefits is to provide flexible working environment for employees. Therefore, in era of advanced technologies, employees and job seekers are keener to work for an employer, who is willing to provide flexible forms of employment. Flexible forms of employment are understood as the ability of an employer to provide various forms of employment, such as: part-time work, telework / work from home, job rotation, etc. for his/her employees, without any restrictions. Not every employer is willing to provide such employment benefits for his/her workforce. For this reason, the aim of this paper was to show another point of view of the constantly changing demands within labor market. Due to providing the statistical data of the current market trends within the labor market, the predictions of the upcoming directions of the trends can be made. The purpose of this paper is to show what are the flexible forms of employment, what advantages and disadvantages do these forms bring along, and up to what extend do current employees use such forms of employment. The findings were supported by data, which were obtained from Eurostat, as well as by conducting empirical research method. There was also a survey distributed amongst 150 people, from which 33 were owners/ managing directors of companies within EU countries, in order to obtain firsthand information. In conclusion, after conducting literature and market research, is shown that more people are willing to work for an employer, who provides non-financial benefit such as flexible forms of employment. It is also shown that the number of employers who provide this benefit constantly increases within EU countries.*

Keywords: *flexibility, forms of employment, labor market demand, employment*

1. INTRODUCTION

Every company within each industry wants to be profitable. Technological advancements brought new ways and perspectives of approach to the ways of employment. Therefore, for a company in order to be able to attract the best employees and keep its current ones, it has to look for ways to meet the demands of the labor market conditions, as well as to keep up with the new technological advancements. The trend new technologies have brought up is that it tends to favor particular skills, while devaluing other ones redundant, but also lowering the demand for them by firms that use such new technologies [1].

Due to the broad use of technology, the digitalization has already impacted the demands of the labor market, but also it already has impacted the organization of work within companies. The companies started to evaluate how to organize their employees more efficiently, how to distribute the work more effectively, while increase their productivity and keeping their

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employees. One of the ways of the process for increasing the efficiency is to provide flexible forms of employment. Flexible forms of employment are considered to be a certain approach that a company is willing to undertake, in order to adjust itself against the constant market changes, modify its organizational structure, while creating flexible working positions. This way, the company itself will become flexible, with stronger bonds between the employees and the company, and will easier fight off market downturns. This means, the workplace flexibility will create the ability for workers to make their own choices influencing when, where, and for how long will they engage in work-related tasks [2].

The main goal of this article is to show what the new forms of employment are and to provide the advantages and disadvantages of it from the companies' and employees' point of view. This way, the readers will have better picture of forms of employment and could be a help when applying such forms of employment within their companies.

This article contains non-empirical research by completing literature analysis. Based on the analysis is completed empirical research method: survey and non-constructed interviews with owners/ managing directors of companies, from where are drawn out findings, showed on a graph. At last, there is a conclusion, where the major findings are discussed.

2. LITERATURE ANALYSIS

As mentioned in the introduction, in order for a company to easier resist possible market changes, the company has to adapt its organizational structure to offer greater number of flexible job arrangements. Creating such arrangements means to offer functional and/or numerical flexibility, while referring to John Atkinson, who was one of the first ones to define flexible organizations. There are three types of flexibilities which were brought up by J. Atkinson, but the most important are functional and numerical flexibility. He defined *functional flexibility* as possibility for employers to create such job positions, where employee is able to cope with different tasks, move between jobs, therefore having broader range of responsibilities. The advantage for the employer is the ability to easily change production methods and employee's workload without having a big influence on the company's ongoing operation. The *numerical flexibility* is considered as the ability of a company to adjust the number of employees or their working hours to the company's needs [3].

In regard to above mentioned flexible organizations, law makers of countries worldwide started to pay closer attention to flexible working arrangements and to put exact boundaries for the definition of flexible forms of employment. In Europe, based on the study of European parliament published in 2007, were defined six terms of flexible contractual arrangements:

- several forms of fixed-term and temporary employment contracts
- part-time employment contracts, (including mini-jobs, on-call work and job sharing)
- home working and telework
- flexible forms of working time
- occasional work contracts
- civil law contracts [4]

Fixed-term and *temporary* employment contracts are forms of employment, where the company hires an employee for a specific time period, and can be renewed after its expiration, depending on the company's needs [5]. These forms of employment take place in cases when a company needs to hire a person for a particular purpose; in many cases it is when a company needs an expert within a certain field in order to complete a project, where it is known how much time the project will take place. Furthermore, would be when a future of a company is uncertain, such as start-ups, and the management decides to hire employees for a given time period, to see whether the company will be successful or not. Other case is a seasonal work, especially in area of agriculture, where during certain seasons the workload increases, and the need of employees is necessary.

When it comes to *part-time* employment, this form of employment has many advantages for both employees and the employer. In many cases, when an employee wants to take care of the family, to study besides work, have other job or wants to have more time for other activities, they choose to work part-time. Part-time doesn’t necessarily mean the employee has to come to work every day and work half the time regular employee works. It is up to the agreement between both sides: employee and employer to agree on conditions, and to find the compromise. In many cases companies agree to offer such forms of employment, so they offer more freedom to their employees but also get to keep them in their company. Another reason why companies choose such form of employment is called job-sharing. It is when for one position they rather hire two people, instead of hiring just one person. Even though, the costs of the labor for company might increase, depending on the legislature of a country, sometimes the task is better done when it is being completed by two people, working at different times rather than one person completing the task. *Mini/midi* jobs are part-time jobs, that were first used in Germany in 2003, which conditions are that when a person has a mini/midi job he/she can earn maximum certain amount in order to be qualified for such job, depending on the minimum wage of the country [6].

According to legislature of Slovakia, *home working* is home working defined as a form of work, where a person is able to work from home or other place agreed on with the employer, while not having the need of any type of ICT [7]. This is applicable for jobs such as crafting, handmade production, etc.

Telework on the other hand is in the Slovak legislature defined as work, where a person can work from home, while having the ability to use ICT [7]. This type of work is in nowadays era broadly used, because companies as well as employees are aware of the positives this form of employment offers. When a person works by telework, he/she is not tight to any specific place, nor strictly tight to a schedule. From company’s point of view, the positives are that the company doesn’t have to have additional expenses for office rent, the employee can spend more time with the client, manage his/her time according to his/her needs, and this increases the attractiveness of the job position and the company becomes more demanded within the labor market. From the employee’s point of view, the positives are self-time management, ability to choose environment that suits the best his/her needs, while having enough time to spend time with the family or by having hobbies besides work. This way, it is easier for an employee to create his/her work-life balance.

However, there are also some downsizes to telework. The major barrier which might appear is the company might decline the frequency of communication with the employee. In such form of employment, frequent communication with the employee is essential [8]. When a company loses the frequency of the communication, it might lead to employee feeling left out from the company’s social functions, foremost to social isolation.

Flexible forms of working time are form of employment, where the employee decides on weekly /monthly basis with the employer the time when the employee will be present at work. Just as it was with telework, this form of work has some advantages and disadvantages. The major challenge employee might have to face is the times employer wants the employee to be present at work. The times might not always be suitable for the employee, but it is up to both sides to come up with a compromise. The reasoning behind the implementation of flexible forms of working time could be presented by employers as a condition for making positive decisions on employment within the company. Example could be caused that the company is losing its profitability and there might be some job losses, guaranteeing that existing employment levels will be maintained for a certain period, or making commitments on job creation [9]. Again, flexible forms of working time creates an opportunity for an employee to negotiate his/her working hours which would be in favor of the work-life balance, and/or for the employer to keep their employees even if the economic situation of the company is not positive at that given moment, and this way it would be beneficiary for both sides.

A form of work arrangement that is mainly beneficiary for the employer is an *occasional* work contract. In such case, the company hires a worker on occasion, for a stated time period. It depends on the company's demands for workforce during periods of times when needed.
Last form of employment to be mentioned is the civil law contracts. *Civil law contracts are commonly used when the employer does not plan to employ a worker under an employment contract, but requires the performance of certain activities or for some specified work to be completed* [10].

3. SURVEY OBJECTIVE AND METHODOLOGY

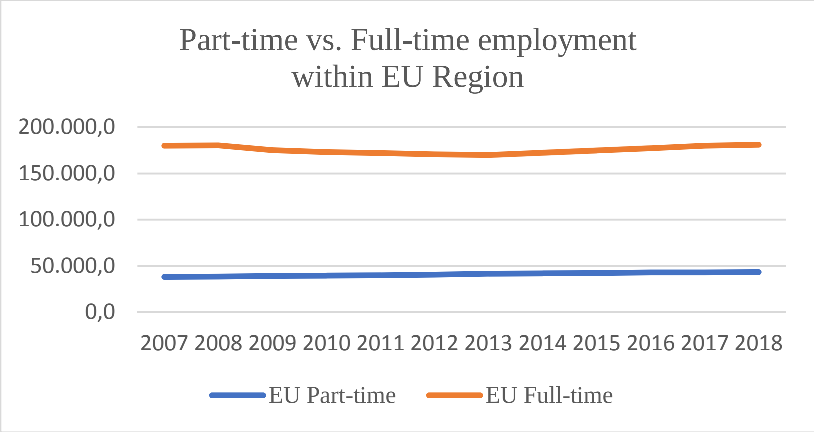
The aim of this study research was to determine the reasons of why companies nowadays use flexible forms of employment and what impacts does it have on the companies and employees as well. After conducting literature review, where the aim was to study and provide information and types of forms of employment that are at the current labor market, written by authors, who studied and/or are experts of the topic of this paper.

Based on the knowledge gained from the literature analysis, was conducted empirical research method by obtaining relevant data from Eurostat and by constructing questionnaire. The questionnaire was anonymous, and was distributed electronically, via Google forms to 150 employees and 33 owners/ managing directors of companies within EU region. Besides the questionnaires, there were conducted unstructured interviews with some of the owners/ managing directors, in order to get more insights of the topic studied.

4. RESULTS

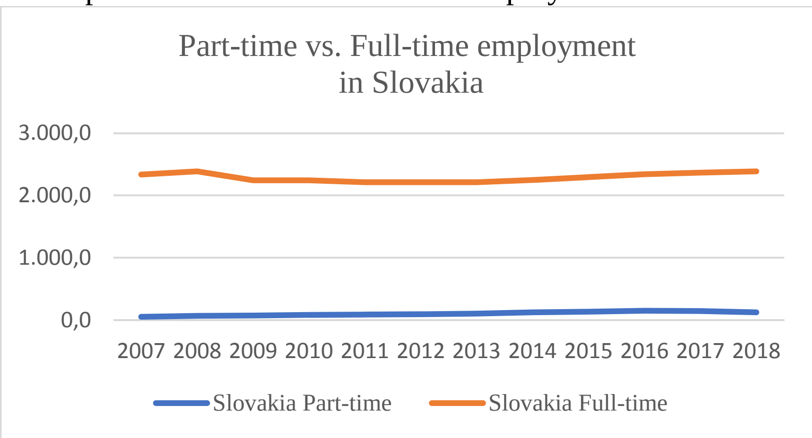
Prior to the distribution of the questionnaire, the first step to be done was to look for statistical data available online, and to see into what extend within the EU region and Slovakia, companies use flexible forms of employment. To see whether people are willing to work various working hours, what might be the reasons for their decision, and if available, what kind of flexible forms of employment are there. After the research, the platform with most reliable data available is Eurostat. However, the data online regarding to flexible forms of employment are limited, therefore as a basic step was to find how many people work full-time and how many people work part-time, since part time is one of the flexible forms of employment. On the two graphs below are compared numbers of employees (in thousands) who work part time with ones who work full-time with EU region and in Slovakia since 2007. In both cases is shown that the number of people who work part-time increased throughout the time, but on the other hand, this doesn't apply to full-time employment. On these two graphs are shown how did the EU economic crisis influenced full-time employment within the regions, and also shows the correlation of economic status of a region with employment. Other forms of employment were not found, which might be due to a fact that it is up to the employer himself to decide whether they are willing to offer other flexible forms of employment or not.

Graph 1: Part-time and Full-time employment within EU region



Source: http://appsso.eurostat.ec.europa.eu/nui/show.do

Graph 2: Part-time and Full-time employment in Slovakia



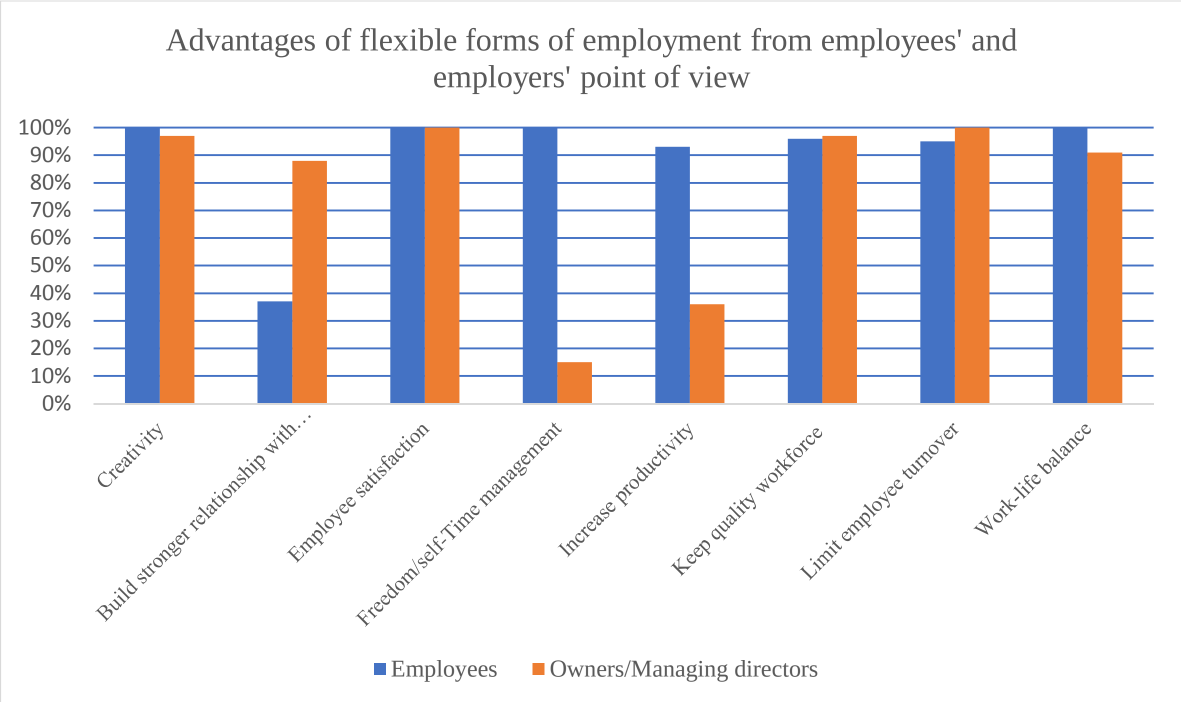
Source: http://appsso.eurostat.ec.europa.eu/nui/show.do

After the online and literature research was done, the construction and the distribution of the questionnaire were followed. The questionnaire was distributed to HR departments of companies, who offer flexible forms of employment, via Google forms, which was later on completed by their employees, including the owners/ managing directors. Since in completing an online questionnaire could be time consuming, the structure of this questionnaire was very simple; people had to answer “Yes” or “No” and only if they wanted to share some of their experiences, for every question there was a place for them to share it. The first question asked was whether they think flexible forms of employment bring along more advantages than disadvantages. 100 percent of the employees, as well as the employers agreed there are definitely more advantages. Then the questions were constructed as “In your opinion, do you think flexible forms of employment enhances … (terms provided within the graph) …? Please, explain your answer.” The last part of the questionnaire there was a blank space for them to share their opinion/experiences with flexible forms of employment. Later on, there were carried unstructured interviews with some of the owners/ managing directors of the companies, by where more details and disadvantages of such forms of employment were obtained. (Results of the interviews are shown in graph no. 4 below)

Advantages

In the graph no.3 bellow are shown results of the questionnaire distributed to the employees and owners/ managing directors of companies (the higher the percentage, the more people agreed flexible forms of employment support given area- task). The blue colors are shown percentage values of employees and the orange color are shown values of the answers obtained from the owners/ managing directors of companies.

Graph 3: Results of the questionnaire



Source: own elaboration constructed from the result of the questionnaire

As shown, most of the terms received similar answer from both groups asked. Since employees are not strictly tight to a certain work place nor schedule, but know what needs to be done from them, the high level of *employee satisfaction* is a result of flexible work arrangement and is one of the major advantages this type of employment brings along. Employee satisfaction is then linked with keeping the *quality workforce* and *limiting the employee turnover*. In many cases the process of hiring someone is time-consuming, and training process is expensive. According to the Association for Talent Development, the cost of training and development of new employees in 2016 in the USA cost on average 1,252 USD per employee [11]. To avoid employee turnover and costs that come along with the hiring and training, employee satisfaction decreases employee turnover and also provides such conditions, that companies get to keep its employees, including the key ones. On the other hand, having such incentives such as ability to work from home when a member of the family is sick, having flexible work schedule so people can devote themselves to their families or hobbies, is an incredible advantage, which people are aware of. This way there is a smaller chance people would be willing to change jobs and work for an employer, who isn’t so lenient towards his/her employees.

Due to flexible work arrangements, employees are not tight to work only at the office, so they can work in such environment, which supports their *creativity* and can free out their imagination. This is important when a person has a job, where creativity is necessary for their job tasks. When an owner of marketing company was asked why he doesn’t ask his employees to work from 9 am. to 5 pm. only within the premises of the company, the response was quite simple *"the success of my company from a main part depends on the creativity of my employees"* [12]. Since people who work in marketing, fashion, art or other type of similar business where they have to be creative, they also have to make sure they have working conditions which supports their creativity can be more productive as well as satisfied with the quality of their work. Another factor which comes along by not having a strict work schedule is *work-life balance*. When people besides their work have enough time to take care freely of their families or themselves by educating, training, or having other out-of-office activities, their mental health improves and can easier balance their work and life. Work-life balance influences not only productivity of the employee, but also his/her relationships within the work place, as well as health [13].

The other three terms had different points of views. Only 33 percent of employees thought flexible forms of employment help to *build a stronger relationship with the customer*, where 88 percent of owners/ managing directors agreed with this. Being more flexible and available for the customer is important aspect when keeping the customer. For this reason, owners believed this is an advantage that flexible work arrangement brings along. An owner of a hotel chain said: *"There are many hotels customers can choose from, but why do you think they choose us? Not only because of the hotel itself, but also from the first moment, they stay in contact with the same person, who responds to them even during the weekend. Personalized service is what makes us different."*[12]

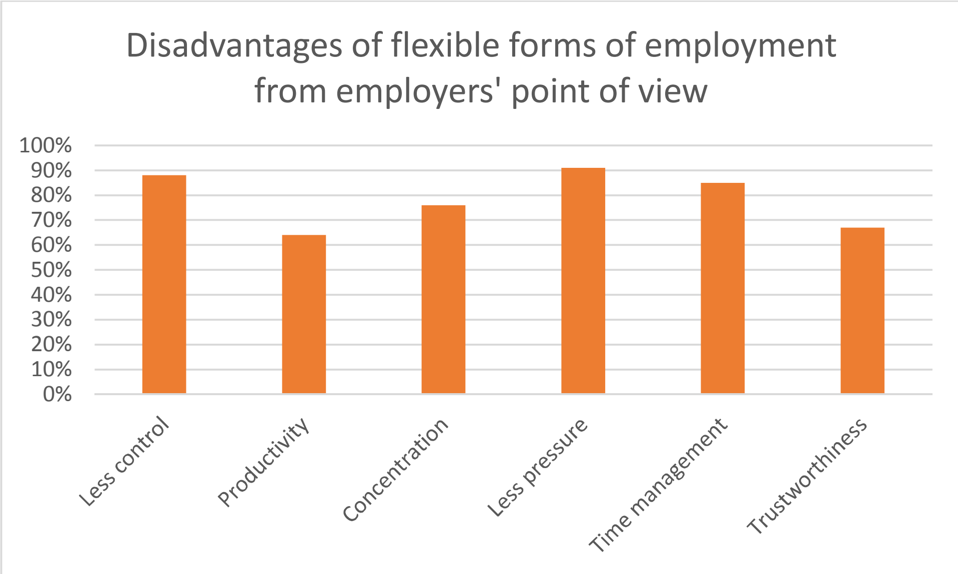
Interesting was finding that owners/managing directors didn't believe flexible forms of employment *increase productivity* of employees. Only 36 percent thought this work arrangement increases productivity, while the other ones thought it is actually a disadvantage, by reasoning once a person works remotely, he/she doesn't feel the pressure and only gets done what is needed from him/her and doesn't proactively ask for more tasks. There is an unconscious behavior of *out of sight, out of mind*. On the graph 4, which is shown below, managers decided productivity should be placed in the disadvantage part (note: 64 percent of managers believe the productivity of employees working remotely decreases, in comparison if they work from the office), where employees believed their productivity was more efficient but also done at a higher quality. Important is also a finding, that the 36 percent, who think the productivity of employees increases while working remotely, have a creative business such as advertising agency, marketing company, etc. In this case, it depends on from which point of view a person looks at the issue.

The last term within the advantages section is *self-time management*. Just as it was with productivity, the opinions about self-time management were diametrically opposed. Where 100 percent of employees agreed it is an advantage not only for the employees but also for the company itself, only 15 percent of the owners/managing directors believed it could be advantage for the company. Employees like the fact they can do their job on a flexible basis, wherever they choose to do so and also believed their time management is efficient enough for the company. On the other hand, employers didn't believe so. They believe not being in the office and not feeling the work atmosphere; employees become idler and might not effectively manage their time to coordinate their work responsibilities with other responsibilities. Also, when a person knows the deadlines for his/her tasks, it is frequent they finish it at the last moments within the deadline, because there are more distractions when working outside of office.

Disadvantages

Since there are many advantages that come along the flexible work arrangements, there are also some disadvantages which were brought up by the owners/managing directors and are shown in the graph no 4. below.

Graph 4: Results of the questionnaire



Source: own elaboration constructed from the result of the questionnaire

After productivity, where 64 percent, believed might decrease while having flexible forms of employment, the second aspect with less percentage – 67 was *trustworthiness*. Trustworthiness is closely linked with *less control*. Owners/managing directors sometimes suspect that their employees not all the time work the hours they report, which is caused by management having less control of their work activity. Example obtained from the unstructured interview was with an owner of a company, who employs number of sale representatives, who travel across the country and sell the company's products. These people have set up weekly goals they have to meet, and the owner believes that if in one day they meet the goals, for the rest of the working week they pretend they work. On the other hand, he doesn't want to put pressure on them by closely controlling them, because they do their job, meet their goals and is afraid they would want to leave the company.

By being under *less pressure* and work outside of the office, there is a tendency of people losing their concentration on the work tasks and concentrate more on non-work-related activities. As mentioned previously, people tend to get distracted easily. For this reason, advantage of less pressure in employee's point of view is disadvantage for the employer's, by putting less pressure on the employee's output.

5. CONCLUSION

The aim of this paper was to research and analyze the reasons why do companies use flexible forms of employment. As a first step, was used non-empirical research by conducting literature review and analysis. In the literature analysis were provided and explained forms of employment that are offered by companies within European labor market. Based on the findings, was constructed an online questionnaire which was distributed to 150 employees and to 33 owners/ managing directors of companies, and later on with some of them was conducted an unstructured interview, in order to get more insights why these employers offer such forms of employment. The results are shown and described in the result part.

The findings from the results brought new aspects and insights than just the literature analysis. From the results it is clear that employees have diametrically opposite points of views about advantages and disadvantages of flexible forms of employment, in comparison to their employers. However, there was some congruency between their points of views. During the unstructured interviews it was very clear the employers are aware of the importance to offer the best working conditions which suits their employees, especially to create working environment, which would increase their productivity and quality of their work. Therefore, the companies constantly look for way to create such conditions, including coming up with the best form of employment for them, and not hurting the company.

Nowadays, the labor market is more competitive, and companies must do its best in order to acquire the best workforce available. For this reason, employers look for various ways to attract their future employees as well as to keep their current ones. People’s priorities had shifted, and it usually happens that they choose an employer who offers them various incentives such as non-financial benefits, but mostly options of flexible work arrangements. This way the employees get to manage their time accordingly to their wants and needs, including creating their own work-life balance. According to the research for this article, flexible work arrangements have its advantages but also disadvantages. It is however up to the employer to reconsider what kinds of flexible forms of employment is he/ she willing to offer for his/ her employees, and which ones would be the most efficient for the company as well as for the employees.

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MENTORING PRACTICES IN THE ROMANIAN BANKING INDUSTRY – A CASE STUDY

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Abstract: *The paper elaborates on the current state of the mentoring practices within the Romanian banking industry and elaborates on the gaps to use them to build a competitive advantage. The analysis focuses on the particular situation defined by traditionalist and conservationist approaches of facts, and their relation with the new coaching and mentoring methods that need to be developed by banking institutions to get the competitive advantage (Ilies & Metz, 2017).*

The results of the case study presented show that mentors and mentees valued the opportunity to participate in such programs and the relationship (Raabe & Beehr, 2003) developed inside the "team"; nevertheless, the final results are still in suffering as there are major expectations that have not been satisfied. The loss is quite important as the linked to a large area from the program methodology to the outcome of the programs.

The findings, based on a personal interpretation of facts, documentation and respondents' answers, suggest that properly implemented and used, the activity of mentoring could become a powerful tool for the companies in their attempt to turn out to be more competitive; the contribution could be significant to increasing the staff potential, building loyalty, ensuring engagement and reducing the costs.

Keywords: *banking; mentoring; career development; competitiveness; competitive advantage*

Introduction

Mentoring practices are modern tools that just started to become lively in the Romanian banking sector. According to the *Society for Human Resources Management*, the surveys developed during the decade in the USA companies show that 25% implemented internal formal mentoring programs (Chun *et al*, 2010), while in Romania, things moved faster in the highly dynamic ITC and consulting industries and businesses, while in the banking sector they are still at dawn.

Traditionalist by mentality and approaches, the banking industry has locally used other forms to improve their employees skills and attitude, of which the most common ones were the trainings and, by some extent nowadays, coaching. Usually, as the National Bank of Romanian (NBR) Report on Financial Stability mentions (2017), the trainings addressed subjects like banking products, financial analysis, risk management, legislation for lending or for anti-money laundry, sales, etc. (therefore - jobs related necessitates knowledge, management skills, ethics and personal development). While there is supposed to be a certain direct influence of the level of knowledge-related staff development and bank's profitability, the perception is that the same statement is not valid anymore if trying to establish a relationship between the trainings and the job satisfaction level of their beneficiaries (with its consequent engagement level, turnover rate, etc.).

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Although the statistics may seem encouraging - 47% of the banks staff have stayed with the same employer for seven years, compared to four years in other industries (Ilies & Metz, 2017), and that the average gross salary in banking is higher than in 90% of the rest of the industries and double (6851 lei) than the average national wave (3257 lei) (Romanian Banking Association), still the turnover rate is at 19%, or, differently said, one out of five employees decides to leave the bank. If during the *boom* of the banking system (2007, 2008) the employees were leaving one bank for the other, then they added financial non-banking institutions on the list of potential employers, and currently they tend to leave for consultancy services, software companies, telecommunications, as full time employees or, more and more often, for project-based assignments. Banks come to realize that they are facing probably a paradigm shift in staff' expectations and that, therefore, they should address differently staff needs. Banks' need to redefine themselves in the eyes of the employees and on the labor market has led to embracing more innovative development tools (Kraiger *et al.*, 2018).

One of these was the use of Mentoring, usually combing the two approaches described below:

1) Firstly, Mentoring addressing the needs of the large public, *social mentoring* through programs that were aiming to develop targeted audiences. Some focused on students (Romanian Bank for Development - *BRD Mindcraft Academy*), entrepreneurs (Banca Transilvania – "*Bucurestiul Intreprinzator*"), medium to large companies (Raiffeisen Bank – "*Catalizator*"), or on the people who do not use banking services (persons with low income, those who are planning to become entrepreneurs, social organizations (Erste Group – BCR (Romanian Commercial Bank).

2) Secondly, formal mentoring programs, targeting Bank' own staff and focusing on developing, for example, leadership skills.

Traditionally, mentoring takes the form of a relationship between a more experienced (the mentor) and a less experienced person (the mentee). The mentee (protégée) is seen sometimes as a new comer in the organization, a young one or simply as a subordinated employee (Gisbert-Trejo *et al*, 2018). Other more modern mentoring relationships are formed between peers (Allen, *et al.*, 1997), or "reversely", the mentor being in this case the "rooker", the inexperienced of the two (Wiseman, 2014). Irrespective of the relationships between the mentor and the mentee, researchers of the subject are unanimously identifying two major forms in which mentoring appears: an unstructured but more intense mentoring, i.e. the informal one (Janssen *et al.*, 2016), or the structured, organizational, programmed mentoring, the formal one.

Companies organize formal mentoring programs having multiple purposes, like an increase in the employees (both mentors and mentees)' engagement, strengthening the organizational culture and spreading its values and, very often, nurturing talents, growing the next generation of managers or leaders of the organization (Chun. *et al*, 2010), improving the communication inside the company or implementing generational transition (Gilbert-Trejo *et al*, 2018). All actors of the game, not only the companies, also the mentors and the mentees benefit from the relationship (if successful). Researches show that generally mentors enter the relationship wanting to give back (Raabe & Beehr, 2003), something that they have at their turn received from a mentor; or by the desire to see other person growing under their eyes. It is, for mentors, also a "rejuvenation treatment", as they become more aware of how new generations understand business, work environment, how they perceive managerial styles and how these affect them (Kram, 1985). The mentee usually expects better career opportunities (Scandura, 1992), career sponsorship (Kram, 1985), self-awareness, increased visibility or inclusion (Forret, 1996).

Regarding the pairing between mentors and mentees, while in the informal mentoring this is done "by chemistry", the dyad being naturally formed and mostly generated by the mere desire to enter together in the relationship (Ragins & Cotton, 1999), in the structured program there is a third party involved (the organization) and the pairing may come in more forms (Sullivan, 1993): either by random selection, by using "profile sheets" (Forret, 1996), or by matching personality similarities like being open to new experiences or the degree of conscientiousness (Menges, 2016). Apparently, the similarities between persons make them like to be together and work better together even under a structured scenario. Similarities do not necessarily have to be real, it is enough being *perceived* (the tendency to copy a characteristic that you like, to make it yours, to appear similar to the one admired); on the opposite, persons having different personalities, different way to position themselves towards the job or life important aspects tends to generate an unfavorable interaction (Menges, op. cit.).

This study intends to evaluate whether the implementation of the program in the analyzed Romanian Banks was done in a proper way, addressed correctly the targeted audience, how was the entire program perceived and if the expectations with which each party entered the program have been met.

Research Methodology

Two of the banks where a mentoring program has been undergone during the last 4 years have been selected. The stakeholders identified in both cases are the company (represented by the HR departments), the mentors and the mentees; the total number of stakeholders identified and targeted in the present research is nearly 200.

By applying qualitative analysis, this paper aims to explore the perceptions of the three types of stakeholders of the project regarding its set-up, methods and results. The novelty of this endeavor comes from its purpose: to help the banking industry fin- tune the approach of mentoring (seen as a modern and only newly utilized personnel development tool) and to transform it into an efficient and competitive tool for further actions meant to contribute to competiveness.

The current approach consists in building a survey to be addressed to the 200 subjects; for testing its clarity and comprehensiveness, it has been piloted on a number of 30 persons (10 mentors and 20 mentees), representing 15% of the total stakeholders. Interviews have also been conducted, with the intention of grasping details on the perceptions.

The preliminary findings supported by these mixed methods suggest that the program in itself (i.e. the mentoring as a practice, as a concept) has a highly positive impact on one part of the stakeholders (human resources department, the mentors and the mentees). Still, the opinion of the direct participants was that their peers (mentees not involved in the program or the direct line managers of the mentees) were not in favor of the program, because they considered it "a loss of time" or "avoiding daily responsibility to spend time for less important matters". Still, even without the initial support of a part of the managerial team to this HRD program, the rest of the management (i.e. the mentors) met the HR halfway, understanding that mentoring may be the key for a better cooperation among business lines, for a better use of their resources or for wisdom spreading. (Egan, 2011)

The program has been perceived as contributing, among others, to an increased sense of inclusion of the members to a community, or to a wider perspective on problems faced and a wider range of alternative solutions. Higher levels of trust have also been noted, together with less reluctance to cooperate with others. On the other side, though, the official project purpose, its reason for existence (i.e., in our cases, the increase of the leadership abilities of the selected mentees) did not have the same result, for reasons that will be detailed later on.

The number of mentoring programs and persons surveyed and interviewed is very limited. Other limitations refer to the sample, which has been randomly composed, without trying to ensure equilibrium in gender, age, experience or other criteria (Sullivan, 1993). Therefore, this research and its results should be seen as a pilot, as the basis for further, deeper and wider research.

Analysis of the Mentoring Practices (program, project)

Of the Romanian banks that have run a mentoring program dedicated to the development of their employees, two banks have been selected, based on the similarities found between their approaches (Maghbouli *et al*, 2017), consisting in the following:

Program Characteristics	**Program Description**
Led by external consultants	The same consultancy company has been hired; the role of the consultant is to create the framework, to explain it to the mentors and mentees, and to provide guidance, by request The HR departments are seen **(**Toastmasters International, 2012) as the project managers representing the organization and facilitating the meetings between the mentors, mentees and consultant, if needed
Program subject	Leadership (DOP, 2008)
Program objective	Developing the leadership skills of the mentees
Program duration	1,5 to 2 years
Targeted personnel	Staff identified as “talent” or “high potential”
Selected mentors	Divisions directors or Senior managers
Selection process	Voluntary participation of the selected mentors/mentees
Matching process	Round tables for getting to know each other and speak about themselves; list of preferred mentors made by mentees; final matching based on mentors acceptance of the request and on the availability No direct subordination allowed between mentor and mentee At least one managerial level distance between mentor and mentee
Results measuring tool	Comparison tests on leadership skills, from before and after the program

The research outlines the stakeholders’ perceptions about the program, survey’s design, flow, together with its capacity to reach stakeholders expectations and goals.

The Process of the Mentors and Mentees’ Selection

The following, directly involved parties have been identified: 1) the companies, represented by the HR Departments; 2) the mentors – directors of the divisions or senior managers (60, in both banks); 3) the mentees – nominated as “talented” or “high potential” employees from their direct line managers (approximately 120 mentees in the two banks). Out of these, on 30 persons (10 mentors, 20 mentees) a pilot survey has been conducted.

As indicated by the pilot survey, the criteria considered that had been used order for the selection of the mentors and the mentees are the following: for the mentors (DOP, 2008): experience (30%), time with the employer (10%), number of subordinated persons (20%); hierarchy level (40%), other (0%). The mentees are thought to be chosen by: “talent” or “high potential” label associated to them by their direct line managers (10%); time in Bank (30%); number of projects in which they had previously been involved (10%); their role as a team coordinators (40%); it was mentors’ decision (5%), other (5%). The project documentation, as received from the project coordinators, show that the selection of the participants was based on the following principles: for choosing the mentors, all the Directors (the head of divisions) were invited to participate in the project; those who accepted became the program’s mentors. Therefore, the only official criterion taken into consideration was the level in the hierarchy. In what regards the mentees, the only criterion used was the label “talented” or “high-performance” employee; out of the listed persons, only those willing to participate in the program have become mentees. The nomination of Banks’ employees as “talented” or “high performance” was done by the first line manager and approved by the Director of the division. This belonged to a program developed years before the mentoring started, and had as a purpose the identification of the personnel who can become the “next generation” of managers of the Bank, or who are not considered potential managers, but excellent specialists and their potential needs to be cultivated. From the interviews held, the representatives of the HR departments confirmed that “in the process of identifying the persons to become mentees, we were confronted with several problems, due to the fact that the selection of talented or high performance employees has taken place years ago: many of the selected persons were no longer employees of the Bank; or have (been) moved to other departments where they were no longer considered top employees”. So why so diverse the perceptions compared to the reality? The mentees asked in the interviews what do they consider to be the main reason for being considered as “high performance” or “talented” stated that they “did not know that they were considered either way”. Verified with HR, the statement confirmed: the program during which the employees of the Banks have been categorized as talented or high performance was taken place in a period where the economic environment was so turbulent that any staff classification might have created suspicions among employees regarding the real rationale behind. On the other hand, one mentor from the interviewed ones, stated that “cannot see any reason why one of the two paired mentees was included in the leadership program, as the person does not seem to have any inclination or desire to become a leader, irrespective whether formal or informal. On the contrary, this person is in a continuous seeking of guidance of all types, from technical to personal. He is not a talent at all”. Another mentor, on the other side, states that one of the mentee with who forms a pair is “by far more experienced than I am in terms of leadership competencies and beyond. I am definitely the one who benefits most from our meetings and, even if for me it is a constant challenge, for my mentee may certainly be a disappointment”.

What appears to be obvious from the pilot survey and for the interviews is that the selection process of the mentors and of the mentees was not communicated to all the parties involved and is seen more as a compromise or best solution during time constraints and lack of experience with such a project than as the ideal choice.

Project's Objective

Both analyzed projects targeted leadership. They are named "*Mentoring on Leadership*" (Bank A) and "*We build value together*" (Bank B). The goal of the mentoring program was to increase the leadership skills of the mentees with the help of the mentors' guidance. The tool used for the measurement was, in both Banks, the use of a professional tool (Harisson Assessment) that tested the leadership skills of the mentees before and after the participation in the program. The Test is usually used by companies in order to assess whether a person is suited for a job; specific skills and competencies are selected for the job and the potential employee is evaluated versus the chosen skills. For the selection of the mentees, the companies have adapted the test selecting a number of skills considered representative not for a job in itself, but for Leadership. These are: "takes initiative"; "likes challenges", "collaborates", "has authority", "enthusiast", "perseverant", oriented to self-development", analytical, invites to cooperation, oriented to new things, optimistic, influencer, ethical in action, autonomous, empathic, assertive, etc. Once tested, the mentees had to choose several traits where they feel that they need guidance for improving them. The sum of the personal goals achievement is considered by the company to represent also the success of the overall program.

There was no assessment on the mentors' skills in assuming their responsibility. Mentors and mentees' evaluation of the goal setting and the goal reaching process indicate that 40% of the persons on which we piloted the questionnaire consider the goal setting process satisfactory, 6.6%-very satisfactory, 10% totally disappointing, 10% unsatisfactory and 33.3% good and bad as well. The answers to the questionnaire show that the positive attitude is given, in 57% of the cases, by the fact that mentees altogether with the mentors had the opportunity to choose their own goal (versus a goal imposed by the company). The second best reason for the positive attitude (28%) is the use of the Harisson assessment tool that provides a list of desired leadership skills. On the negative side, the unsatisfied persons or the ones considering that the process was equally good and bad, indicate Harisson as their main source of discomfort: "unclear skills", "poorly explained test results"; "too many skills to choose from"; "too little time to improve so many leadership aspects" are all answers grasped from the interviews.

The perception of the mentees about reaching the goal set at the beginning of the process has been measured also through the pilot questionnaire and the results show the following distribution of answers: "yes, entirely" - 15%, "yes, approximately" – 40%, "not really" – 30%, "not at all" - 15%. Detailing the perception, the positive answers reveal that the persons who considered that the goal was reached referred mostly to the value added of the process and not necessarily to the goal in itself (like, for example, improving the communication skills), while those who considered that the goal was not reached complained in fact about the lack of opportunities to test the skills in practice. One of the interviewed mentees said: "My goal was to improve my presentation skills – but there was never the chance to test whether I improved them or not, I was not asked to make any presentation. I could have tested this in an informal way, but I did not succeed in setting up any audience willing to hear me out".

The pairing process: how mentors and mentees get together

The pairing method was organized in four steps: a personal presentation letter of both mentors and mentees, shortly presenting the personal and professional achievements and the interest in the mentoring program; a meeting where mentees interacted 10 to 15 minutes with each mentor; listing the preferences – where mentees made a list with their top 3 preferred mentors; the pairing – based on the preferences and mentor's availability (only 2-3 mentees per mentor). For the cases where the mentor was indicated by more than two mentees as the first choice, the mentor is asked to choose the mentees; for the mentees whose first choice was unavailable, the process repeats with the second, then the third choice. If no preference is available, the mentee is randomly paired with a free mentor.

Asked about the pairing process, the feedback of the mentors (M) and of the mentees (m) is the following: a) perfect pairing, I could not hope for any better one (10% M, 10%m), b) good, constructive pairing (70% M, 40% m), c) challenging pairing, but still on the positive side (10% M, 30% m); d) difficult pairing, did not like the mentoring sessions (10% M, 15% m) e) unconstructive pairing, I could not find any communication bridge (0% M, 5% m). The interviews revealed that the mentors generally valued the interaction and did not find any difficulties in adapting to different mentalities, or background, interest, even personalities, while some mentees, paired with mentors whom they did not know and whose personality was very different than theirs, faced a more difficult time in adapting to the relationship, in building trust or even in feeling comfortable presenting their concerns. One of the mentees, who evaluated the pairing process as unconstructive, explained that "for mentoring relationship to work, the mentee has to value and respect the mentor as a whole, not only professionally, but also personally, to see him/her as a model (Nicholson *et al*, 2017). For this to happen, the mentee must understand the mentor, or at least to accept him. When none is possible, the relationship isn't working either". The interviews revealed also that there were several mentees who had been paired with the mentors who were their second or third choice, or even with mentors whom they did not choose, but this was not considered a factor influencing the mentorship relationship.

Conclusions and Directions

The general perception of the piloted participants in mentoring programs shows that mentors and mentees selection must very carefully take into consideration more criteria; hierarchy level appears to be one of the most riskier criteria, as it can indicate the mentors' professional success, but alone, it does not say enough about the mentor's being fit or not to mentor someone.

Again, even a set of criteria is not enough if these are not specific to the program itself, if they are not assessed and applied taken into consideration the context of the program and the program objectives. In our case study, mentees have been chosen from those considered "talented and "high performers" years before, and for a different reason and purpose than the identification of the leaders-to-be. Especially for the developments of skills of such a nature than the leadership, a certain inclination towards leadership, the existence of a context in which the mentee has already proved leadership abilities and received recognition of the others, must pre-exist.

Any company could expect to see the skills improved through leadership put in action, in a given future. In terms of leadership, some informal displays can appear; being self-directed or addressed to peers, but usually leadership appears in direct correlation with formal managerial responsibilities. A mentee included in an official program that targets the improvement of leadership skills will most probably expect a context where to practice and show the improvements. Even undeclared there is a high probability of frustration associated to the inability to do so, or, differently said, the objectives may seem unrealistic. Therefore, a probably better choice for the analyzed banks would have been including in the mentoring program employees already having team coordination responsibilities (team leaders, junior managers) or who are included in a career advancement plan, which are proposed to take over managerial responsibilities soon.

In what regards the pairing method, the piloted participants suggest through their answers that a winning solution should combine objective matching (education, areas of expertise, interests, etc.) with subjective matching – “chemistry”, for the ease of the communication and the desire to meet the other party.

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HOW PROBLEMS OF BUSINESS DEVELOP THEIR "NETWORK" AGAINST ORGANIZATIONAL STRUCTURE

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Abstract: *Structural solutions of organizations that fitted to the needs of external and internal environment as well to the business processes, usually means ability of leading successful enterprise. Different organizational design solutions are recommended for great variety of real situations depending on mission of company, the strategic goals, general and particular aims of management etc. In spite of the fact that all of those design parameters and properties can be well settled or designed for organization the enterprise can run into growing number of problems. Time to time the structural solutions need to be reconsidered. What about problems? Do they have their own structure of connectedness? Is it like an ever changing background? The aim of the study is to detect possible linkages between usual (most common problems) in management and organizational design solutions. The hypothesis is that those at first glance floating problems are also well structured (connected) especially when they appear with synergetic effects. According to the preliminary results, the theoretical background of contingency approach and methodology of Social Network Analysis can offer support to examine connectedness and linkages of organizational problems. Anyhow it is challenging, but very useful to learn more about "dark side" of organization, at least to learn how to ignore "devils power" in future steps of management.*

Keywords: *Organizational structure and design, business problems, contingency theory, Organizational Network Analysis*

INTRODUCTION

There are even more and more complains about the ever increasing challenges derived from changing complexity of business environment. Meantime the organizations are treating in more and more complex way. The pace of change has accelerated. Setting design solutions for organizational structure is becoming really complex task. There are a great number of variables to be considered in order to develop feasible and sustainable structural solutions for organizations. Contingency factors such as environment, strategy, technology, size, organizational climate, management style are depending on so many other factors, especially those that come from (at first glance always) from unknown directions. Their influence seems to be also unpredictable at first time.

The study will show and suggest a simple but applicable way of mapping the relations between factors that usually mean failure. Those connections of factors have to be considered and fitted in order to get a successful solution for organizational design. The approach is based on contingency theory analyzed with set of defined contingency factors according to Burton, Obel [1], [2]. The OrgCon 7.0 [1] software support includes the range of contingency factors: - Management Style, - Organizational Climate, - Size/Ownership, - Environment, - Technology,

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- Strategy. Out of “design properties” [1], [2], [3] there will be selected: - (structural) Form, - Complexity/Differentiation, Formalization, and Centralization.

All of listed factors and properties have their wrong way of connectedness - so called, the misfits. This links of misfits will be examined as an initial or source (network) of failure. Social Network Analysis (SNA) supported with software’s such as Pajek [4] or SocNetV [5] offered possibility for easy introspection. Most of the applied measures of SNA are part of Organizational Network Analysis (ONA) and can be applied in such cases.

RESULTS

The considered and selected list of misfits is shown in Table 1. These are the most typical types of “bad” links so the list is not complete. (This list cannot be completed at all.) Of course, the elements by themselves are regular potential for any specific excellent design solution. The harmful effects are derived from their mistaken connections. (The case sensitive bad selection of each factor or property is not considered in this study.) Instead, the basic contingency factors and design properties are listed with their common misfits - their inappropriate links that are unfavorable in any condition and any circumstances.

Table 1: Misfits between contingency factors [6]

Climate misfits with	**Technology**
Internal process climate	non routine technology
Developmental climate	routine technology
Climate misfits with	**Strategy**
Internal process climate	analyzer with innovation strategy
Internal process climate	prospector strategy
Group climate	prospector strategy
Developmental climate	defender strategy
Climate misfits with	**Leadership Style**
Group climate	Manager, Leader, and Entrepreneur
Internal process climate	Leader and Entrepreneur
Developmental climate	Manager and Entrepreneur
Climate misfits with	**Environment**
Group climate	high equivocality environment
Internal process climate	high equivocality environment
Developmental climate	low equivocality environment
Developmental climate	low uncertainty environment
Technology misfits with	**Strategy**
Routine technology	prospector strategy
Non routine technology	defender strategy
Technology misfits with	**Management style**
Non routine technology	Manager
Technology misfits with	**Environment**
Routine technology	high equivocality environment
Non routine technology	low equivocality environment
Environment misfits with	**Strategy**

High equivocality environment	analyzer strategy
Low equivocality environment	analyzer with innovation strategy
Low equivocality environment	prospector strategy
Low uncertainty environment	prospector strategy
High equivocality environment	defender strategy

In addition some Contingency misfit propositions will be added to misfit links in order to widen the network of misfit connections. This list contains statements about contingency misfits with design properties.

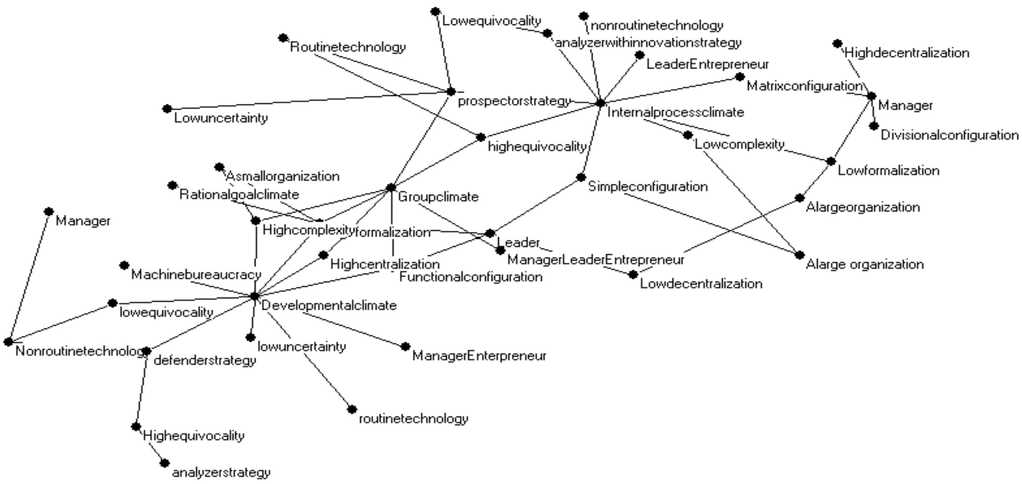
Table 2. Source: Burton, Lauridsen, Obel. Fit and Misfits in the Multi-Dimensional Contingency Model: An Organizational Change Perspective, 2000.

Leadership style misfit	is a misfit with:
A Manager	Low formalization, High decentralization, Divisional configuration, Matrix configuration.
A Leader	High formalization, Low decentralization, Simple configuration, Functional configuration.
Climate misfit	is a misfit with:
Group climate	Functional configuration, High complexity, High centralization, High formalization,
Developmental climate :	Machine bureaucracy, Functional configuration, High complexity, High centralization, and High formalization.
Internal process climate	Simple configuration, Matrix configuration, Low complexity, Low formalization.
Rational goal climate	High formalization,
Size misfits	is a misfit with:
large organization	Simple configuration, Low complexity, Low decentralization, Low formalization.
small organization	High complexity, High formalization.
Environment misfits	is a misfit with:
Equivocality – Low, Complexity – Low, Uncertainty – Low,	Matrix configuration, Low formalization.
Equivocality – Low, Complexity – High, Uncertainty – Low,	Matrix configuration, Low formalization, Low complexity.
Equivocality – Low, Complexity – High, Uncertainty – High	Simple configuration, Low complexity, High centralization.
Equivocality – High, Complexity – Low, Uncertainty – Low	Functional configuration, High formalization.
Equivocality – high, Complexity – Low, Uncertainty – High,	High formalization, High centralization.
Equivocality – High, Complexity – High, Uncertainty – High	Machine bureaucracy, Functional configuration, High formalization, High centralization.
Technology misfits	is a misfit with:
High routineness	Matrix configuration, Low formalization, Low complexity.
Low routineness	Functional configuration, High formalization, High complexity, High centralization.

High divisibility	Matrix configuration,
Low divisibility	Divisional configuration
STRATEGY MISFITS	is a misfit with:
A prospector strategy	Functional configuration, High formalization, High complexity, High centralization.
An analyzer without innovation	Low formalization, Low complexity, Low centralization.
An analyzer with innovation	Low complexity
A defender strategy	Matrix configuration, Low formalization, Low complexity, Low centralization.

Table of misfit situations – connections Complement to Tables 6.1 and 6.3 in Burton and Obel (1998) [1]:

Picture 1. Mapped misfit linkage between considered elements

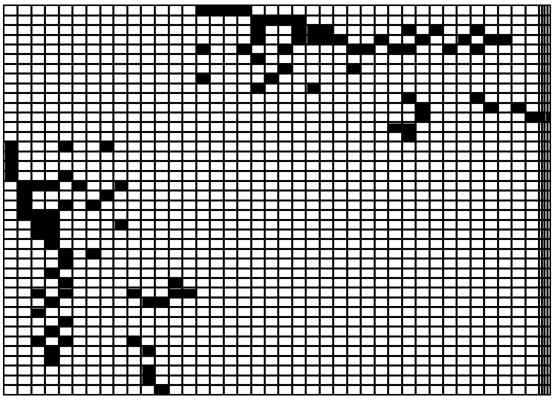


(Created with: Pajek [4])

Picture 1 is part of great set of possible positions (combinations of connections). The selected connections (“dangerous – devil’s links” [7]) can be illustrated with e.g. black cells such as in Table 3 - Adjacency Matrix Plot. First encouraging fact is that the proportion of listed misfit situations between listed nodes is relatively low. (DC' Mean = 0.069.) [5] That means there are plenty of other possible good links to build [8]. Of course, different solutions are depending on real situation and must be seriously considered and selected. (Not listed as misfit does not mean ideal solution!)

Adjacency Matrix Plot by SocNetV 2.3 software: Network name: contingency misfit factors with properties extended 3.net Actors: 39. This a plot of the network's adjacency matrix, a NxN matrix where each element (i,j) is filled if there is an edge from actor i to actor j, or not filled if no edge exists. (Existing edge of misfit)

Table 3: Adjacency matrix plot (Source; Sotware: SocNetV 2.3)



The other analyses performed, but without presented details in this paper were:
Clique Census (CLQs) report [5] The purpose of application of this group of measures was to detect which factor has the highest influential position, or power that can be considered with need for more sophisticated analyses. The following facts are quoted from SocNetV reports. "A clique is the largest subgroup of actors in the social network who are all directly connected to each other (maximal complete subgraph). SocNetV applies the Bron–Kerbosch algorithm to produce a census of all maximal cliques in the network and reports some useful statistics such as disaggregation by vertex and co-membership information.
Maximal Cliques found: 51." The power is relatively evenly distributed between nodes. There are no outstanding influential or prestige node. It is normal for the analyzed list of evenly performed misfits. This kind of analysis would be more interesting in particular case oriented studies.
Actor by clique analysis: Proportion of clique members adjacent Performed by NxN matrix. Not presented in this paper. It seems to be also only with case sensitive meaning.
Actor by actor analysis: Co-membership matrix. Performed by NxN matrix. Not presented in this paper.
Clustering Dendrogram (SVG) Not presented, Clique by clique analysis: Co-membership matrix.

DISCUSSION

Most of the influencing factors are characteristic for all branches of economic activity, [9] The selected misfits are showing bad organizational design solutions. Performed model of networked misfits suggest more sophisticated approach in setting organizational design fit.

The limitations of any kind of attempt to manage complex systems (such as organizations) are based in several conclusions about systems that function in changing conditions. Starting with cybernetics everyone agrees that "the state of a complex system is determined by a very large number of factors; the number of control actions is large and it is not possible to review all their combinations in an acceptable time in order to select the most favorable effect. The interplay of parts of the system and the environment takes place through so many channels that it is impossible to take into account in the management system. The characteristics and of the system and the environment are changed in time, according to laws that are never exactly known, and whose knowledge is necessary for management. ... In order to calculate optimal management, time is needed, so much longer if a more complex system is managed, ..." [10]

Illustrations show the model that is composed on the principles of contingency misfit and represents a typical example of a simplified network of badly connected factors and properties of organization. In order to better understanding of an organization model is designed to process relatively small number of factors and low flows of information (connectedness) to be able to quickly control actions calculated for short time intervals. Of course, for longer periods bigger models should be developed with large amounts of data for setting organization design solutions. Usually “Higher ranking models work even slower, but they produce far-reaching management.... Ranks (the links - added author) interact with one another and form the controlling actions” [1]

The presented model shows the sources of dangerous connections as possible line of synergetic effects; possibility of growing malfunctions of organization because of being lined up in order of misfit situations. Social Network Analysis (SNA) tools give strong base for Organizational Network Analysis (ONA). Considered measures of SNA or ONA as “measures for individual actors” [11],112] the nodes, are taken from the listed contingency factors and organizational design properties. Together with typical “measures for analyses of entire network” [11],112] the usability of model is depending on case sensitive data entrance. (Specifically defined solutions to be tested – analyzed.) The plot matrix shows the mistaken solutions or misfit positions. It can be perceived as well as the “devil’s area”. It has to be avoided while setting organizational design. The given example of linkages between some contingency factors and organizational design properties proves potential for this kind of presentation and helps comprehension of hidden sources of failures in organizational design solutions.

CONCLUSION

It is obvious that maintaining the balance between contingency, – situational factors and organizational design properties are limited with the complexity of phenomenon. This fact explains why business organizations cannot be fully under stained and why business results will always be below objectively possible.

As a matter of fact, the factors and properties can be ranked into network against health of organization. The failure may result from accumulated negative impacts of inadequately linked propositions. Knowing about basic inconsistencies there is a possibility to avoid failures generated by misfits. Network of bad connections the misfit’s network or the “devil’s network” potentially may exist in every organization. It is up to skilled leaders, managers, organizers to avoid such connections. Some of the typical measures for individual actors can be applied for nodes with the notion that the weightings of their impact can vary widely, depending on the branch and the objective conditions in which the effects of the influence factors are manifested.

Misfit situations always have to be avoided. It is very useful to have mapped linkages of misfit situations in order to get transparency of real situation. Every real situation differs. It is very important to notice that none of the nodes is a misfit by itself. The harmful effects derive from the mistaken direction of connections between elements - design solutions. Those mistaken connections - links are developing the malfunctioning of organization. The introduced model is performing mapped links of limited number of misfit situations. The real situation can produce plenty of other combinations of linkages that are also unacceptable. "... however much we improve it, it remains an imperfect expert system that requires a skilled and experienced user to apply it in a reasonable fashion ..." (p. 34). [1]

Hostile or “devil’s areas” can be multiplied if organizer ignores the possibly longer linkages. The effects of synergy can be illustrated with clustering effects in this case as the set of mistaken choice of organizational properties.

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IMPACT OF SOCIO-DEMOGRAPHIC FACTORS ON EMPLOYEE'S PERCEPTION OF ORGANIZATIONAL COMMUNICATION EFFECTIVENESS

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Abstract: *The organization in its simplified sense is a group of individuals who interact and collaborate to achieve common goals. From this point of view, organizations are primarily communication entities [6]. Effective communication is the cornerstone of the existence of any organization regardless of size, ownership or legal form. Trying to meet its objectives, it is essential for the organization to develop effective communication systems. Without effective communication, managers will not be able to perform properly any of the managerial functions (planning, organizing, guiding, motivating or controlling their employees). Put simply, communication is the component that enables the existence of the organization itself.*

Various research has been carried out about the importance of effective organizational communication, aiming not only on identifying the positive relationship with satisfaction, confidence, engagement [4], motivation of the employees and further to the success of the organization, but also warning and making aware managers in addressing obstacles to the implementation of an effective communication system. Therefore, different scholars suggest that organizations constantly should carry out audits to evaluate the effectiveness of internal communication and to verify whether it is timely, correct, and accurate, as appropriate.

Following studies of the importance of effective organizational communication, this paper, through the primary quest for quantitative data, is intended to go further by focusing on perceptions of employees regarding the effectiveness of internal organizational communication. The paper begins with a brief and concentrated review of the literature on the importance of organizational communication effectiveness, to go further with the quantitative data analysis, collected through questionnaires to different employees from the private sector. The main objective of the paper is to assess whether employee demographic factors, such as gender, age, and years of work experience, have an impact on their perceptions of effective communication in the organization, by focusing on effective communication channels used in the organization, as well as the barriers that potentially hinder the realization of effective communication. In this way, the results of this study aim to make managers aware not only of monitoring the effectiveness of communication in the organization, but also to be able to tailor channels and address the obstacles to implement a system of effective communication, regarding the demographic characteristics of their staff.

Keywords: *effective organizational communication, demographic factors, barriers, channels*

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"The ability to communicate clearly and confidently accounts for 85% of your business success"
Brian Tracy

1. Introduction

Nowadays, all organizations operate in a dynamic and complex environment. To survive in such an environment and to gain competitive advantage, their decision-makers need to be aware of and understand the vital role of organizational communication. Anderson [2] among the conclusion of his study goes further and argues that today for all organizations, effective communication is a necessity. Numerous studies conclude that the implementation of an effective communication system brings to the organization many benefits, straightforward or indirect, short-term or long-term. Trying to achieve effective organizational communication, among other things, a manager should pay attention to the means of communication used and potential barriers that prevent the flow of information efficiently in all parts of the organization, where his presence is necessary, in right time.

2. Literature review

The presence of an effective communication system is very crucial and often determines the organization's growth in all aspects, and as such cannot be overlooked by the managers. Harris and Nelson [10] argue that the sustainability of an organization is also based on the extent to which effective communication between employees is present and the kind of relationship established, thus avoiding the unstructured conflicts.

Malmelin [15] considers communication as an intangible asset of an organization, which if appropriately adapted to a system that supports the integration of different dimensions of internal organizational communication, will generate value, and sees it as the key element defining the future of a business. By improving the quality of communication, management can increase employee engagement [16] and enable each and every part of the organization to concentrate on responding to requests; otherwise the organization can potentially face a future with loss of customers until bankruptcy [11].

Different scholars, in an effort to re-emphasize the importance of communication claim that organizational communication is an effective means of motivating employees [14] and has an important impact on the extent to which employees believe their managers [4], the degree of commitment to the organization and the identification with it, reduces their level of insecurity and gives them the opportunity to make better decisions.

The importance of effective communication in the organization cannot be overlooked, considering the fact that employees or managers regardless of the hierarchical level should interact with each other in an effort to meet organizational objectives. Internal communication can be defined from an operational point of view as an exchange of formal and/or informal messages between employees, managers within an organization, aiming at simplification toward the realization of collective interest and unstructured cooperation within the organization [7].

Tubbs and Moss [17] in their research concluded that there is a correlation between the quality of communication and overall performance within the organization. Apparently the lack of effective communication is an indisputable obstacle to a successful organizational performance.

This statement highlights the importance that managers should devote particularly to the implementation of effective communication systems within the organization. If one needs to identify the characteristics of effective communication, they can be summarized in: a) the quality and the way the message is communicated, b) achieving the desired result c) the right time [12]. Key elements in achieving effective communication in the organization are obviously the used communication channels. According to Barry and Fulmer [3], the first step to claiming an effective communication system consists in matching the communication channels with the purpose of communication. The importance of the channels of communication seems to be neglected by managers, despite studies that show that effective managers, compared to those who are less effective, tend to use more "information-rich communication channels" [1].

Important elements that affect the effective communication system are barriers (obstacles). Performance within an organization can be significantly improved by sharing information with employees and including them in policy making. This might not be attained if barriers that become an obstacle to effective organizational communication are not addressed. They can be of different forms, and referred to Zaineb [21] the most common forms of communication barriers in organizations are categorized into what are known as perceptual, emotional, linguistic, cultural and physical or structural barriers.

3. Methodology

The primary purpose of this paper is to point out if there are differences in perception of employees for effective communication in an organization, based on some of their socio-demographic characteristics. Specifically, the focus of research questions will be:

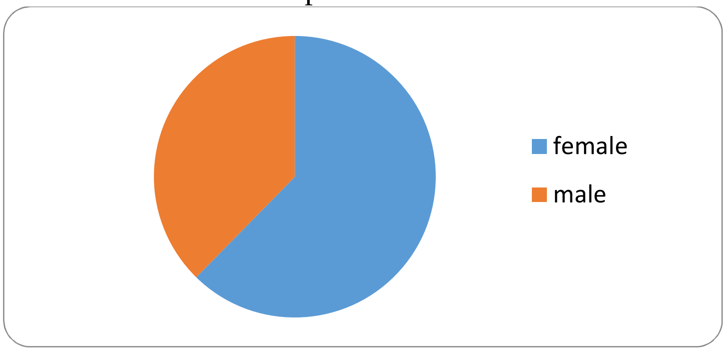
1) Do sociodemographic characteristics of employees affect their perceptions of effective channels in organizational communication?
2) Do sociodemographic characteristics of employees affect their perceptions of effective organizational communication barriers?

This study included 85 different employees, mainly in the positions of specialist and low level managers, employed in private businesses operating in the service sector. The instrument used was a questionnaire, which is divided into three parts, in the first there are sociodemographic data, such as gender, age, level of education and years of work experience, to further explore questions to evaluate their perception regarding the communication channels as well as the barriers to effective communication. This paper has a descriptive nature and is based solely on the evidence whether differences in sociodemographic factors and perceptions of effective communication in the organization exist or not, and the data have been processed with the excel program. It should be underlined as a limitation, the number of the employees and organizations involved in the study, which implies that drawn conclusions could not be generalized for majority of organizations.

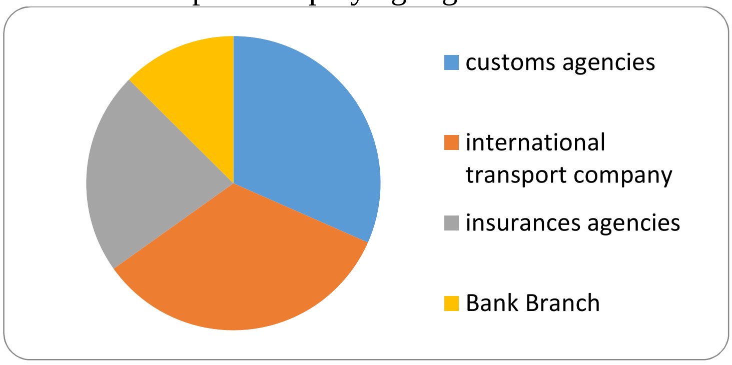
4. Discussion of findings

The following is a brief description of the socio-demographic data of the respondents, which are generated from the first section of the questionnaire, and presented graphically. The largest percentage of respondents are women with 62%, with the largest part (48%) having 6 to 10 years of work experience (Graph 3) and more than half of them (53%) are in the age group 26 to 45 (Graph 4). They are employed in private businesses operating in the service sector, in the city of Durres, Albania. Constantly, the employees involved in the study are employed in branches of second tier banks, customs agencies, insurance agencies and international transport firms. Their distribution is given in Graph 2.

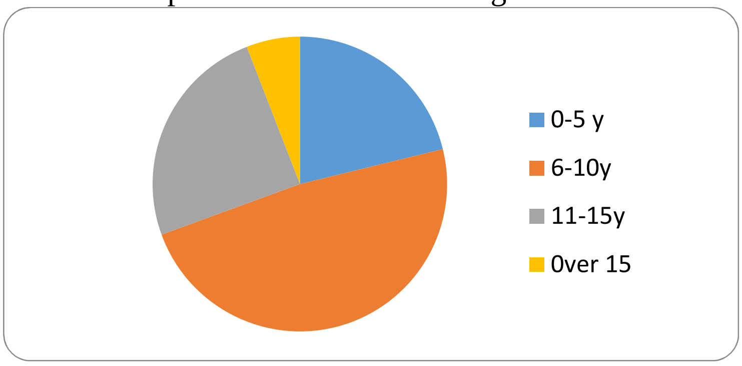
Graph 1. Gender



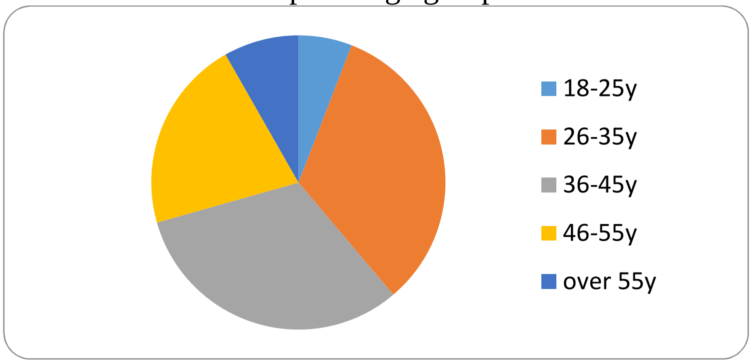
Graph 2. Employing organizations



Graph 3. Years of work in organization



Graph 4. Age groups



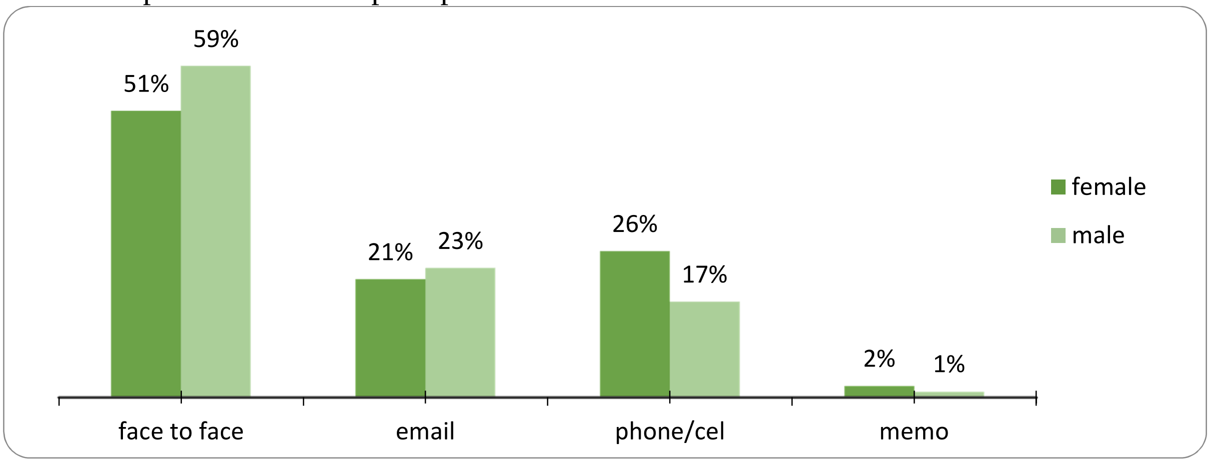
4.1 Socio-demographic factors and perception of effective communication channels in the organization

After reviewing the demographic data of respondents, in this aspect will be evidenced differences in gender, age, years of work experience and perception of effective channels of communication in the organization. Respondents were asked to evaluate the communication tools listed in the questionnaire, such as face to face, email, phone calls or memos, from effectivity and frequency perspective within the organization.

4.1.1. Gender and perceptions about communication channels effectiveness

The first factor to be considered whether there is differentiation or not regarding the perception of effective communication channels in the organization is gender.

Graph 5. Gender and perception about effective communication channels

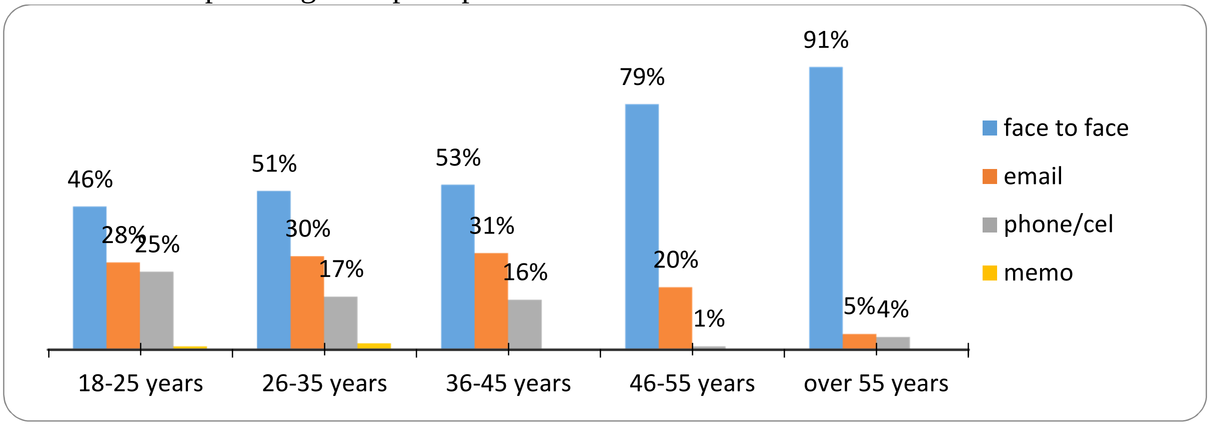


As can be seen from the chart, it seems that the most effective channel, according to the perception of employees regardless of gender is face to face communication. However, it is noticeable that men are the most (59% of them) who consider this to be the most effective channel compared to women with 51% of them. There is also gender differentiation regarding the use of email, where it seems to be perceived as the most effective tool for men compared to women (23% of men compared to 21% of women). The phone is perceived as more effective by women than men (26% vs. 17%). Memo compared to other means seems to be perceived as less effective by employees - only 2% of women and 1% of men consider it as an effective means of communication in the organization.

4.1.2. Age and perceptions about communication channels effectiveness

As far as the age factor is concerned, in graph 6 the most effective means of communication in the organization is perceived the face to face communication, and the less effective memo. Face to face seems to be more effective for people over the age of 55 (91% of them). Email is considered to be the most effective channel for 36-45-year-old (31%), while the phone is more effective for ages 18 to 25 years old, (30% of them). For those older than 36, the memo is not perceived as an effective means of communication at all.

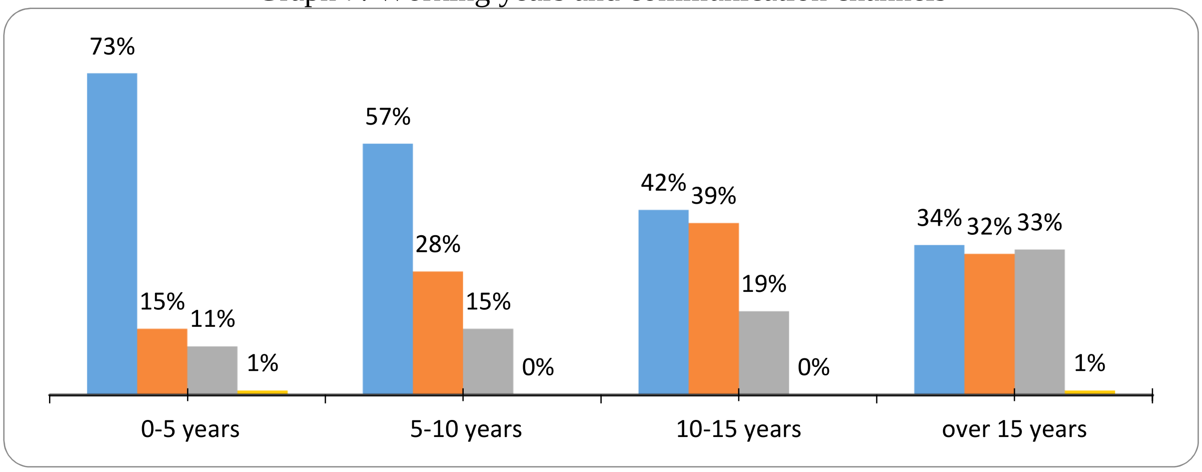
Graph 6. Age and perception about effective communication channels



4.1.3. Working years and perceptions about communication channels effectiveness

With regard to years of experience in organizations and perceptions about effective communication channels, the data in Graph 8 show that there are differences. For employees claiming to have up to 10 years of work, it is clear that face to face communication is considered as the most effective with regard to other means. A clear majority of 73% of them value it as such. It is noticeable that with the growing number of years of work experience, it seems that the percentage of those who consider face to face communication as the most effective means falls. While employees over 15 years consider as almost equally important 3 channels: face to face, phone and email. Again, memo is considered as the least effective means of communication, according to this sociodemographic variable, and in some cases it is not considered at all, as in the case of experienced employees from 5 to 15 years.

Graph 7. Working years and communication channels



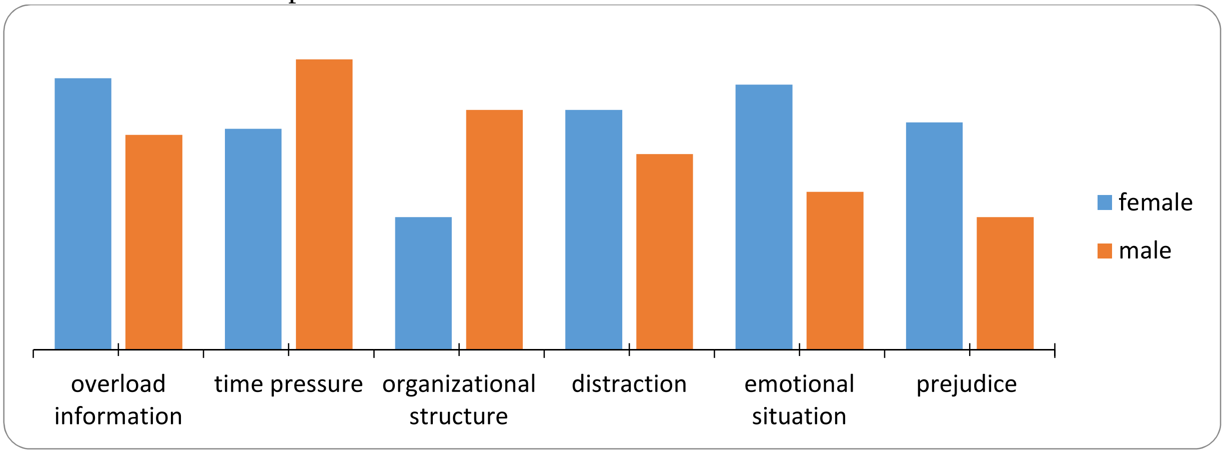
4.2. Socio-demographic factors and barriers of effective communication

In addition to the means of communication, in this paper we intend to identify the barriers which, according to employees, impede the realization of effective communication. In the questionnaire, the employees involved in the study have been asked to evaluate barriers ranging from 1 up to 5 (maximum), to the extent that they perceive as obstacles to effective communication. The barriers taken into consideration in this paper are six, and concretely: overload with information, time pressure, organization structure, distraction, emotional state, prejudice.

4.2.1. Gender and perception: barriers of effective communication

Regarding gender and perception of each of the barriers to effective communication in the organization, the evaluations of the respondents are averaged and presented in the graph below.

Graph 8. Gender and barriers of effective communication



The chart shows that women and men seem to have different perceptions about the barriers to effective communication in the organization. At first glance, women seem to point out the most important barrier as overlapping information, while men seem to perceive the pressure of time. If we analyze one by one the aforementioned barriers, we will see for each of the genders that the most important for women is overload with information that is averaged 4.3 points out of the 5 maximum, to go further with the emotional state averaged by 4.2, distraction averaged 3.8, prejudices 3.6 point, time pressure 3.5 point, and finally organizational structure 2.1 point.

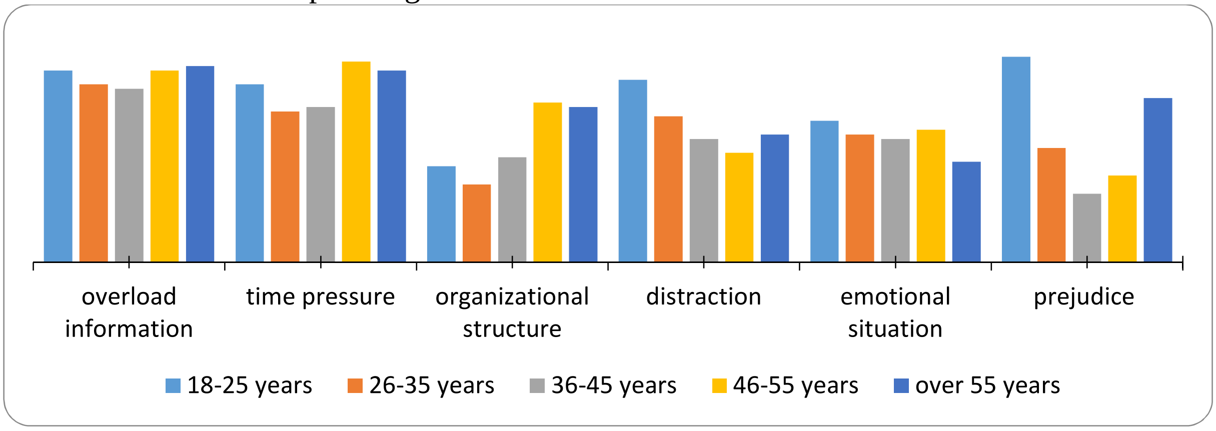
Referring to men, based on the averaging of their responses, we see that the most perceived barrier is the time pressure: average of 4.6 points, followed by the organizational structure: 3.8 points, the overload with information: 3.4 points, the concentration: 3.1 points, emotional state: 2.5 points, and finally prejudices with 2.1 points.

From the above, we can say that there are obvious differences, linking gender and perception of the barriers of effective communication. It means that managers should focus their attention on the gender perceived barriers at their employees, in order to avoid obstacles.

4.2.2. Age and perception: barriers of effective communication

Regarding the question of whether there are differences in the perception of the barriers of effective communication, depending on the age of the employee, the graph shows that perceptions of barriers to effective communication seem to vary from the age of employees.

Graph 9. Age and barriers of effective communication



It is noteworthy that workers up to 25 years of age perceive a greater number of barriers compared to others, while fewer barriers in total perceive employees aged 36 to 45. If we analyze details for each age group concretely, it appears that employees in the age range of 18 to 25 rank as being the first for prejudice, those aged between 26 and 45: overload with information, while over 55 employees perceive mostly time pressure as barrier for effective communication. The organizational structure is the smallest obstacle for the age group 18-25 years and 26-35 years, while the emotional state is ranked last by age groups 36-45 and over 55. Prejudice is ranked last by importance for the age group 46 to 55 years.

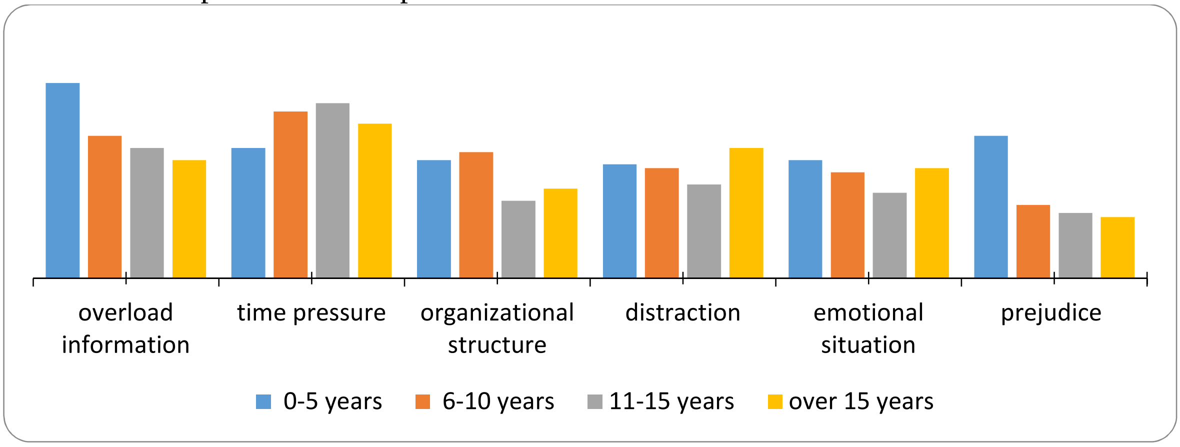
If we analyze it in a different perspective, focusing on each barrier and seeing which age group considers it most important, depending on the score estimation, we see that overload with information is considered the main obstacle for people over 55, pressure time for 46-55 age group, as well as organizational structure is perceived as the biggest obstacle by the employees of this age. Meanwhile, the distraction and the emotional state compared to the other age groups are assessed as the most important among the age groups 26-35 years old, while the prejudice of the 18-25 years old group.

Concluding, we can say that age is a strong factor that seems to affect perceptions of the barriers to effective communication. Apparently, given the average age of employees, managers will find it easier to identify and focus more attention on those barriers which tend to be an obstacle to effective communication.

4.2.3. Working years and perceptions: barriers of effective communication

The final analysis of this paper consists in identifying the differences that may come as a result of the years of employee experience, as a sociodemographic factor, in relation to the barriers of effective communication in the organization. The processed data are presented in the Graph 10, where the differences can be easily identified.

Graph 10. Work experience and barriers of effective communication



From the graph 10, one could notice the fact that employees up to 5 years of experience consider the most important barrier information overload and give it a considerable rating of 4.8 out of 5 potential. This category evaluates also prejudice as an essential barrier with high score of 3.5 points.

Discussing further the findings, it is visible that employees with 11-15 years of work at the organization consider the time pressure as more important, compared to other age groups. The organizational structure seems to be perceived as a barrier by most of the employees with 6-10 years of experience, while the distraction is more often mentioned by employees with over 15 years of work. Meanwhile, the emotional state is valued more by employees with fewer years of work experience.

At the end of this issue it is to be noted that, despite the fact that employees with different years of experience differ in their perceptions of barriers, those with fewer years of experience seem to perceive a greater number of barriers, compared to other employees.

5. Conclusions

In this paper, through the review of literature, attention was drawn to the importance of effective communication for the successful performance of an organization. Effective channels should be used to ensure presence of effective communication within the organization and to identify barriers that might potentially prevent it. Through a descriptive analysis of the data collected by the questionnaire, we attempted to address the research question: how sociodemographic factors such as gender, age, and years of work experience affect the perceptions that employees have for the channels / tools and barriers of effective communication.

From the data analysis, it was evidenced that sociodemographic factors seem to have an impact on employees' perceptions of what they consider as barriers to communication. Concretely, it was concluded that considering gender, women compared to men perceive phone as more effective, the opposite is happening with the use of email. With regard to the years of work experience it is noticed that with the growing number of years of experience in the organization falls the percentage of employees who perceive as the most effective face to face communication. This probably, because with the passing of years the employees know their organization, structures, colleagues, leaders, and culture better. While the opposite occurs with the age factor, with its growth, it increases the perception that face to face communication is more effective.

As far as barrier analysis is concerned, women generally consider the information overload barrier, while men consider the pressure of time as most problematic. In terms of age and years of work experience, it seems that there are differences for different categories. For example, employees with up to 5 years of work experience as the main barrier considered to be overloading with information, whereas for employees with 5 to 10 years of experience is considered time pressure. In terms of age, it appears that young people up to 25 years of age consider a greater number of barriers as compared to other ages. They consider prejudice as the first barrier to go further in the list with overloading with information and focus, while over 45 employees evaluate time pressure as the most important barrier to achieving effective communication.

Taking into consideration the limitations, this paper however might have an added value from the managerial point of view, because it tends to make aware the managers, that before choosing the channels or means of communicating effectively within the organization, it would be better to select those tools and to address those barriers that are considered as such by the employees, depending on their sociodemographic characteristics.

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STUDY REGARDING CULTURAL DIVERSITY AND ORGANIZATIONAL BEHAVIOR IN ROMANIA

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Abstract: *The necessity of the intercultural steps is evidently related to business globalization and internationalization. The associated social phenomena are strongly influenced by the cultural features, by the communication difficulties between cultures, by the cultural shock and the adaptation to another culture, by the commercial failures and the personal frustrations derived from them. These are but a few examples of challenges that accompany the organizations, whether public or private, on their way towards their goal achievement. The success or the failure of a national economy is strongly influenced by a set of cultural features, not only by the natural or technical factors. In the international literature there are some models that are meant to put an end to the main factors that form a culture and thus difference between the cultures all over the world. The best known and used model is the Geert Hofstende model. It is the standard instrument used to describe the cultural impact over only one economy. This study tries to underline the main components of the Romanian culture. We used our own questionnaire in order to be able to quantify the Romanian culture based on the cultural dimensions of Geert Hofstede.***

Keywords: *Cultural diversity, organizational behavior, Romania*

1. INTRODUCTION

The importance of a culture, as well as its influence upon economy in general and especially management are undeniable in any society, nation or country. The definition of culture has two senses: Firstly „culture in a restricted sense" which refers to aspects such as art, literature or education. This is the sense the notion culture acquires in most of the western countries and it refers to what is known under the name of „civilization" i.e. „mind refinement". Secondly it refers to „secondary culture", a notion which is more comprehensive and it is defined as the collective programming of thinking which distinguishes of one group of members (or category of people) from another. [4]. According to Kurt Lewin culture can be defined as „what a group of people learn along a period of time while they are solving their problems of survival in the external medium as well as the problems of their internal integration." [6]

An essential characteristic of culture is that it is learned, it is not genetically inherited. Culture comes from the social environment of the individual, because culture is a social super-individual phenomenon. Culture is the so called "social inheritance" of a society, where the convictions, the ways and the rules of behavior are transmitted from generation to generation.

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Material and Method

In this paper we wanted to present some theoretical aspects referring to the concept of culture as well as some practical methods to identify cultural elements in several business organizations in Romania. For reason of confidentiality we will not give their names. For this we applied a questionnaire with 20 items. The study was made on a sample of 425 people, working in 4 business organizations from the west of Romania. The respondents were randomly chosen from the employees' records of the respective organizations.

Results and Discussions

In the following lines we present the reflexion in the survey of the five cultural dimensions: Distance to Power, Individualism/Collectivism, Masculinity/Feminity, Avoiding Uncertainty and Long Term Orientation.

Distance to Power This dimension refers to the fact that not all the members of a society are equal and it expresses the attitude of culture towards these inequalities. The distance to power is defined as the extent to which the less powerful/rich members of the institutions and organizations of a country expect and accept that power is distributed unevenly in society.

In addition, we are going to present some of the survey questions on the power distance, as well as the interpretation of the received answers.

Question 1: Do you think the persons who have a good relationship with their superior are favored? (1) usually yes, (2) sometimes, (3) hardly ever/never

Table 1 Frequency of responses at question 1

Answer options	1	2	3	Total
Absolute frequency	267	148	10	425
Relative frequency (%)	62.9	34.8	2.3	100

The results in Table 1 indicate a very large power distance, over 60% of the respondents choosing the first variant, the others the second one. In other words, Romanians consider that the overrun of the superiors brings about personal benefits.

The fact that in Romania those who try „to fawn upon" their superior take benefits is very strongly argued by the responses distribution of the persons who have different levels of education (The higher the level of education, the higher the number of those who orientated towards the first variant). It is significant that out of the 25 respondents that have a doctor degree, 16 chose the first variant and the others the second. In conclusion, the more educated the respondents are, the more aware they are that success in the Romanian environment is largely based on servility.

Question number 2 If the leader is not right must he be contradicted by the subordinate? (1) a leader mustn't be contradicted, (2) a leader may be contradicted but you will regret later, (3) if the leader is not right he has to be contradicted.

The results in Table 2 describe a large power distance; over 50% of the respondents chose the first variant, 20% the second variant and 18% the last variant.

Table 2 Frequency of responses at question 2

Answer options	1	2	3	Total
Absolute frequency	241	120	64	425
Relative frequency (%)	53.5	28.2	18.3	100

For your work to be carried out efficiently is authority and power required from the part of the leaders? (1) always, (2) only in certain situations,(3) never.

Table 3 Frequency of responses at question 3

Answer options	1	2	3	Total
Absolute frequency	319	86	20	425
Relative frequency (%)	75	20.2	4.8	100

The bond between this question (Table 3) and the power distance is evident in conclusion no explanation is necessary in my opinion.

Question 4 - Should most of the decisions be taken without a preliminary consultation with the other members of the organization? (1) always, (2) sometimes, (3) never.

Table 4 Frequency of responses at question 4

Answer options	1	2	3	Total
Absolute frequency	283	126	16	425
Relative frequency (%)	66.7	29.3	4	100

All these questions describe a large power distance, the majority of the respondents considering normal not to contradict your superior even when he/she is clearly wrong.

This is an extremely faithful indicator of the power distance, as it is a defining element: in a society with a large power distance, the subordinates do not have to be consulted when the decisions are taken and the success in the Romanian environment is greatly conditioned by servility.

Individualism/Collectivism

Individualism expresses the extent to which society encourages interpersonal relationships and individual achievement. A high level of individualism demonstrates that the focus is on individuality and on individual rights, and there are very weak interpersonal relationships among the society members. The societies with a collectivist nature have a low degree of individualism, where there is very tight links among its members. These cultures strengthen extended families and communities in which each member is responsible for the others. [10].
According to Trompenars, individualism has been described as having a basis of primary orientation towards one's own person, one’s own ego, and collectivism as a primary orientation towards the goals and expectations of the community. Trompenars demonstrates that individualism belongs to the societies in which the links among the members are chaotic and it is expected that each member takes care of him/her or of his/her own family.

At the opposite pole there are the collectivist societies in which people are integrated from birth into strong, tight subgroups that continue throughout men’s life protecting them in exchange for mutual loyalty. [8] [9]

The character of the inter-human relationships (individualism/collectivism) is initially formed in the family; they consolidate outside it and they have a strong impact upon culture and organizational behavior. These relationships differ from one society to another through three elements:

- the extent to which members of society depend on each other;
- the number of individuals who entertain somehow intense relationships;
- the criteria according to which relationships between individuals develop - there are cultures in which interpersonal relationships are predetermined, they are based on the assigned status (social class, ethnicity, religious affiliation, generally the belonging to a social group or another) and there are cultures in which relationships between people are set for the sake of it (Hofstede even uses the term chaotic), according to each other's preferences.

Reflection of Individualism in the Survey

Question 5 Up to what age did you live with your parents? (If you are still living with your parents fill with the age you have now).

Table 5 Frequency of responses at question 5

Answer options	18 - 20	21 - 25	26 - 35	>35	Total
Absolute frequency	156	141	85	43	425
Relative frequency (%)	36.6	33.1	20.1	13.2	100

As you can see, most of today's Romanian youth continue to live with their parents after they become major and complete their studies until very old age. One can notice that extended family is a characteristic of the Romanian society, thus reflecting a low degree of individualism.

Question 6 You are the owner of a small business and you have a free job and your son is unemployed. What do you do? (1) I hire my son without any interview; (2) I make public the job and I hire the best candidate; (3) Under no circumstances do I hire my son in my enterprise.

Table 6 Frequency of responses at question 6

Answer options	1	2	3	Total
Absolute frequency	256	128	41	425
Relative frequency (%)	60.2	30.4	9.4	100

Over half of the respondents answered they would hire their son in their own enterprise on other criteria than competence. This statement is fully supported by what we know about the Romanian organizational practice, where nepotism is an element of normality. A strong differentiation of responses was made by age: young people have moved more towards the first response. I think that in their case the emotional element was much stronger, being in the situation of the son who could be hired (they actually expressed the hope that their parents would help them in such a situation).

Question 7 You have 50 subordinates different in terms of age, gender, nationality, and so on. How do you assign them to smaller teams? (1) I include as many different people as possible in each team; (2) I include as many similar people as possible in each team; (3) I distribute them alphabetically or by lottery; (4) I let them group themselves, according to everyone's preferences.

Table 7 Frequency of responses at question 7

Answer options	1	2	3	4	Total
Absolute frequency	57	121	85	162	425
Relative frequency (%)	13.5	28.3	20	38.2	100

The answers demonstrate a very low level of individualism: the most attractive option for the respondents was the fourth one.

Question 8: Are group decisions usually better than individual decisions? (1) yes; (2) no; (3) I don't know.

Table 8 Frequency of responses at question 8

Answer options	1	2	3	Total
Absolute frequency	303	87	35	425
Relative frequency (%)	71.2	20.4	8.4	100

Most respondents say that decisions taken in group are better than individual decisions.
In conclusion, it has emerged that individualism in Romanians has a low level between 60-70% of the sample investigated are in favor of the pro - collectivist attitude. The result is natural and logical: if the power distance is large, the index of individualism is small.

Masculinity/Femininity

Hofstede has defined masculinity based on more arrogant or more modest behavior of individuals. [4]. He called masculine a proud, self-effacing behavior, and feminine a modest, temperamental behavior. In masculine societies the behavior of domination and attempts to excel are appreciated; in the feminine ones, these elements are ridiculed. The members of the latter (regardless of gender) are being taught to be modest and lacking ambition. [4]. Hofstede emphasizes that this attitude is leveling, tracing a person back to a modest condition. [4].

Masculinity measures the degree to which a society retains or not the traditional role of the man to work, to achieve, to have control and power. A high degree of masculinity shows that society is strongly differentiated on the basis of gender; the man has a dominant position in the social and power structures, the woman being controlled, dominated. A low degree of masculinity shows a small measure of differentiation and sexual discrimination; women and men are treated in the same way in all social aspects. [10]. Masculinity does not mean women's disadvantage, but inequality, regardless of its meaning. On the other hand, a certain disadvantage of women exists even in feminine cultures. Women, more often than men, have to do jobs which are uninteresting, subordinate and less well paid. [3].

Despite all the efforts to overcome the traditional clichés, there are still significant differences between the two sexes in Romania: boys are encouraged to be competitive, performing, to assume their independence and dominance, while the girls are induced to be good wives and mothers, dedicated and caring. [5].

Reflection of Masculinity in the Survey

Question 9 Two of your subordinates contradict each other, and each of them has a solution to a common problem. What do you do? (1) I let them contradict each other to analyze that problem as best they can; (2) I intervene in the favor of the one who I think is right; (3) I stop the discussion and find a compromise solution that would please both of them.

Table 9 Frequency of responses at question 9

Answer options	1	2	3	Total
Absolute frequency	114	213	98	425
Relative frequency (%)	26.8	50.2	23	100

To this question the very strong differentiation of the answers was made according to the level of studies, the persons with higher education opting to a much greater extent for the first variant of the answer while they showed stronger rejection of the last variant.

Question 10 Do you consider it normal that, in the same country, some people have wages with several thousand units of currency bigger than others? (1) It is normal, but not in the same organization, (2) It is normal, even within the same organization; (3) there should be low differences between the wages within the same country; (4) salaries should be approximately equal for all citizens of the country.

Table 10 Frequency of responses at question 10

Answer options	1	2	3	4	Total
Absolute frequency	51	53	211	110	425
Relative frequency (%)	12.1	12.4	49.7	25.8	100

By formulating this question, we tried to avoid, as much as possible, the emotional involvement. The responses reflect a rather moderate level of masculinity.
Question 11 Is it more important for a man to have a professional career than for a woman? (1) yes; (2)no.

Table 11 Frequency of responses at question 11

Answer options	1	2	Total
Absolute frequency	59	366	425
Relative frequency (%)	18.8	86.2	100

We see from the frequency of the answers to this question that there is no tendency to create discriminatory practices to the detriment of women.

Question 12 You have a leading position and you want your subordinates to be as efficient as possible. What do you try to offer them first? (1) the possibility to show how valuable they are (creative, intelligent, etc.); (2) better working conditions.

Table 12 Frequency of responses at question 12

Answer options	1	2	Total
Absolute frequency	191	234	425
Relative frequency (%)	47.4	52.6	100

The answers to the questions in Table 12 confirm the degree of masculinity which seems to be average, the society having a slight feminine tinge. As a curiosity, at this question women turned a little more than men towards the first element of answer that argues the idea of femininity. Romania is a country with a masculine index, but having slight female tonal, meaning members of the society look for a collaborative environment and want to support all the members of society, regardless of their contribution.

The advantage of this culture is that we will never need special action to promote women in leadership positions or in political structures because they can move forward by themselves if they want to, because the opposite sex partners do not tend to create discriminatory practices.
The disadvantage is that the feminine values of the society determine a lower level of competitiveness of the local organizations compared to the organizations on the foreign market, and the Romanian employees will not positively contribute to the improvement of the situation. Because feminine values appreciate personal spare time and cooperation to the detriment of performance goals, Romanian firms will allow foreign firms to take their place on the market without significant competition.

Uncertainty Avoidance

This dimension refers to the tolerance of society towards uncertainty and ambiguity, to the feeling of comfort / discomfort that individuals feel when faced with unstructured, new, unknown and unusual situations.

The main aspect of this dimension is how society succeeds in reconciling with the passage of time; in other words, we are all prisoners of the past, present and future, being unpredictable.

Avoiding uncertainty expresses the extent to which people feel themselves threatened by ambiguous situations and the extent to which they try to eliminate these situations by means of the following actions: looking for a safer job, setting out more rules, eliminating different types of behavior and ideas, "establishing" absolute truths, etc. [7] Uncertainty should not be confused with risk.

Some societies encourage their members to accept uncertainty and they do not let them to be negatively affected by this reality. People in such societies tend to accept each day as it comes. They are accustomed to take risks in a relatively easy way. They do not make excessive efforts at work and are relatively tolerant of opinions and behaviors that differ from their own because they do not feel threatened. Such societies are hardly attracted to the fight against uncertainty, and its members generally feel relatively safe.

Other societies stimulate members to try to "defeat" their future. As the future remains, in essence, unpredictable, people have a high level of anxiety, manifested by nervousness, intense emotional states and an increased level of aggression.

Uncertainty Avoidance as Reflected in the Survey

Question 13 It is important that the requirements and instructions are specified in detail so that employees always know what is expected of them? (1) Yes; (2) No.

Table 13 Frequency of responses at question 13

Answer options	1	2	Total
Absolute frequency	375	50	425
Relative frequency (%)	88.2	11.8	100

Most respondents preferred clear rules and instructions.

Question 14 You are a production manager. Do you expect the workers to comply exactly with the manufacturing instructions and procedures? (1) Yes; (2) No.

Table 14 Frequency of responses at question 14

Answer options	1	2	Total
Absolute frequency	101	324	425
Relative frequency (%)	23.8	76.2	100

The majority of respondents, over 70%, do not expect manufacturing rules and procedures to be observed due to lack of rigor, non-compliance or lack of care.

Question 15 Do you think you should avoid making changes because you might get worse? (1) Yes; (2) No.

Table 15 Frequency of responses at question 15

Answer options	1	2	Total
Absolute frequency	261	164	425
Relative frequency (%)	61.4	38.6	100

More than 60% of respondents fear change, the latter being perceived as a considerable stressor, because they have to engage in other relationships, comply with new values and approaches to work.

Question 16 You're late at work, and your boss has argued you. What do you think of him? (1) it's normal to be argue because I'm wrong; (2) he is right to argue, but he could overlook this very little delay; (3) it is not right, a delay of just two or three minutes is normal and should be allowed to anyone.

Table 16 Frequency of responses at question 16

Answer options	1	2	3	Total
Absolute frequency	43	205	177	425
Relative frequency (%)	10.1	48.2	41.7	100

Respondents preferred the latter two variants, indicating an aversion to moderate uncertainty.

Long Term Orientation

The long-term orientation that has been determined as a result of Michael Bond's and Geert Hofstede's joint researches is the "confucianist" dimension of the time period for which people make plans and expect results and the extent to which they tend to sacrifice the immediate or current outcome for a possible, but more substantial, reward, but in the future [1] The dimension also has traditional, conservative valences, measuring the level at which a society embraces traditional values and progressive thinking [2].

The long-term orientation is characterized, among other things, by perseverance, temperance, holding sentiment of shame, organizing relations through status and preserving them, and short-term orientation is characterized, among others, by the search for personal security and stability, formal respect for tradition, reciprocity in greetings, favors and gifts. [9]

Long Term Orientation Reflected in the Survey

Question 17 You are a manager. How do you deal with smaller, routine activities? (1) I'm trying to leave them to the subordinates; (2) I want to take care of them, but only after I finish with the most important activities; (3) I attach great importance to them because I want everything to be well established.

Table 17 Frequency of responses at question 17

Answer options	1	2	3	Total
Absolute frequency	175	169	177	81
Relative frequency (%)	41.2	39.8	19	100

The data in Table 17 indicates a predominantly long-term orientation; detailed results show that this is particularly the case for men, young people and people with higher education.
Question 18 What are the favorite ways of spending leisure time? (1) With my friends; (2) I have a hobby; (3) I rest; (4) I study.

Table 18 Frequency of responses at question 18

Answer options	1	2	3	4	Total
Absolute frequency	176	36	164	49	425
Relative frequency (%)	41.4	8.4	38.6	11.6	100

The data in Table 18 indicate a situation closer to the short-term orientation. The first variant of the response and the variant 3 were preferred by the respondents.

Question 19 You are a company's shareholder. How would you proceed with the profit generated by the activity of the organization? (1) I reinvest it; (2) I redistribute it to shareholders.

Table 19 Frequency of responses at question 19

Answer options	1	2	Total
Absolute frequency	189	236	425
Relative frequency (%)	47.8	52.6	100

Table 19 shows a moderate availability in reinvestment of profit.

Question 20 As a manager of an organization how do you solve current problems? (1) You use the experiments of the past; (2) Try changing some organizational standards.

Table 20 Frequency of responses at question 20

Answer options	1	2	Total
Absolute frequency	261	164	425
Relative frequency (%)	61.3	38.7	100

In conclusion, it is difficult for Romanians to plan for a very long term that is why they will prefer to bring up the past experiences to solve today's problems.

Conclusions

In conclusion, the power distance in Romanian is very large, according to an efficient mechanism for preserving and highlighting the differences in status, characterized especially by arbitrary leadership and unconditional obedience to hierarchical superiors, with an "indispensable" supplement (required by the need to a higher status). Personnel in organizations in such cultures do not express opinions contrary to the superior and receive orders they execute.

Low individualism, namely collectivism, characterized by waiting for community support, lack of initiative, counterproductive vision of private property and, above all, nepotism and primacy of group interests (irrespective of the criterion of its formation).

Medium-level masculinity with a slight tendency to femininity; unfortunately, from this point of view, the Romanian culture is not homogeneous but contains a set of extremely masculine tendencies on the one hand (the pronounced differentiation between the behaviors of the two sexes) and on the other hand a set of pronounced feminine tendencies (egalitarianism, negative vision of wealthy people, convenience, etc.).

It is a good thing that we will never need special actions to promote women in leadership positions or in political structures because they can move forward alone if they want because opposite sex partners do not tend to create discriminatory practices for women.

The religion of a country can be a source of feminine or masculine values, depending on how it perceives gender differences. Orthodox religion, predominant in Romania, is more inclined to the complementarities of the sexes rather than to the subordination of the woman to her husband.

The avoidance of uncertainty is at a high level, characterized as above, by the opposite: on the one hand, strong avoidance elements (the social impact of religion, the need for the most powerful control authorities over citizens), on the other hand, elements of accepting uncertainty (laziness, carelessness, lack of rigor).

Population has a high degree of anxiety about the future and prefers today's safety compared to tomorrow's uncertainty.

The average value of long-term orientation, is a consequence of both the traditionalism that exists at a high level in culture.

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THE CONSCIOUS LEADER IN THE DIGITAL VORTEX ERA

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Abstract: *Why does humanity need conscious leaders? Because our world is changing faster than we can adapt. Being caught in a speed trap, complexity and uncertainty, many of us are not ready for this acceleration. The conscious leader is a precious resource not only in the digital age of transformations of all kinds, but in all the ages in which an enlightened mind is needed. Companies need conscious leaders because they are responsible and well informed, they are authentic and act with intent, daring and courage. More than ever, consciousness is their antidote against the disturbing factors that generate the great changes. Even more, in full „digital whirlwind", the conscious leader will direct the master orchestra of transformations. This article will answer the question: „when and under what conditions is a company ready to become a virtuoso of digital transformation?"*

Keywords: *consciousness, leader, digital.*

1. INTRODUCTION

The phrase "Vortex Digital" describes the force that digital transformation exerts on all institutions and how companies are attracted by the core of this phenomenon.

Today, **companies need conscious leaders.** In addition to the fact that leaders need to stimulate constant transformation, they must understand and value the diversity, inclusion, talent management, and ethics - fundamental aspects of conscious man's mentality.

Intelligence is no longer sufficient. Intelligence brings you to the forefront, but to stay there you must be fully aware. This is all the more true today, when the need for transformation is stringent and constant.

2. CONSCIOUSNESS IS NEW (FORMAT) INTELLIGENCE

Consciousness helps us think deeper, to learn faster, to work better.
To act consciously, we must examine ourselves to truly know ourselves, to think ample to see the multitude of possibilities, to be realistic in order to be more authentic and to act in the life and leadership, and to raise the bar for it worked to our true potential.

Our world is changing faster than we can adapt. Caught like in a speed trap, complexity and uncertainty, many of us are not ready for this acceleration. Faced with the challenges, we operate on the automatic pilot. We are too troublesome and lose opportunities. We are hijacked by conflicting values of polarizing relationships. In uncertainty we react with fear and

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mistrust. Stress and burnout predominate because most of us do not perform at their true potential.
Organizations do not adapt better. More than half of the attempts to produce change fail. Markets are changing faster than organizations succeed in reinventing themselves. The gap between the leaders we have and the leaders we need is getting bigger. The ability of directors to be leaders of change is set under the sign of doubt. So, many organizations are dominated by slow execution, of underdevelopment, by an unhealthy and underperforming culture.

Human solidarity is extremely fragile. Cynicism and mistrust prevents us from solving the most complex problems of society. The broken families, racial tensions, trade wars, climate change they only exacerbate the situation. And all this is happening in times when it is more than ever necessary for people to unite to solve highly pressing issues - such as human rights, discrimination, poverty, protecting and preserving the environment. [1]

3. THE CONSCIOUS LEADERSHIP

If the concept of mindfulness can be looked down upon by some people, considering it as a blue or utopian flower, more and more business managers incorporate this practice into their daily lives and aspire to become conscious leaders.

The conscious leader is defined by his ability to develop his presence and attention on a daily basis. He is present in what he does; he is attentive to himself, to others and to his environment. Rather than being anchored in unhealthy defense mechanisms in the face of adversity, he seeks clarity by giving himself space to take an introspective and benevolent look at himself and his performance.

The work of Janice Marturano, author of Finding a Space to Lead [2], is often cited as a pioneer in conscious leadership. Reading his book, we understand that the conscious leader will be better able to adapt to a complex environment, where agility and emotional intelligence are essential skills to cope with the technological evolution that leads us to the world. 4.0.

The conscious leader reassures while being realistic in times of change
A popular saying is that when we are depressed, we live in the past and when we are anxious, we are planning too much in the future. Mindfulness will help leaders focus on the present moment, on the task or goal they are achieving at the moment.

The conscious leader is kind to himself and to others
This aspect reminds leaders to take care of themselves and be caring towards their person. People who rank high in a company's hierarchy often tend to be very demanding of themselves. By adopting this way of thinking, this leads them to be just as demanding of those around them and their work teams, which can complicate relationships. Developing empathy and openness opens the door to a more harmonious working relationship, which in turn increases the company's performance.

The conscious leader engages the commitment and the deployment of the talents of his collaborators
Moving into a positive environment, based on core values such as respect and listening to oneself and others, will increase the manager's ability to develop compassion. This quality is essential to strengthen the bond of trust towards its employees.

The conscious leader innovates more to find solutions to complex issues
By having the mind absorbed by the worries of everyday life, the leader who does not practice mindfulness may tend to go around in circles.

However, gradually exercising his conscious leadership, he will see more clearly. The expression to think outside the box will make sense here, because it will be in the right frame of mind to go into solution mode instead of indulging in the status quo.

How to develop a more conscious leadership?
Still according to Janice Marturano, conscious leadership is developing by offering moments of hindsight during which it is essential to tame the tranquility and silence to be able to empty and take a healthy distance with our environment. So, the manager will be able to bounce back faster and find innovative solutions to the issues and challenges he faces.

To devote to his tasks in a conscious way
Being fully attentive at times when we normally perform our tasks mechanically allows us to focus on the present moment. For example, the conscious leader might choose to dwell on the sensation of the cold liquid that hydrates his mouth by drinking a glass of water. It only takes a few minutes, but focusing on these innocent little acts in a conscious way allows you to step back and refocus.

Give yourself a moment of introspection
With the hectic pace of today's life, everyone can feel that he does not have a minute to himself. It's easy to fall into the trap of the autopilot where the days go by without one having stopped to reflect on one's deep aspirations, one's well-being, on reaching one's goals. Looking at one's inner world allows one to answer questions that may seem unanswered, as long as one does not take the time to dwell on them.

Align what we do with who we are
The conscious leader is also an authentic leader in the sense that he is faithful to himself. He deploys energy in his personal growth and he's trying to find out who he is and what passionate him in order to take advantage of its full potential.

Stop believing in his invincibility
It is healthy and even important to try to surpass oneself and become the best version of oneself. However, when the desire for performance begins to encroach on the physical and mental health of the leader, we understand that it is time to stop. The leader must understand that he is not immune to burnout and that the balance between work and personal life must be well balanced.

The practice of meditation
Meditation can take many forms. The manager can choose to incorporate 10 to 15 minutes of traditional meditation every morning into his routine, silently or accompanied by a guided meditation. Or, he may decide to incorporate breaks into his work routine and schedule moments to consciously breathe and take a step back on the tensions and emotions accumulated during his day. Its performance and productivity will only get better.
In a world where instantaneity is foreground, the perseverance that development requires and the practice of conscious leadership may seem like too much investment in time and energy, because the results are sometimes difficult to discern on the short term.

Remember during your journey to the conscious leadership that more and more scientific research is demonstrating the physical, emotional and intellectual benefits of mindfulness. This is particularly true in a world where taking a step back from oneself, others, and events has become essential to ensuring our sustainability as a leader despite the fact that sometimes taking a few moments back to act as a conscious leader may seem like to be is worthy of a revolutionary act.

CONCLUSIONS

Conscious leaders come into play with their best version, challenging others to do the same. Leadership is not a function, leadership can be anyone. By becoming more aware, they will find the sense of work and will be more effective in inspiring others to follow.

People want to be inspired and are open to being led. The leader who understands where his people are, who perceives their receptivity to change and their interest in advancing the team and the progress of the organization will be successful in what they do. It is vital to understand that not all people are resistant to change.

The solutions to many of our problems lie in ourselves, and among them is the solution to managing the change and the disturbing factors we face. Our inner strength and wisdom are the best solution to manage transformations.

In an overactive market, leaders must be over-aware of what is happening and what they can do in the current reality to thrive. Self-awareness is truly the only way to success.

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EXTRACTING INFORMATION FROM IT JOB ADVERTISEMENTS USING TEXT MINING TECHNIQUES

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Abstract: *Finding a suitable job requires a lot of time in searching the job advertisements in order to find just that job openings that fit certain skills. Usually the job advertisements are written like free text and they don't follow some specific structure or pattern and finding relevant information inside them is pretty difficult. Also if we want to analyze the job market so that we can uncover the needs of the industry probably we should go through the advertisements one by one and analyze them. This process can be facilitated by using some text mining techniques for extracting specific information. This will help jobseekers to find the employment that suits those best, job requirements they can cover and also help them to discover the job market needs so they can be profiled in that direction and acquire the necessary skills. Also, if we analyze a longer period of time, we can see how the needs of the labor market have changed over time, how the required competencies have changed, and maybe we can predict in which direction future requirements will be made. By using text mining methods for extracting specific information from the texts, job advertisements, we obtain just the major job requirements and skills. Also from the same texts we can extract additional information like experience needed for certain job or minimum wage for some job position. We are using jobs advertisements collected in period of 5 years in the field of IT industry. For fast growing industries, this kind of analysis is very important in order to follow the progress and needs of this industry. Our findings, in addition to showing us the trends in the labor market, can also be used by universities and other educational and training institutions for creating curriculums that the industry needs.*

Keywords: *Text mining, job advertisement, job analysis, labor market analysis*

1. INTRODUCTION

The job market can be big and messy. A lot of job advertisements are generated daily especially in the fast growing industry like IT. How important these analyzes are can be shown the large number of papers written on this subject and the time period they are analyzing [1] – [4]. Analyzing of the job market can be very important from several aspects. One of them is to find a way to give a right direction to the education, so the education can follow the industry's latest trends, and the students to gain the right knowledge base, so they can easier fit in the industry after. It also raises the question whether the theory, technical or business skills should be developed and considered as more important. The job advertisements can also be used for talent recruitment. The big brand companies are using their status and

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facilities to make up their job advertisements to invoke the young talents to work for them. Also the job advertisements can provide information about economy and social status in the region by analyzing salaries for specific job position.

In order to extract some valuable information from the job advertisements we use some simple text mining techniques which can help us to process the jobs advertisements faster and more accurate. The main idea is by using those techniques to extract the most wanted jobs and the most important skills for them. For this purpose, we analyzed job advertisements in the IT industry and we have obtained the most demanded positions and technical skills in the past few years. This has allowed us to see the trends in the IT industry, what is in demand and in what direction and with which speed it is developing. In the next section we give some of the other articles that are trying to solve the same or the similar problem on job advertisements data set. In the third section we are talking about the dataset that we used and the methods that we created, and in the last section we give the conclusion and ideas for the future work.

2. RELATED WORK

There are many other articles that target this problem. All of them have different methods or approaches in order to extract some relevant information for the job advertisements. We give a quick review of some of them that are related to our idea.

In “Employers’ extractions: A probabilistic text mining model” [5] the authors are analyzing more than 20,000 job advertisements from various web sites. They are analyzing the sentences by finding some of the main keywords and then by using the Bayesian theorem they are trying to extract the job qualifications. After, then by using the LDA techniques, one of the most known technique for topic modeling, to identify the groups of skills, which lead to general job positions. In the article „Linguistic information extraction for job ads (SIRE project)“ [6] the authors manually tagged 200 jobs advertisements so they can try to relate them with the corresponding ontological features of the job and they obtain set of empirical labels. Then with techniques similar to LSA and MWE they are creating v-lexicon from 1081 IPs jobs advertisements. The “Changing Trends in LIS Job Advertisements” [7] is speaking about extracting information from job advertisements in Australia. They are using context analysis which includes counting how often words, phrases or themes appear individually or in combinations and categorization dictionaries in order to find the most needed skills in the job advertisements. They are making cooperation between their study and the similar study from the 2004. The conclusion is that changing work practices have led to job definitions which no longer rigidly demarcate role functions and now a wider range of skills is required. “Text clustering based on centrality measures: an application on job advertisements” [8] articles speak about clustering the job advertisements. The authors are using similarity and adjacent matrix to find the overlapping between job advertisements. Then by using mixed approaches for clustering they are identifying the job advertisements clusters. They analyzed 1650 job advertisements and they are getting five clusters labeled with the educational profile like “Graduates in marketing, social sciences and humanities”, “Engineering management”, “Informatics”, “computer engineering”, “mathematics and statistics”, “Economics” and “No qualifications”. The author of “Skills and Vacancy Analysis with Data Mining Techniques” [9] is analyzing 4846 IT vacancies, which in first step are into ten exclusive classes. After preprocess and usage of several text mining techniques, the author concludes that the kind and the Naïve Bayes algorithm show the best performance. Similar to the previous article in the “Job Opportunity Finding by Text Classification” [10] the authors are using k-NN, Naïve Bayes, decision tree, neural network, SVM, and Linear Least Squares Fit to classify the chins jobs in several predefined classes. The job market is also analyzed by using some date mining teaching techniques in “Data Mining Approach to Monitoring the Requirements of the Job Market: A Case Study” [11]. The authors are using O*NET database data science and related techniques. They are using standard preprocessing techniques like removing common expressions and words (e.g. stop words) and stemming. After these steps they are creating the TF-IDF matrix and LSI model for identifying the most demanded occupations in the job market.

3. THE DATA AND THE METHODS

For this propose we created web scraper to collect the data from Macedonian job advertisements web sites. The collected data is from January 2013 to July 2017 and more than 3500 job advertisements are collected or in details - 590 in 2013, 654 in 2014, 818 in 2015, 969 in 2016 and 580 for July 2017. We were scraping just the IT jobs so the upper trend in those numbers is expected. All job advertisements are already divided in many categories but, because those categories were too detailed we merge them in ten major job positions (fields, classes). They are Programmer/Software developer, Sales/Marketing, Customer Service, QA/Tester, Intern, Designer, Network engineer/System administrator, Data bases, Education and Other. The idea is to get the basic rough information about job market requirements. At the figures 1 – 5 are shown the percentages of the job advertisements classes by the year. So the trend in the job positions is retained. In all those years the Programmer/Software developer is the most needed job position with around half of the jobs (except the 2013 where it is the same with the Other). On the second place is Other, with 10% - 20 % of the jobs (except the 2013). We should consider that in the other part there are jobs like Office manager, Service worker, Account manager, Informatitian, Business analysis, Brand manager and even a Driver. All those job categories are categorized in the IT sometimes like a mistake of the job advertisement enterer or because the company that advertises is an IT company. Also all jobs in the IT part but without specific category are also putted in the Other class. That’s why in the 2013 they are that much jobs in the Other and in the next years the number is drastically smaller. On the third place is always Sales/Marketing which again is not strictly IT job, but the positions are related with IT or are from companies that are classified as IT companies. On the next places with similar percentage between them and over the years are Customer Service, QA / Tester, Inter, Designer, Network engineer / System administrator.

Figure 1: Job advertisements in 2013

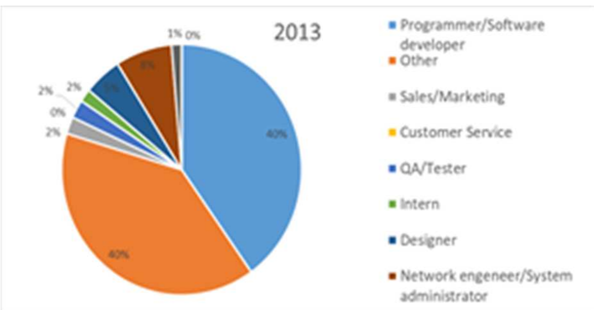


Figure 2: Job advertisements in 2014

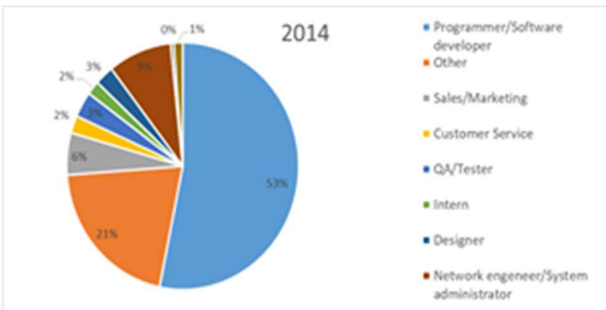


Figure 3: Job advertisements in 2015

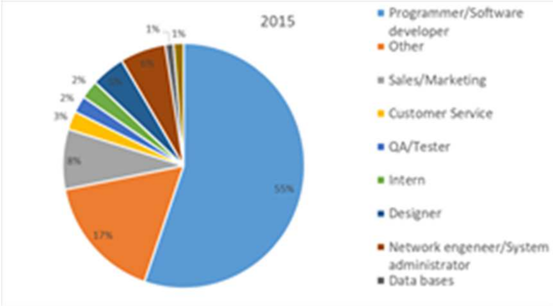


Figure 4: Job advertisements in 2016

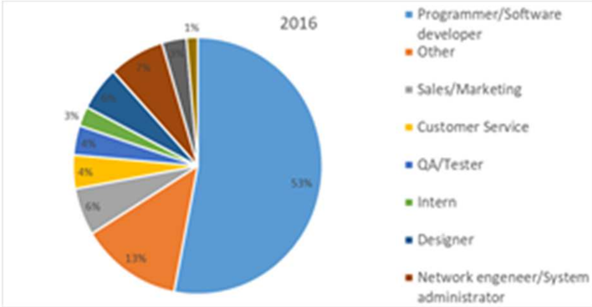
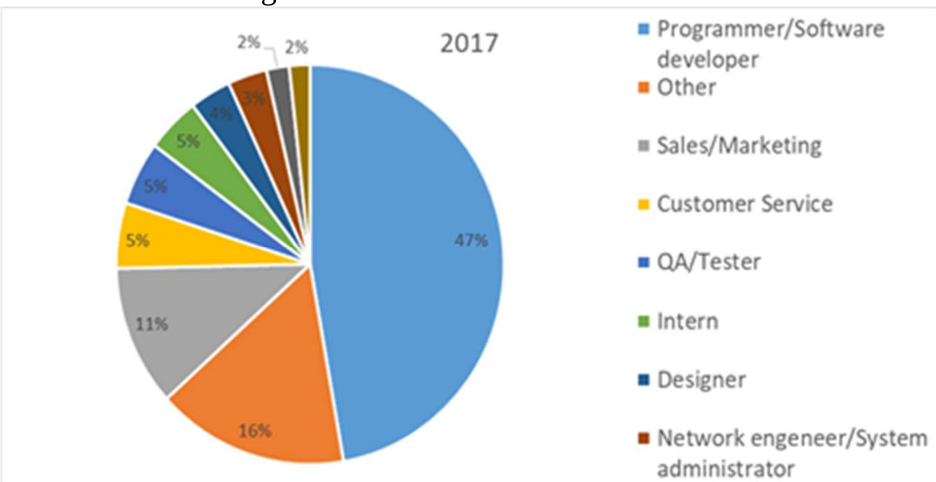


Figure 5: Job advertisements in 2017

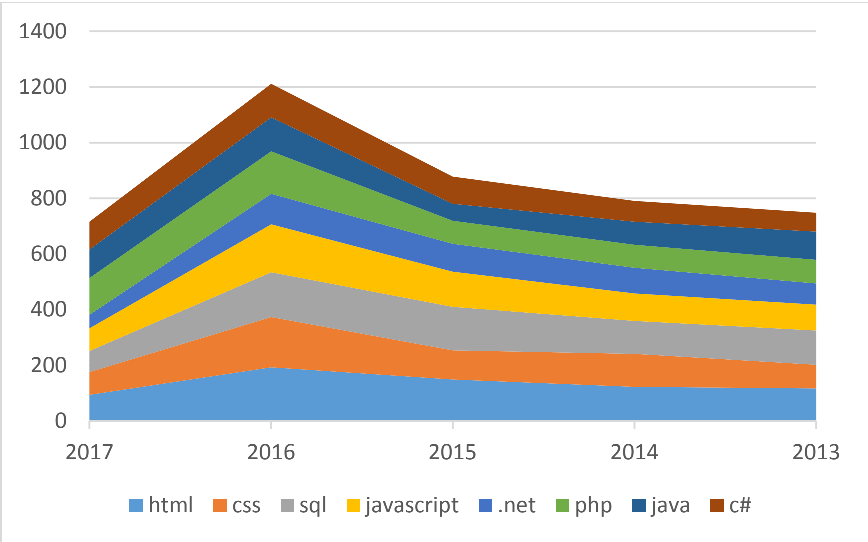


Because almost half of the jobs in those 5 years are classified as Programmer/Software engineer we extract the certain skills that are required for this job. In the Table 1 is shown the number of jobs that required certain skill (technology) per year. We extracted just the most commonly required skills in the jobs advertisements.

Table 1: Number of jobs that required certain skill/technology

	2017	**2016**	**2015**	**2014**	**2013**
html	94	193	150	123	117
css	82	181	104	119	86
sql	76	161	156	118	122
javascript	81	172	127	99	93
.net	49	109	100	92	76
php	132	153	83	83	86
java	102	122	61	82	101
c#	100	121	97	75	67

Figure 6: Number of required skills in jobs



From the Table 1 and Figure 6 we can see that the eight most demanding technologies have some stable trend over the years and almost all of them have increasing trend relatively related to the growth of the number of jobs. We should keep on mind that we have data from just a first half of 2017.

4. CONCLUSION AND FUTURE WORK

By analyzing job advertisements we can extract very important information. In our case with simple text mining techniques we scrap the IT job advertisements and extract the main categories from them. As we can see in the results section the Programmer/Software engineer is the most sought-after job from employers. This information can be used in creating curriculum from schools in order to develop most suitably educated cadres and also for the student to choose their education in the direction that they can find work easily. Also this information can be used from some superior structures so they can see all the shortcomings in the industry and will know in which direction to put their policies. From the most demanding technologies part we can conclude which technologies are more demanded and in the rising position. We can also see the period when one technology is alive and in how the all those technologies are changing and developing.

There is a lot of space for this work to be extended. The non-technical skills, soft skills, should be also included in the research because they are also very important part for the employers, and can be bust for job seekers in order to know what other skills they should develop. Also the salary part can be included, if it is available, so we can get clearer picture what position and what skills are the most valuable. The combination of the skills should also be considered. Do some skills always go together and what skills are correlated and cannot function without each other? By using more advanced text mining techniques maybe some non-trivial information can be extracted, like new categorization job advertisements patters etc. Also, some predictions about job need in the future can be provided.

The main concussion is that the work done is very valuable and gives us very important information about IT labor market, and what are the trends. But, there is much that can be done in the field, so the more information can be extracted and greater concussions can be made.

ACKNOWLEDGEMENT

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THE DEGREE OF DISABILITY AND TYPES OF IMPAIRMENTS AS SELF-EMPLOYMENT DETERMINANTS OF PERSONS WITH DISABILITIES IN POLAND AND OTHER COUNTRIES

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Abstract: *The purpose of the presented study is to determine whether and to what extent persons with disabilities benefited from the available support to start and continue their business activity and what barriers they encountered in the process of obtaining it.*
The following research hypothesis was adopted: disability under certain socio-economic conditions can constitute an inspiration for self-employment.
The survey method, the subject literature and legal acts analysis and review method as well as the analysis of statistical data were used in the course of the study.
The commonly applied systems to increase the activity of disabled people on the labour market, and in particular aimed at providing them with incentives to undertake business activities are based on their right to work and ban on their discrimination. At the same time, various mechanisms of material encouragement for persons with disabilities, focused on stimulating such people to become active on the labour market are also applied. The main financial tools to support self-employment of the disabled people, registered as unemployed in employment offices, were subsidies for starting a business and reimbursement of some part of social security contributions. These instruments did not meet the specific needs and capabilities of persons with disabilities.
In the light of survey results conducted in 2017 in a group of 348 persons with disabilities running a business in Poland in the form of self-employment, the largest group was represented by people with moderate disability - 223 persons, which accounted for almost 61.1% of all respondents. A much less numerous group were people with a mild degree of disability - 81 persons, i.e. 23.3% respectively. The smallest group was made up of persons with the severe degree of disability - 44 people, i.e.: 12.6% of the total number of respondents.
According to the indications of the respondents, the basic source of funding for the business start-up were one's own savings and the support of the closest family members.
These sources accounted for almost 96% of all the means used to set up a business. The least frequent financial support took the form of the so-called business angels, non-governmental organizations' funding and loan funds. The subsidies for starting a business activity granted by PFRON [The State Fund for Rehabilitation of Disabled Persons] and the Labour Fund, i.e. the institutions statutorily appointed for providing support to these unemployed people who seek a way out of unemployment through self-employment, had a relatively small share. 13.51% and 8.62% of the respondents respectively, pointed to the funds received from these institutions.

Keywords: *Disability, self-employment, labour market*

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1. INTRODUCTION

Persons with disabilities are generally classified as disadvantaged groups on the labour market. Disability, in many cases, represents a difficult to overcome barrier in entering and persisting on the labour market. The main type of workplace for the disabled are sheltered workshops. Much less frequently this group of people decides to set up and run their own business [1]. The disabled entrepreneurs emphasize values of self-employment, pointing primarily to the possibility of self-fulfillment, improvement of their financial situation, taking better advantage of their psycho-physical abilities and social status improvement [2],[3]. Self-employment of people with disabilities also allows using the experiences of being a disabled person and designing one's work environment in an optimal way [4]. Self-employment can turn out, just like in the case of non-disabled people, the next stage in their career path and self-development [5]. Financial support received from the state and an opportunity to improve one's financial situation can also act as an incentive for self-employment of people with disabilities [6],[7].
It should be emphasized that self-employment is not a panacea, thanks to which every disabled person, or even a large part of them, can become self-sufficient and avoid the need for further help.

It should be emphasized that self-employment is not a panacea as a result of which every disabled person, or even their large group, can become self-sufficient and resign from or not require any further assistance or support. Only a small part of the discussed population may have the necessary attributes to start their own enterprise successfully. Frequently, self-employment does not represent an alternative to a full-time job but just an existential compulsion, because the suffered disability effectively eliminates such individuals from the labour market [8].

2. PERSONS WITH DISABILITIES AND THEIR SOCIO-ECONOMIC SITUATION IN POLAND AND OTHER COUNTRIES

The disabled, just like non-disabled people, face similar barriers making their functioning on the labour market difficult. They also refer to entrepreneurship. International research has shown that disability has a negative impact on the situation of persons with disabilities on the labour market [9].

The experiences in analyzing the situation of people with disabilities on the labour market indicate that disability can become a significant obstacle in an effective competition on the labour market [10]. Apart from that, it is also a source of poverty and exclusion from social life. According to the data provided by the United Nations approx. 10% of the world's population, i.e. approx. 650 million people, have disabilities. The percentage of persons with disabilities goes up along with population aging. In the developing countries 80% of the disabled exist below the subsistence level or suffer poverty. The majority of the disabled in these countries live in villages and have limited access to basic goods [11]. According to the World Bank estimates, persons with disabilities make 20% of the global population suffering poverty [12]. In the European Union the situation of the disabled on the labour market is highly diversified. The common characteristics here are lower, than in the case of non-disabled persons, occupational activity, higher unemployment and poorer education [13], [14].

The programmes for employment support and counteracting social exclusion, carried out in many highly developed countries characterized by well-developed social programmes, for various reasons do not result in the expected effects [15]. In turn, as shown by the research results carried out in various scientific centers worldwide, self-employment of persons with disabilities can turn out an effective alternative to full-time work and an inspiration for many disabled people to return to both the labour market and the society [16],[17]. The clearly worse situation of people with disabilities on the labour market, comparing to the non-disabled ones, is commonly known and does not present any significant improvement. People with disabilities are still less professionally active and less likely to seek employment, thus they remain more at risk of unemployment, poverty and social exclusion. It is confirmed by the research results carried out in the European Union countries and the selected non-EU countries (Iceland, Switzerland, Russia, and Norway) in the years 2010-2014[312] (Tab. 1).

Table 1. The selected economic activity indicators of persons with disabilities and the general population aged 20-64, in the European Union and in some countries in the years 2010 – 2014.

Specification	Years				
	2010	2011	2012	2013	2014
Employment rate					
persons with disabilities	46.0%	46.9%	47.9%	48.5%	48.7%
total population	67.3%	67.3%	67.0%	66.8%	67.7%
Unemployment rate					
persons with disabilities	18.0%	17.4%	18.1%	19.0%	19.6%
total population	10.9%	11.2%	12.2%	12.9%	12.6%
Economic activity rate					
persons with disabilities	56.1%	56.7%	58.5%	59.8%	60.6%
total population	75.5%	75.8%	76.3%	76.8%	77.5%
The risk of poverty and exclusion					
persons with disabilities	29.6%	30.5%	30.3%	30.1%	30.1%
total population	22.7%	23.6%	24.1%	23.8%	23.8%

Source: Author's compilation based on: [14]

According to the aforementioned data, the employment rate of persons with disabilities in the period 2010 – 2014 was, on average, by approx. 20 percentage points lower than in the case of total population aged 20-64. People with disabilities were at greater risk of unemployment. It is confirmed by the unemployment rate of the disabled against total population. In 2010 – 2014, the average unemployment rate was more than 6 percentage points higher against that for total population. Persons with disabilities were also less active on the labour market, whereas the risk of poverty and social exclusion for economic reasons was also higher by a few percentage points.

3. SELF-EMPLOYMENT AS THE COMPONENT OF OCCUPATIONAL REHABILITATION PROCESS OF PERSONS WITH DISABILITIES

Disability is not only a health problem but a complex phenomenon, reflecting the interaction between the features of the person's body and the characteristics of the society in which he/she lives [18]. Persons with disabilities, in addition to their typical health problems, low self-esteem and poorer education, are continuously struggling with the problem of social and architectural barriers. It has an obvious impact on the decision of entering the path of self-employment. In the course of considering the decision to start a business, people with disabilities calculate, among others, the alternative costs. For example, if the benefits of remaining unemployed or becoming a hired labourer are higher than the profits of self-employment, it is highly unlikely that the

[312] No latest, complete and comparable data were available in this area.

disabled person shall decide to invest in self-employment. Another factor is the degree of independence, which correlates positively with the probability of self-employment. However, the most important incentive for self-employment can take the form of self-motivation, as the factor resulting from such issues as alternative costs or independence [19].

In Poland, just as in many other countries, full-time work was the popular model of occupational rehabilitation in the years 2010-2017 (Tab. 2).

Table 2. Employed persons with disabilities and employed total population in Poland, according to BAEL in the years 2010-2017.

Years	Employed persons with disabilities at working age (18-59/64)					Unemployment rate
	Total	Of which:				
		Hired labourers	Self-employed and employers		Helping family members	
			total	including employers		w %
	% of total employed persons with disabilities					
2010	100	72,3	21,2	2,6	6,6	9,8
2011	100	72,9	21,3	2,7	5,8	9,8
2012	100	75,0	19,6	2,8	5,4	10,3
2013	100	76,6	18,4	2,9	4,0	10,5
2014	100	79,8	15,9	2,5	4,2	9,2
2015	100	82,6	14,1	2,4	3,8	9,3
2016	100	85,5	12,1	1,7	2,4	6,3
2017	100	86,4	11,3	1,6	2,3	5,0
Years	total working age population (18-59/64)					x
2010	100	77,0	19,1	4,2	3,9	9,8
2011	100	77,1	19,1	4,2	3,7	9,8
2012	100	77,6	18,9	4,2	3,5	10,3
2013	100	78,2	18,5	4,2	3,3	10,5
2014	100	78,6	18,3	4,1	3,1	9,2
2015	100	78,8	18,3	3,9	3,0	9,3
2016	100	79,3	18,1	4,0	2,6	6,3
2017	100	79,6	17,8	4,0	2,6	5,0

Source: Author's compilation based on: [20].

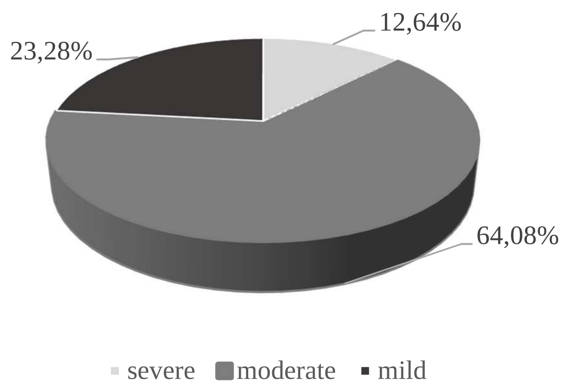
In turn, a particular situation can be identified in which persons with disabilities were more willing, than the total population at working age (18-59 for women and 18-64 for men), to take up self-employment. The immediate factor affecting labour market activity and the type of job preferred is actually the situation occurring on the discussed market. High unemployment rate constitutes an important incentive for people with disabilities to seek employment in the form of self-employment as an alternative to a full-time job. In 2010-2013, i.e. in the period of unemployment rate in Poland at the level of 10%, on average 20.1% of the employed persons with disabilities were running a business, which is on average 1.2 percentage points more than in the case of total Polish population at working age. The labour market situation improvement – a decline in unemployment rate affected lower interest of the disabled in running their own business. It was particularly evident in the years 2013-2017. In this period, the systematically decreasing unemployment rate coincided with a significant decline in the percentage of persons with disabilities running their own enterprise. In the case of total population, the decline rate in the percentage of people running their own businesses in the discussed period amounted to only 0.7 percentage points, which was much lower than in the case of people with disabilities.

4. THE DEGREE OF DISABILITY AND TYPES OF IMPAIRMENTS VS. SELF-EMPLOYMENT IN THE LIGHT OF SURVEY RESULTS

The disability rating system in force in Poland, i.e. granting a disabled individual with the legal status of a person with disability recognizes a disabled person as the one who has a valid disability certificate issued by the competent assessing and decision-making authority [21]. In the light of the decisions made, a disabled person can be classified as having one of three disability degrees, i.e. a severe, moderate or mild degree of disability. A person with disability may be diagnosed with one or more medical conditions presenting varying degrees of intensity. A disabled person may also suffer from a particular or a special type of impairment, which entitles him/her or their employers to additional benefits or privileges [see 22 and 23].

In the light of survey results conducted in 2017 in the group of 348 persons with disabilities running a business in the form of self-employment, the largest group covered persons with moderate disability – 223 people, which accounted for almost 61.1% of all the respondents (Fig. 1).

Figure 1. The structure of persons with disabilities covered by the survey taking into account the degree of disability

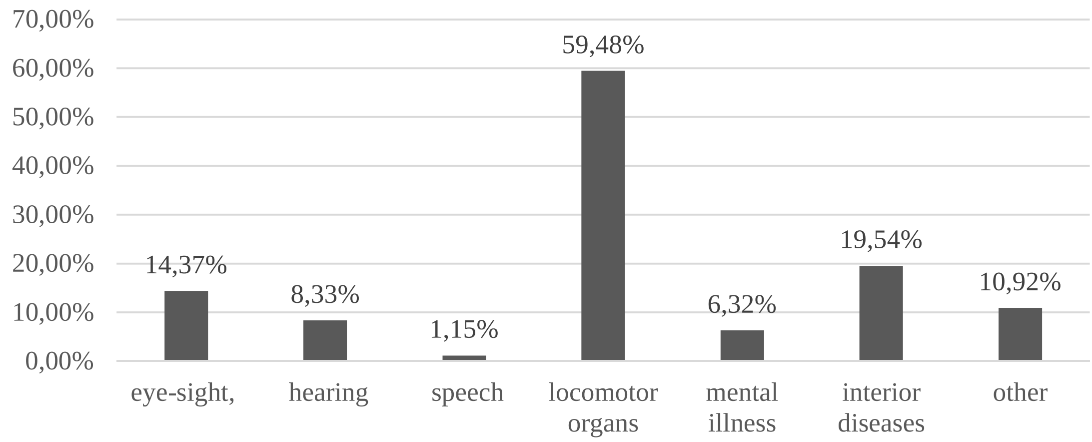


Source: survey results

The less numerous group was made up of persons with mild degree of disability – 81 people, which accounted for almost 23.3% of the people surveyed. The smallest group included the most disabled people, i.e. with a severe degree of disability – 44 people, i.e. over 12.6% of all the respondents.

The survey results indicated a significant diversification in the population of persons with disabilities running a business and covered by the survey in terms of the diagnosed impairment type. It should be remembered that part of the respondents suffered from at least one impairment. Hence, the sum of the results exceeds 100%. The summary of the conducted survey results allows identifying the locomotor disorder as the most frequent one among the respondents who were running a business on their own account in the form of self-employment (Fig. 2).

Figure 2. The structure of persons with disabilities covered by the survey taking into account the type of disability



Source: survey results.

As many as 207 respondents out of 348 people surveyed, i.e. approx. 60%, indicated this impairment type. The least often indicated was mental retardation - only one person (0.29%). Mental retardation was the least frequently marked disorder – only one person (0.29%). The indication of the locomotor organs disorder as the most conducive – even stimulating persons with disabilities for self-employment seems obvious. Mental disorders and problems with speech, i.e. verbal communication with the environment, can also be considered the most significant barriers in running a business by people with disabilities.

CONCLUSION

The purpose of the presented study was to identify whether there was a relationship between the degree of disability and the type of the suffered impairment as well as the tendency towards taking up the risk of running a business in the form of self-employment.

It was adopted in the study that some types of impairments and their intensity could become, under specific conditions, the factor motivating persons with disabilities to take up self-employment.

The general situation on the labour market and specifically the level of unemployment was definitely the major determinant influencing active attitudes of persons with disabilities on the labour market, predominantly in terms of running a business in the form of self-employment. In the case of Poland, the growing and generally high unemployment rate in 2010-2013 was an incentive for people with disabilities to look for their place on the labour market through self-employment, rather than with reference to the overall Polish society. In the period of unemployment rate decline recorded in the following years, the percentage of persons with disabilities running their own businesses (both in terms of the total population and the disabled) was systematically decreasing, however, in the case of persons with disabilities, the rate of decline was definitely higher.

In the years 2010-2017 the situation of the disabled in terms of running a business in the form of self-employment also depended on the type of suffered impairment and the degree of disability. In the light of the conducted survey results, covering 348 persons with disabilities running a business in the form of self-employment, the highest percentage (over 64%) was characterized by a certified moderate degree of disability. The smallest percentage referred to the most severely disabled persons (almost 13%). It is well understandable, taking into account the fact that such persons, in the light of the aforementioned provisions on declaring disability degrees, were often characterized by the impairments preventing their independent existence or requiring permanent care of an assistant, medical consultation and care as well as an intensive rehabilitation process. People with mild disability, theoretically the most independent both physically and mentally, thus predestined for self-employment, accounted for slightly over 23% of the respondents. It can, therefore, be adopted that it was much easier for them to find full-time employment than in the case of either moderately or severely disabled people. The respondents most often indicated the disorders of locomotor organs and internal diseases as the reasons for their disability. In total, these individuals accounted for as many as 80% of the overall number of the surveyed population running their own business in the form of self-employment. People suffering from mental disorders and speech impairments were the least frequent to run their own companies. Thus, it can be assumed that mobility problems and verbal communication dysfunctions constituted an incentive for undertaking a business activity, while mental disorders and speech impairments acted as destimulants.

In the light of the conducted surveys, the subject literature studies and the statistical data analyses, the research hypothesis was positively verified.

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ON THE IMPACT OF PRACTICAL EXPERIENCE ON THE FINANCIAL LITERACY OF THE UNIVERSITY STUDENTS

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Abstract: *The financial literacy belongs to the key competencies of the modern society members and its importance growths every day. This paper presents results of the financial literacy research among the university students of the different fields of study. The survey covers both forms of study, means the full-time study and as well the part-time study. We obtained the data through a questionnaire survey conducted simultaneously at five universities in Czech Republic and Slovakia. In this survey, we have found out some of the personality characteristics of the participants, and further, they solved common problems in the area of the financial decision making. The aim of the research was to verify whether the everyday practical experience of part-time students has a positive impact on their financial literacy when compared with the full-time students. In this context, we have also distinguished between economic and technical studies. Applying the statistical analysis methods, we have not only confirmed our expectations, but this analysis also revealed several remarkable findings.*

Keywords: *Financial literacy, questionnaire survey, personality characteristics*

1. INTRODUCTION

It is one of the characteristic features of life in such a world that we are exposed to rapid and dynamic changes. Nearly everyone is aware of the impact of modern technology but people also need to understand that almost daily their lives are becoming more closely linked to complex financial markets. Financial literacy is, therefore one of the key components of education for living in a modern society. The importance of financial literacy arises from the need to respond to the increased complexity of the financial world and it grows every day.

In the literature, one can find more definitions of the financial literacy. For example [1] define the financial literacy as the ability to understand how money works in the world: how someone manages to earn or make it, how that person manages it, how he/she invests it (turn it into more) and how that person donates it to help others. Mandell in [7] defines, that financial literacy is "the ability to evaluate the new and complex financial instruments and make informed judgments about both: choices of instruments and extent of use that would be in their own best long-run interests". A pilot OECD/INFE study [8] refers to financial literacy as "a combination of understanding, knowledge, skills, attitudes and behavioral patterns necessary to make the right financial decisions and, ultimately, to achieve personal financial well-being". For the purpose of the present paper, let us define a financially literate person according to [3] as "someone who uses their ability to make a qualified judgment on the basis of their knowledge, skills, and experience to maintain balanced financial security throughout life." This requires

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planning of financial flows, which leads to “more uniform consumption throughout life, depending on the stage of the life cycle".
In this article we focus on the financial literacy of the full-time and part-time university students. The aim of the research was to confirm the hypothesis, that practical experiences of the part-time students have positive impact on their abilities in the financial decision making. The research was conducted on five universities, on faculties with similar study programs. During our research, assumptions regarding the perception of the importance and self-assessment of financial literacy have been acknowledged. How we will see, significantly better results were achieved by students who consider financial literacy to be “vital” or “very important”.

2. DATA AND METHODS

This article presents the extension of the investigations presented in [2]. Data for the present research was collected using a questionnaire survey method at five universities located in the Slovak Republic and, in the Czech Republic. Besides the managerial fields of study, we extended the research as well on the technical fields, especially on the informatics and machinery.

We obtained a sample of 1092 usable, completely filled questionnaires, from a total of 1400 that were distributed. The corresponding response rate is 78%. The sample included 885 full-time students and 207 part-time students. This ratio matches the ratio of full-time and part-time students in the whole population. The proportion of women was 448 against 644 men. This disbalance was caused by the structure of the technical study fields population, where men usually dominate. The age structure corresponds to the ratio between the full-time and part-time students, so we had 891 students younger than 25 years and 201 in the age of 25 years and older. Relevant statistics on the socio-demographic structure of the respondent sample are summarized in Table 1.

Table 1: Structure of the sample (Source: own processing)

Form of study	***Number***	***Age***	***Number***	***Gender***	***Number***
Full-time	885	Under 25	891	Women	448
Part-time	207	25 and older	201	Men	644

The questionnaire can be divided in two independent parts. The first part collected some basic information and personal characteristics on the participants. The second part presented a total of thirteen problems concerning daily financial decision making. The areas of financial literacy tested were inspired by the notion of the P-Fin Index, as it is introduced in [6]. We have aggregated these eight areas into four categories covering:

- Time value of the money and inflation perception,
- Annuities and debt repayment,
- Investments and risk,
- Decision making.

All the problems were presented in the form of multiple choice questions with four answer options. Exactly one of the response options was the correct answer, two of them were incorrect answers, and there was also an "I do not know" option.

In order to compare the average percentages between the single categories the statistical tests were applied. As the subsamples have shown different variances, the Welch t-test was applied instead of Students t-test. This kind of the t-test uses the modified test statistics in the form:

$$t = \frac{\overline{X_1} - \overline{X_2}}{\sqrt{\frac{s_1^2}{N_1} + \frac{s_2^2}{N_2}}}$$

where $\overline{X_1}$, s_1^2 and N_1 are the 1st sample mean, sample variance, and sample size, respectively, and $\overline{X_2}$, s_2^2 and N_2 denote the 2nd sample mean, sample variance, and sample size respectively. The associated number of degrees of freedom is then given by the formula

$$\nu \approx \frac{\left(\frac{s_1^2}{N_1} + \frac{s_2^2}{N_2}\right)^2}{\frac{s_1^4}{N_1^2 \nu_1} + \frac{s_2^2}{N_2^2 \nu_2}}$$

Here $\nu_1=N_1$-1 and $\nu_2=N_2$-1 are the degrees of freedom associated with the first and second sample variance that estimates respectively.

3. RESULTS

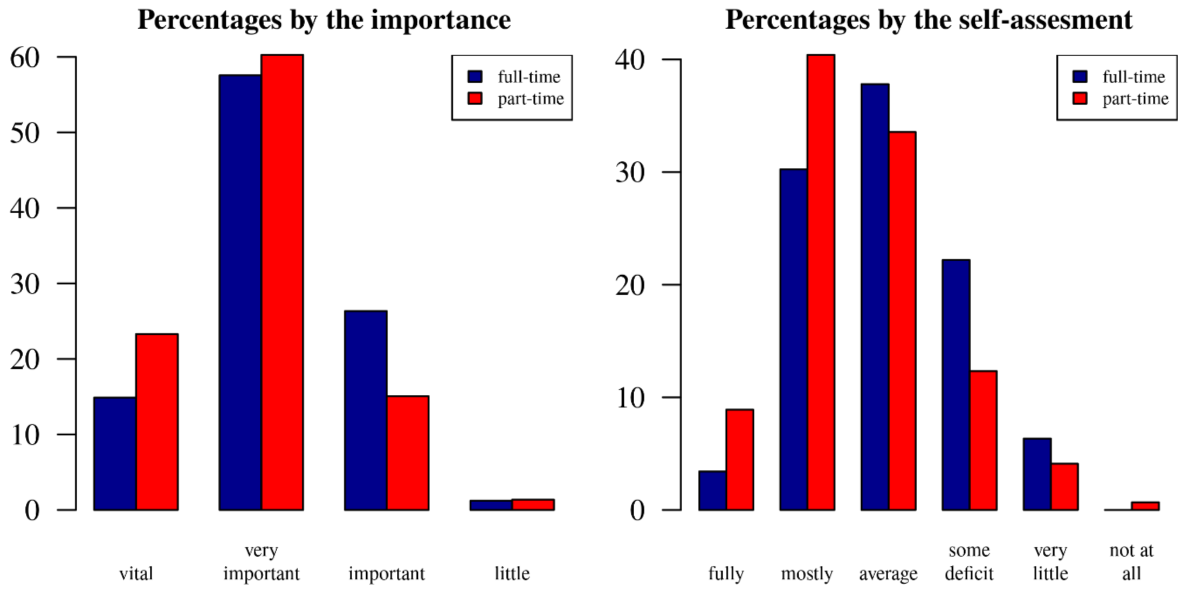
Before analyzing the performance of the student groups by various factors' impact on the level of financial literacy, let us briefly evaluate the overall results of our survey. In this study we compare the groups by the form of study, distinguishing the managerial and technical fields of study, the groups by gender and finally the groups by the age.

There has been a noticeable shift in perceiving the importance of financial literacy. As can be seen in he left part of Figure 1, the percentage of respondents considering that financial literacy is very important or even vitally important is considerably higher in the part-time mode of study in the managerial study field. The proportion of those who consider financial literacy to be of vital importance approaches a quarter of this group. On the other hand, this is not true for the technical branches. Here is a small shift in the portion that considers the financial literacy to be of vital importance, but the portion in perceiving it as very important decreases. Moreover, the portion of those who perceive it to be a little important decreases. This we can see in the left part of Figure 2. This can be explained by more practical experience of the management students in managing both personal and corporate finance.

In the self-assessment question, we asked respondents how they would rate their own financial literacy, allowing them to choose from six options – fully financially literate, right decisions usually, average, some deficiency, very little and no literacy at all. Response proportions of the management students are illustrated in Fig. 1 on the right and responses of the students of the technical fields in Figure 2. This bar chart shows in both cases the higher self-confidence among those who study part-time.

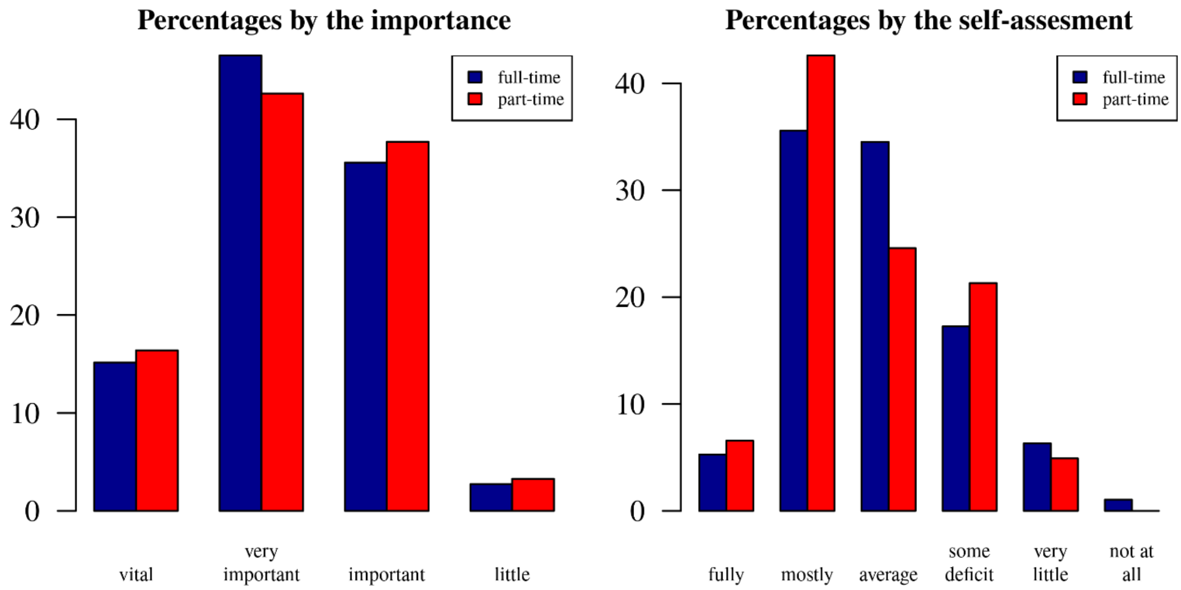
Similar situation we can observe on Figure 3 that illustrates the importance perceiving and self-assessment by two age groups. This situation is consistent with the fact, that the part-time mode students are mostly as well older than the full-time students. Of course, the older respondents are as well more experienced in financial decision making and have met its importance personally.

Figure 1: Percentages of the respondents from the managerial fields of study according to their personal characteristics.



(Source: Own elaboration)

Figure 2: Percentages of the respondents from the technical fields of study according to their personal characteristics.

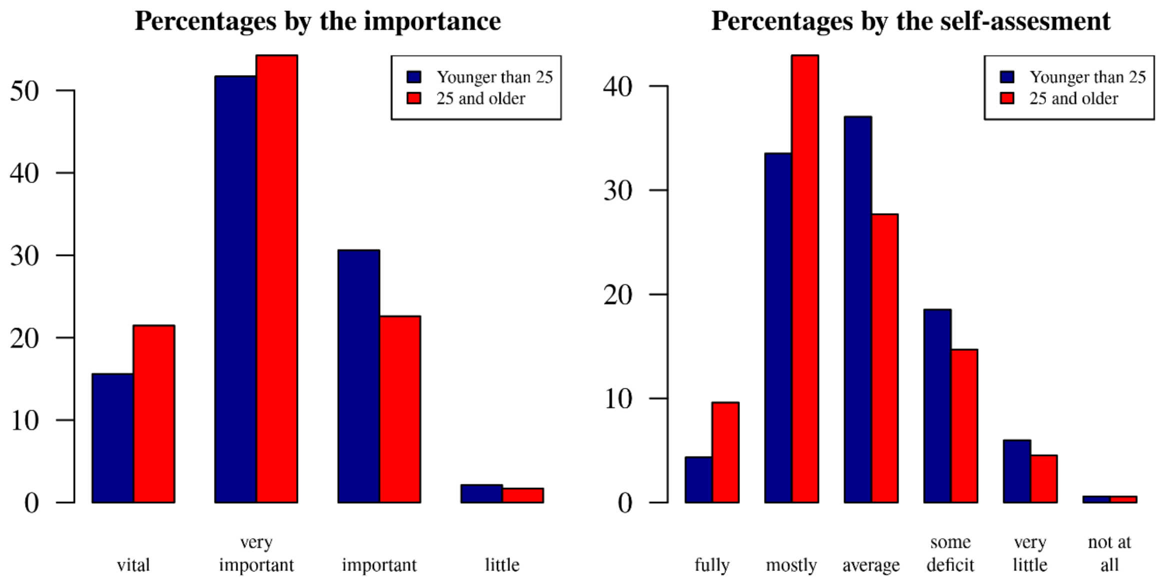


(Source: Own elaboration)

Figure 4 presents comparing the importance perceiving and self-assessment according to the gender. In the left part we can observe, that women perceive very high importance to the financial literacy, while men have tendency underrate it. On the other side, men are more self-confident and how has the research shown, they overestimate their own abilities.

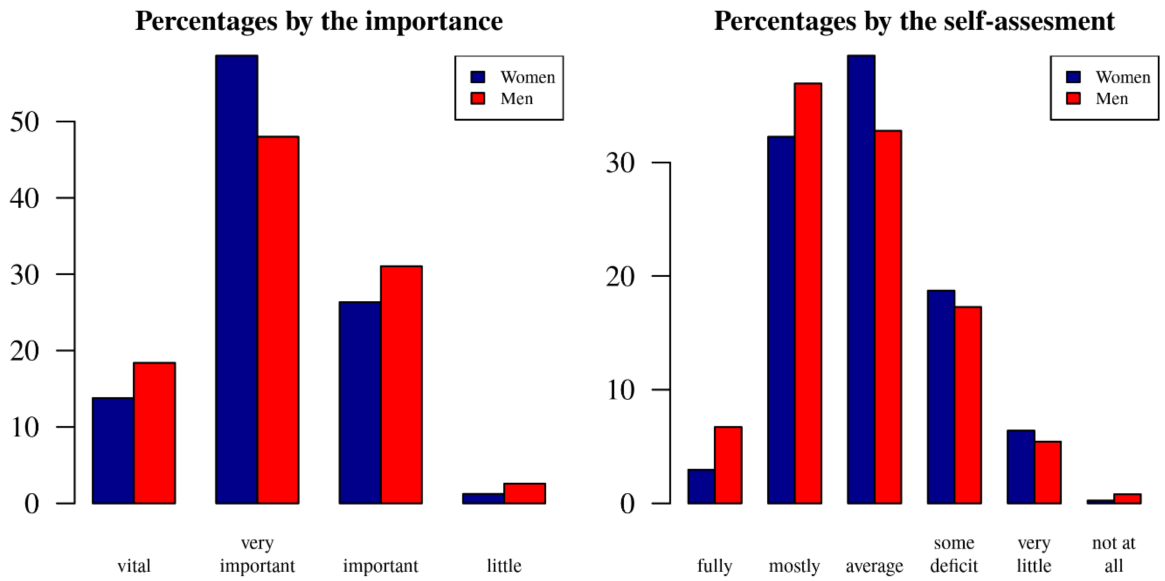
Figure 4 presents comparing the importance perceiving and self-assessment according to the gender. In the left part we can observe, that women perceive very high importance to the financial literacy, while men have tendency underrate it. On the other side, men are more self-confident and how has the research shown, they overestimate their own abilities.

Figure 3: Percentages of the respondents in two age groups according to their personal characteristics.



(Source: Own elaboration)

Figure 4: Percentages of the respondents by the gender according to their personal characteristics.



(Source: Own elaboration)

In the next self-assessment question, the respondents were asked how they would rate their own financial literacy, allowing them to choose from six options – fully financially literate, right decisions usually, average, some deficiency, very little and no literacy at all. Response proportions are illustrated in Figures 1 — 4 on the right. This bar chart shows higher self-confidence among those who study part-time in both study fields. The same is true for the older group of the respondents. When dividing by gender, the higher self-confidence was observed among men, but further research has proven that it is unjustifiably.

Table 2: Numerical characteristics of the performances of the managerial fields of study

Form of study	***Mean***	***St. deviation***	***Median***	***Maximum***	***Minimum***
Full-time	49.7%	19.56%	46.1%	92.3%	0%
Part-time	55.4%	15.69%	65.5%	84.6%	0%

(Source: Own elaboration)

Table 3: Numerical characteristics of the performances of the managerial fields of study

Form of study	***Mean***	***St. deviation***	***Median***	***Maximum***	***Minimum***
Full-time	43.4%	16.99%	46.1%	92.3%	0%
Part-time	48.9%	13.84%	46.1%	76.9%	23.0%

(Source: Own elaboration)

Table 4: Numerical characteristics of the performances by age groups

Form of study	***Mean***	***St. deviation***	***Median***	***Maximum***	***Minimum***
Under 25	46.9%	18.36%	46.1%	92.3%	0%
25 and older	53.6%	16.00%	53.8%	84.6%	0%

(Source: Own elaboration)

Table 5: Numerical characteristics of the performances by gender

Form of study	***Mean***	***St. deviation***	***Median***	***Maximum***	***Minimum***
Women	49.9%	18.65%	53.8%	92.3%	0%
Men	46.9%	17.73%	46.1%	92.3%	0%

(Source: Own elaboration.)

The main objective of our research was to verify the hypothesis that part-time students achieve a higher level of financial literacy than their full-time fellow students and older respondents achieve better results than the younger respondent. It confirms in both cases more practical experience increases the level of financial literacy. We also compared the average levels between women and men. The results of all statistical tests are summarized in Tables 6 — 9.

Table 6: Results of the hypothesis testing about the zero difference between the mean percentages for students of the managerial fields

Form of study	***Mean percentage***	***t-statistics***	***p-value***
Full-time	49.7	-3.49	0.0003
Part-time	55.3		

(Source: Own elaboration)

Table 7: Results of the hypothesis testing about the zero difference between the mean percentages for students of the technical fields

Form of study	***Mean percentage***	***t-statistics***	***p-value***
Full-time	43.4	-3.85	0.003
Part-time	58.9		

(Source: Own elaboration)

Table 8: Results of the hypothesis testing about the zero difference between the mean percentages for two age groups

Age group	***Mean percentage***	***t-statistics***	***p-value***
Under25	46.9	-4.90	$8 \cdot 10^{-7}$
25 and older	53.6		

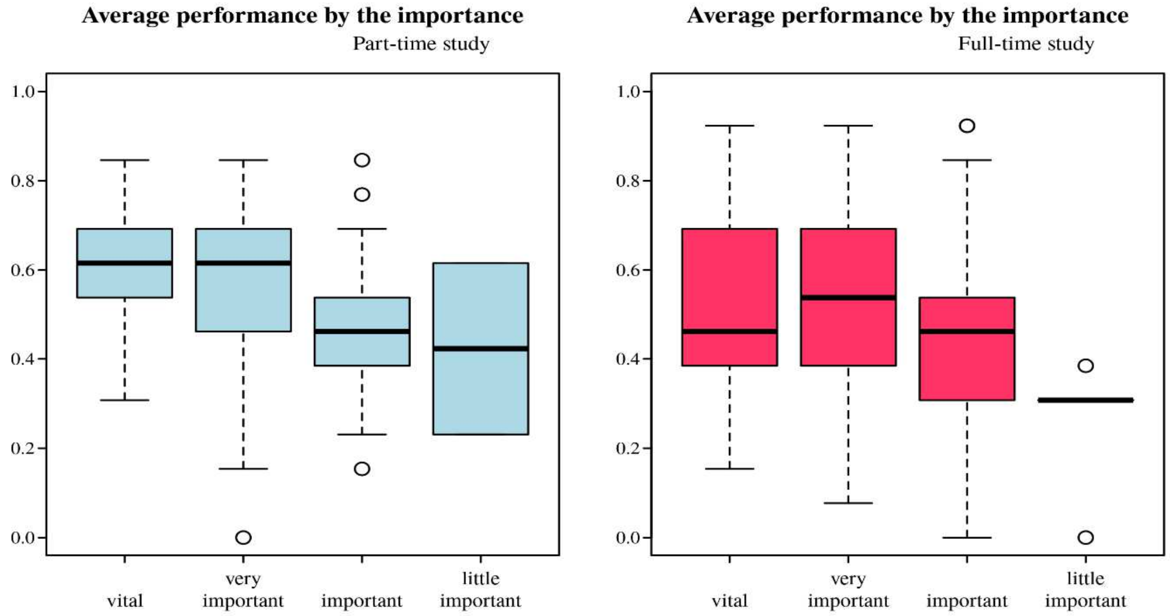
(Source: Own elaboration)

Table 9: Results of the hypothesis testing about the zero difference between the mean percentages for women and men

Gender	***Mean percentage***	***t-statistics***	***p-value***
Women	49.9	2.61	0.004
Men	46.9		

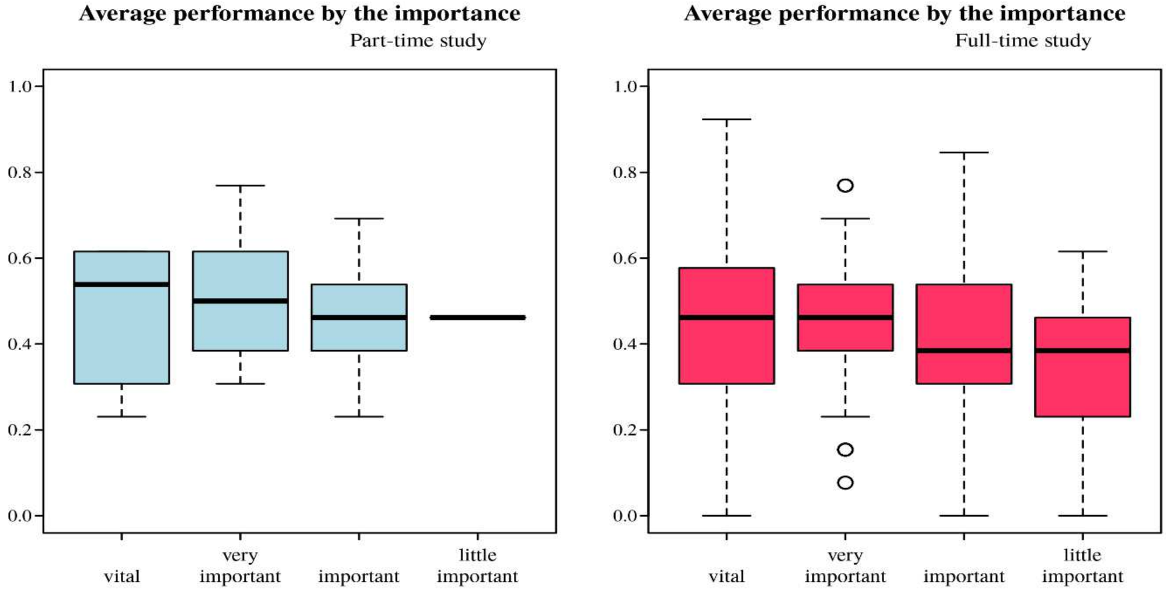
(Source: Own elaboration)

Figure 5: Average percentages according to the importance attached to the financial literacy by students of management.



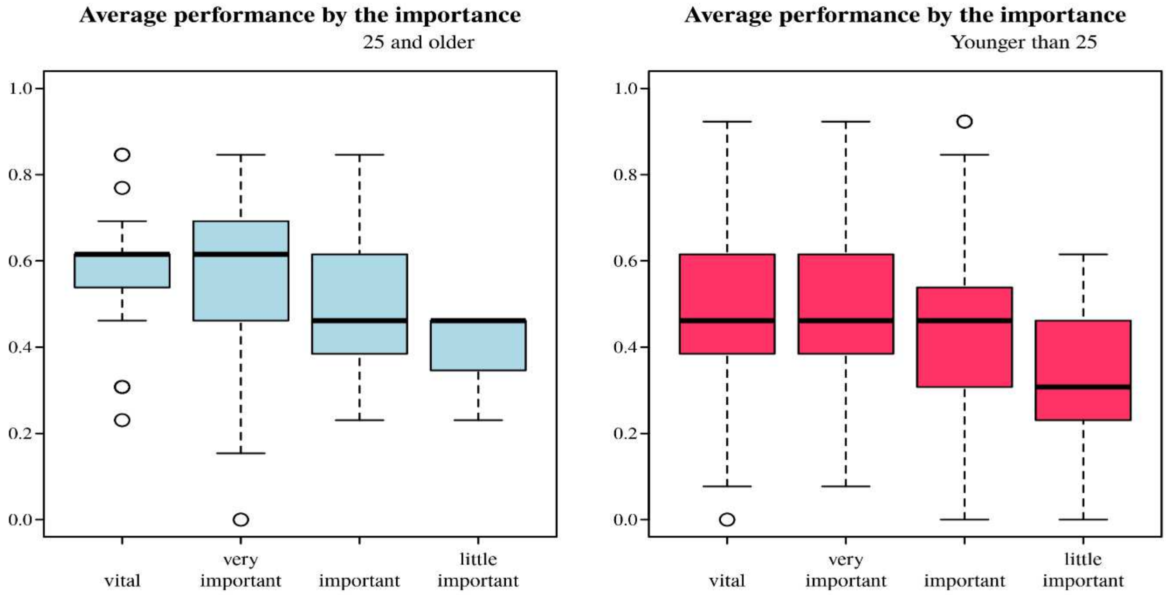
(Source: Own elaboration)

Figure 6: Average percentages according to the importance attached to the financial literacy by students of technical fields



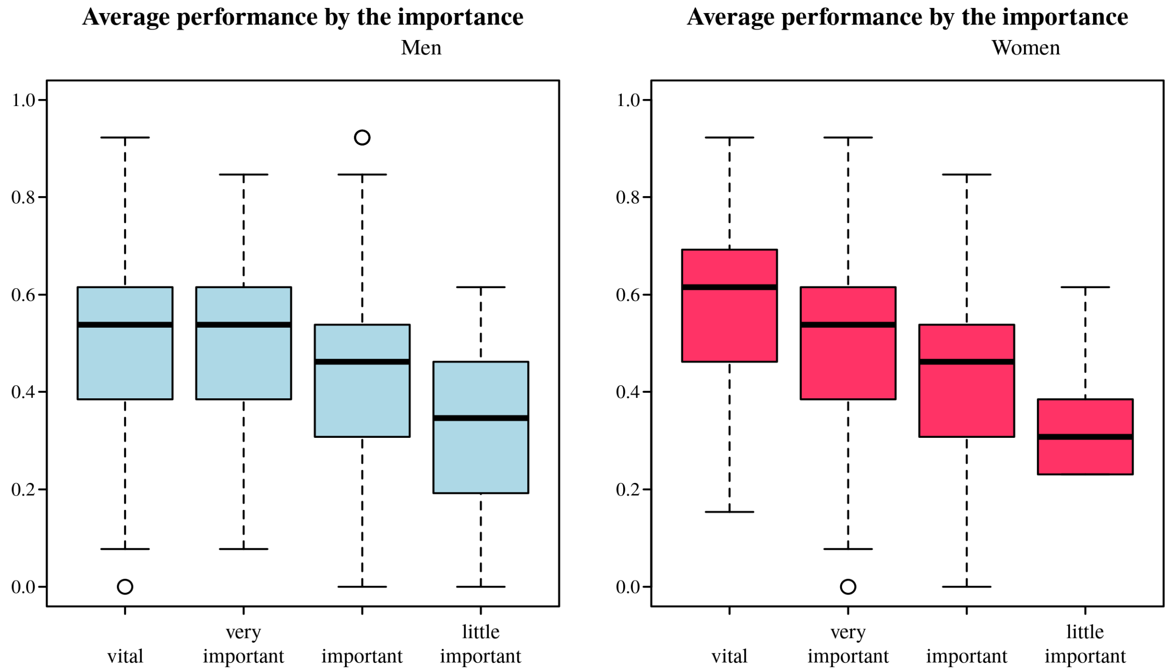
(Source: Own elaboration)

Figure 7: Average percentages according to the importance attached to the financial literacy by different age groups of students



(Source: Own elaboration)

Figure 8: Average percentages according to the importance attached to the financial literacy by gender



(Source: Own elaboration)

An important question of our investigation was to detect if the importance that students attach to financial literacy has significant impact on their ratings. The results are visible on the box plots illustrated on Figures 5 — 8. It is clear that the median of the knowledge score increases depending on the rising level of the importance attributed to financial literacy. This is evident in all cases that arose according to the single criteria.

Table 10: Results of the hypotheses testing

Category	*Criteria*	*Mean percentage*	*t-statistics*	*p-value*
Simple and compound interest	Full-time managers	29.2%	-2.823	0.0026
	Part-time managers	35.1%		
	Full-time technical	23.7%	-3.291	0.0008
	Part-time technical	33.6%		
	Under 25	26.9%	-3.432	0.0007
	25 and older	33.2%		
	Women	28.9%	0.981	0.1635
	Men	27.5%		
Annuities and debt amortization	Full-time managers	64,7%	-5.573	$2\cdot10^{-8}$
	Part-time managers	78.5%		
	Full-time technical	61.2%	-2.4295	0.008
	Part-time technical	69.4%		

	Under 25	63.4%	-6.569	$1\cdot 10^{-15}$
	25 and older	77.2%		
	Women	66.2%	0.312	0.378
	Men	65.6%		
Basics of investing	Full-time managers	46.2%	1.1629	0.8771
	Part-time managers	43.1%		
	Full-time technical	39.2%	0.265	0.604
	Part-time technical	38.3%		
	Under 25	43.2%	0.471	0.681
	25 and older	42.2%		
	Women	45.2%	1.829	0.034
	Men	41.7%		
Financial decision making	Full-time managers	65.6%	-1.965	0.026
	Part-time managers	71.5%		
	Full-time technical	56.0%	-0.847	0.20
	Part-time technical	59.6%		
	Under 25	60.8%	-2.998	0.0015
	25 and older	68.5%		
	Women	66.6%	3.868	$5\cdot 10^{-5}$
	Men	59.2%		

(Source: Own elaboration)

We can proceed with the more detailed analyze by comparing the percent level achieved in each of the four categories. For these purposes, we tested for each category the hypotheses where the difference between the mean performances equals zero. The results of these one side alternative tests are summarized in Table 10. It is easily visible that we can reject these hypotheses about equal mean percentages, all on the confidence level exceeding 99%:

- In the category "Simple and compound interest" for full-time and part-time student in both field and also for younger and older participants,
- In the category "Annuities and debt amortization" as well for full-time and part-time student in both field and also for younger and older participants,
- In the category "Basics of investing" only for women and men,
- In the category "Financial decision making" for the groups of younger and older students and for women and men. For the full-time and part-time students of management we can reject the hypothesis on the confidence level about 98% (which is still very high confidence level).

From Table 10 we also see that all groups attained surprisingly low level of the knowledge rate in the category of the simple and compound interest that seems to be the easiest category of all. The tests have also shown unjustifiable self-confidence of the men in the self-assessment. Women has achieved in all four categories higher knowledge score and moreover, in two cases we can reject the zero hypothesis on the confidence level exceeding 95% in the case of investing and exceeding 99% in the category of financial decision making.

4. CONCLUSIONS

Our research has shown that attaching higher importance to the financial literacy plays crucial role in the increase of the knowledge rate. We have also seen that practical experience of the part-time students and older participants have positive influence on their knowledge rate. These findings are consistent with the results of the oversea study [6]. Full-timers major problem is the reliance they place on short-term memory, focusing on individual exams, unable to see the studied issues proportionally from a long-term perspective as functionally related phenomena. This corresponds to the results presented in two consequential studies [4] and [5] and consists also with findings of [9].

We have also seen that in all groups of students, regardless to the criteria for creating them, the greatest weaknesses are reflected in the very foundations of financial literacy, that is to say, the perception of time as a factor generating value. This message is addressed mainly to pre-university grades of education, since students do not arrive at university as a blank slate, but are expected to have a basic working toolkit of knowledge. The elementary training must cover not just theoretical interpretations and definitions of financial concepts of the type "What is it" but also an understanding of "How does it work".

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JOB SATISFACTION OF EMPLOYEES IN THE HIGHER EDUCATION

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Abstract: *The higher education is an important factor of the development of each society. The success of the higher education significantly depends on the job satisfaction of the teachers working there. The cognitive, affective and behavioral reaction of employees – teachers in higher education influences their educational and research work and therefore the success of their students, institutions and society as a whole. The aim of the human resource management (HRM) activities is to achieve the organization's strategic objectives and the satisfaction of its employees in the same time. The role of HRM in the higher education is to implement adequate techniques for the recruitment and selection of candidates, for the training and development of employees and to design compensation system regarding internal and external equity in order to increase employee satisfaction. The aim of this paper is to present the main causes of employee satisfaction of teachers in higher education and effective measures and HRM techniques to increase the job satisfaction of employees in higher education – based on literature review.*

Keywords: *job satisfaction, higher education, staffing, training and development, compensation system*

1. INTRODUCTION

The education sector of any country has very important role in the society, especially in the creation of knowledge. The transfer of knowledge is performed mostly in higher education institutions. In each social system we have two types of higher education institutions, state and private. (Bodla et al, 2014)

Academic staff plays a key role in determining the success, vision and mission of the higher education institution. High quality academic staff is the source of successful education system. (Stanovska et al, 2017) Academic staff represents the value of the country and the builders of the nation. (Khan et al, 2014)

Academic staff is a key resource in the higher education sector, and have key role in the implementation of the goals of higher education institution. The performance of academic staff is determined by the success of their students and has got impact on students learning. (de Louders Machado et al, 2011)

The quality of higher education does not include only the quality of processes and functions, but also the quality of all employees - teaching and administrative staff. Today, like never

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before, teaching staff have to be able to recognize what needs should be changed and applied in their work, in interest of adapt to new trends in education. (Wisniewska, Grodowski, 2016) The current trend in education is to offer higher level service, in order to meet the demands of students (users of education service). (Wu et al, 2014)

The Bologna process represents a new era in the development of education system and contributes to the harmonization of similar systems in different countries all over the world, through qualification frame, European Credit Transfer System and diploma supplement. The main focus is on the introduction of the system that has got:

- three levels of education (graduate, master and PhD studies);
- higher level of teaching quality;
- easier recognition of acquired qualification; and
- acceptable study time. (Wisniewska, Grudowki, 2016)

Today, 46 counties have accepted participation in Bologna process, recommendations of European Cultural Convection (ECC) and the goals of European Higher Education Area (EHEA).

On 2005th year, in the Republic of Serbia, the application of Bologna Declaration officially launched with in that moment new Law of education and forming (ex) Commission of Accreditation. On 2017th year, the newest Law of education has anticipated the establishment of National Accreditation Body, which officially began to work in May 2018th.

In the year 2012th, the Government of Republic Serbia voted for the Action plan for implementing the Development education strategy 2020, with which it defined education system so that “should provide the basic foundation of life and development of each individual, society and state based on knowledge”.

2. THE BASIC CONCEPT OF EMPLOYEES SATISFACTION

Job satisfaction is an attitude, which manifests at the place of work, as individual behavior of the employee and could have an impact on the organization and organizational behavior. Job satisfaction encourages employees to increase their performance, commitment to the organization, reduce absenteeism and increase interest for profession. It is equally important in private and public sector, in developed and developing countries. (Khan et al, 2014)

In the discipline of organizational behavior, the most interesting attitude towards work is job satisfaction. Like other attitudes, job satisfaction has three basic components: the *cognitive* component contains what a person believes to know about subject of attitude, the *evaluation* component refers to how much somebody love or do not love anything (or anybody), and the *behavioral* component contains a certain predisposition to act in certain direction. Job satisfaction could be viewed as a general attitude towards work, or satisfaction with 5 (five) specific dimension, like as: salary, work as such, promotion opportunity, superior and associates. (Zimanji, Šušnjar, 2007)

Job satisfaction has always been interesting for research, due to its close connection with the employee`s performance, and organizational commitment. (Bodla et al, 2014)

Job satisfaction is multidimensional attitude, because it includes internal qualities (ability, achievement, progress, compensation, cooperation, creativity, independence, ethical values, status and working conditions) and external qualities (authority, policies and practice, recognition, responsibility, security and diversity). (Wang, Lee, 2009) Job satisfaction can also be the result of two variables: demographic (age, gender, education level) and work environment, and it could be defined as an emotional, evaluative and cognitive response of an individual on his/her work. (Khan et al, 2014)

Some researches investigate on the factors that affect satisfaction or dissatisfaction with the organization, and examine the impact of human resource practice on job satisfaction. For example, student behavior is related to the satisfaction of teacher, during classes.

Individual performance is based on opportunities, motivation and organization support, while personal characteristic of teachers (gender, age, work experience and education) could be in correlation with job satisfaction. According to research results (Saiti & Papadopoulos, 2014):

- The age of teaching staff is in correlation with job satisfaction, older staff are more satisfied with goals and workload, while younger staff are more satisfied with salary;
- Low level of job satisfaction is caused by salary and the possibility of personal promotion, while the higher level of job satisfaction is caused by “nature of the job”; and
- The role of leading teacher and working climate are key factors that affect job satisfaction. (adapted by: Saiti & Papadopoulos, 2014)

In 1985th year, author Paul Spector in his research found correlation between job satisfaction, salary, age of employees and level of organizational performance. (Spector, 1985; Khan et al, 2014)

Job satisfaction is in correlation with numerous aspects of organizational performance, like as: crafts; efficiency and productivity; the relation between employees at the workplace; decision about retire; social responsibility and organizational behavior; “roughness” at the workplace; leadership and personal characteristics. (Saiti & Papadopoulos, 2014)

3. THE CAUSES OF SATISFACTION OF EMPLOYEES IN HIGHER EDUCATION

Job satisfaction represents an emotional response to the current situation on the workplace, with which an employee is faced. Job satisfaction is a perception of an employee between what he/she wants from the job and what the job realistically provides. (Stanovska et al, 2017)

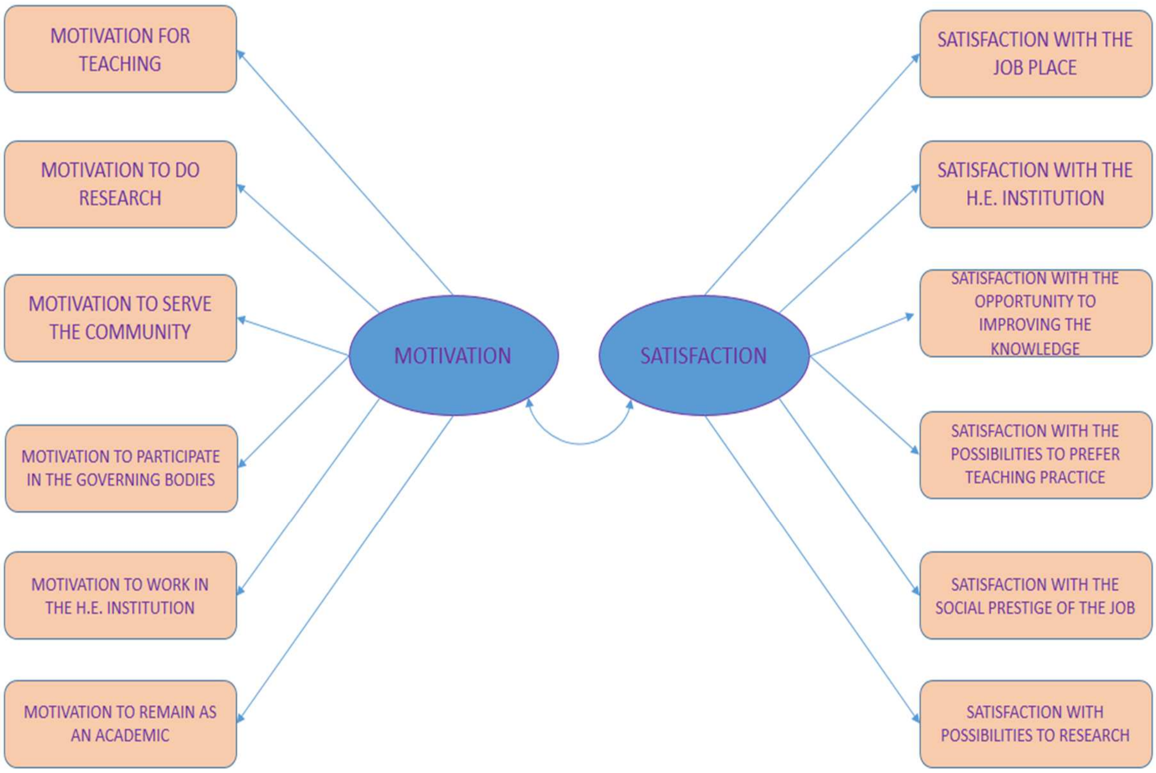
Job satisfaction and motivation of academic staff have got an important role in the quality of education institution and the improvement of students` learning (Stanovska et al, 2017) which are representing future workforce in different areas. (Khalid et al, 2012)

Competitiveness in the education sector depends of that how satisfied the employees with their job, or how they are “involved” and dedicated in the job. How to attract and retain academic staff, especially talent, and managing their performance is the main task of strategic human resource management. (Van den Brink et al, 2013)

Motivation and satisfaction of employees become the basis of modern human resource management, because only an adequate motivation system could help organizations to increase their competitiveness and value. (Early et al, 2011)

Motivation and satisfaction of academic staff is crucial for their performance and for the quality of higher education institution. (de Louders Machado et al, 2011) We can see on Figure 1, that *motivation* can be expressed, like a desire for: lecture; research; making to environment; participation in commitments; work in education; and sense of belonging to academic staff. Satisfaction can be expressed as *satisfaction* with: workplace; higher education institution; the ability to practice teaching; possibilities to practice teaching like academic staff; prestige that brings the teachers` position; and possibility for research work.

Figure 1: Motivation and job satisfaction of academic staff in higher education (adopted from: de Louders Machado et al, 2011)



The influence on job satisfaction has got climate of area or country, where the research on employee satisfaction is done. Factors that always will be taken are: workplace maintenance, relationship with associates and working environment. (Luthans, 2005; Stankovska et al, 2017)

Many different factors could have influence on job satisfaction of academic staff and it depends on the area of the research. In some less developed countries, the main causes of job satisfaction may be: regularly incomes, job security and place in society. On the other side, in some developed countries where incomes in all sectors are regular, the main antecedents of job satisfaction of academic staff can be their personal desire for that kind of job, personal promotion and desire for that kind of promotion.

4. HRM ACTIVITIES AIMING TO INCREASE THE SATISFACTION OF EMPLOYEES IN HIGHER EDUCATION

There are only a few researches focusing the job satisfaction and factors related to satisfaction or dissatisfaction in an organization, and that examine the effects of different human resource practices on satisfaction. Even though, job satisfaction may be increased by various factors, such as compensation, relationship with colleagues and working environment. (Khan et al, 2014)

Academic teaching staff should have certain characteristics, in order to perform its task with quality and achieve more performance. The recommendation is to keep teaching on an interesting and innovative way; to use various innovative techniques during classes and in communicating with students; to be objective; to have tolerance; to work in a “relaxed” atmosphere but to have control; to love working with students; to have knowledge and adequate scientific title; to have ability to learn; to have authority and charisma; to have contacts with business entities; to be dedicated; to conscientiously perform his/her work with respect of ethical principles; to be motivated; if have flexible time to be “just in time”; and to be creative. (Wisniewska, Grudowki, 2016)

Human resource management (HRM) activities: staffing, training and career development, and compensation can have positive or negative influence on job satisfaction. In the following a brief overview the research results of different authors on the influence of HRM activities on job satisfaction will be presented.

The research results on the job satisfaction of academic staff at private and state universities in Portugal are the following:

- satisfaction with the job, (6.7)
- satisfaction with the institution, (5.7)
- satisfied with the chance to improving the knowledge, (5.8)
- satisfied with the adequate skills of teaching practice, (7.0)
- satisfied with reputation in society, carried by teachers` profession, (6.3)
- satisfied with teaching activities, (6.7) and
- satisfied with possibilities to research. (5.5). (de Louders Machado et al, 2011)

Based on the results (which have given in brackets), authors concluded – that if the level of job satisfaction of academic staff is higher, the possibility for achieving higher performance is higher, as well as more quality work with the students.

Some authors point out different studies on human resource management practice, where focus is on the environment that promotes quality and cost reduction, focused on: innovation, recruitment skills and labor policy, performance measurement and market enhancement. Some previous researches classified human resource practices on internal and external. Internal represents internal skills, and external is focused on strategic integration. (Abdullah et al, 2009; Khan et al, 2014) External factors are training and development, team work, job security, productivity and flexibility of the organization, and these represent relationship between high performance and human resource practice. In the same studies, compensation is the next factor of human resource practice. There is an inseparable connection between compensation and job satisfaction.

At federal Urdu University of Science and Technology, Islamabad, Pakistan, a study was conducted about the impact of human resource management practice (compensation, staff training and monitoring of staff) on job satisfaction and impact on work quality and performance. *Career planning* has strong significance on the HRM practice. It proved that an employee, who actively participates in the selection of the development of his/her further career, later has got higher level of job satisfaction. The results indicate that *compensation* as human resource activity has a positive relationship with job satisfaction. Monitoring, empowerment and work placer are important for *retention* of academic staff at faculties. This could be implemented at higher education institutions, because an adequate rewarding strategy can contribute to increasing the overall performance of employees and education institution, which further fosters a good relationship between employee and work place. (Khan et al, 2014)

At one faculty in Republic of Serbia, in a research on the level of employees` satisfaction in higher education and the influence of different factors on job satisfaction (Popovic et al, 2015), authors used their Job Satisfaction Questionnaire. One of the questions asked: Is the job you are doing for you? The answer provided: a) material existence, b) providing professional preferences and interests, and c) both. The majority of respondents (78%) work both for material existence and for realization of professional preferences and interest. The results show that employees are the most satisfied with working hours, but consider that the reward system does not stimulate dedication and creativity of employees. In regards of development opportunity (career development), employees have the view that they are approximately satisfied. *Compensation* is the most disadvantageous for the employees regardless of their professional qualification, title and years of life and work (in this case, we should take the factor that national standard is very low in the Republic Serbia, and because that compensation like human resource activity has got negative impact on job satisfaction). The employees in higher education institutions work under good working conditions and environment. The need for personal affirmation and training emphases is in interest to progress at work and on that way contributes to improving performance of faculty. This is why *career development* as a HRM activity has got positive impact on job satisfaction.

Authors Nandan and Krishna present the model, where job satisfaction is the sum of the functions of the influence of the regression coefficient and factors of motivation, self-employment work, labor relation, policy and procedure, payment and benefits, personal development, stress, conflict strategy, teacher performance, researcher performance, strength and opportunity, weaknesses and threads, and statistical error. Authors found that only stress, weaknesses and threads had a negative impact on job satisfaction. Further analysis, indicates that the business position and demographic characteristics of academic staff – like *staff* have impact on job satisfaction, because the level of job satisfaction of academic staff with PhD degree is higher, than for academic staff without PhD degree. Job satisfaction is higher for academic staff that has higher title on workplace, it means that full time professors have got higher level of job satisfaction than part time professors, and part time professors have got higher level of job satisfaction than associate professors and assistants. Job satisfaction depends on age, too, as younger academic staff (less than 45 year old) are more motivated for teaching and researching, and have higher level of job satisfaction. Older academic staff (more than 45 year old) spend more time with family and for other duties, and that could decrease their level of job satisfaction. The results of this study also present that academic teaching staff with lower work experience (till 10 years) have got greater motivation for teaching and researching to provide and *develop* their *career*, because that it’s possible to conclude that job satisfaction is on higher level for employees with less work experience. Stress can negatively affect job satisfaction and it is more present as the factor for employees with more year of work experience. The effect of *compensation* on job satisfaction manifests in performance evaluation practice, as is if evaluation of performance is better, the job satisfaction is higher. (Nandan, Krishna, 2013)

Human resource management policy has direct positive effect on work result and organizational performance. Results are related to competences, cooperation with management, cooperation between employees, motivation, satisfaction, commitment and retention of staff. Training and development are increasing skills and competencies of employees, but satisfaction is increasing through training at workplace. *Training and development* activities minimize the gap between real and desired performances. In their research, authors analyzed relationship of human resource management activities, training and development and compensation, with job satisfaction. Result represents that *training and development*, and *compensation*, like HRM activities have got positive impact on job satisfaction. The coefficient of determination indicates that increasing of training and development in only 1%, results with increasing of job satisfaction in 17%. Assessment of the performance, has significantly related with the job satisfaction. Recommendation is that promotion, incentive and honor should be based on performance evaluation results, because fair compensation system (salary, benefits) could significantly increase job satisfaction. (Bodla et al, 2014)

At State University of Skopje, Stankovska et al (2017) used JSS (Spector, 1985) questionnaire to measure job satisfaction. The questionnaire consists of 36 items, and 9 of them (salary, promotion, supervision, benefits, rewards, procedure, associates, nature of job, and communication on workplace) are related to the assessment of employees` attitude about job. The results indicate that academic teaching staff is satisfactory with their own work. The most satisfied are full time professors and the least satisfied are assistants. Academic staff is satisfied with their salary and possibility of promotion, but they are not satisfied with rewarding and communication. The study showed that the staff is highly motivated and that motivation has a direct impact on job satisfaction.

Authors conclude that the main determinate of job satisfaction is *compensation* (payment). In the Republic of Serbia, the professional characteristics of academic teaching ***staff*** is regulated by Law of higher education from 2017th years (articles 74-87), while the procedure for recruitment and selection of candidates is regulated by Labor Law and some sub-legal acts of higher education institution. Very often, the ***training and career development*** are limited by financial resources of the higher education institution. In the state owned higher education institutions, the ***compensation*** (salary and benefits) is limited to the budget of the Republic of Serbia. The only possibility for extra funds is from the institutions own income, but allocation of that financial resources depends of management policy.

5. CONCLUSION

The educational sector of any country has a unique significance, especially in creation of knowledge. The competitiveness of the educational sector depends of the satisfaction of employees and their commitment.

The main strategic question of human resource management is: How to attract and retain quality teaching staff?

The academic staff is more satisfied with their work environment, if their colleagues respect their research work.

Management of higher education institutions should put accent on the impact assessment on which promotion, incentives, acknowledgement and appreciation of employees could be based. It should be noted that various bonus packages increase the satisfaction of employee.

Adequately designed human resource management practice is very important for job satisfaction of academic teaching staff, regardless of is it in private or state ownership.

Such as presented in the paper, and based on researches of various authors, we can conclude that human resource management activities have a significant impact on the satisfaction on academic staff. One of the important factors related to the job is the position that employees have in higher education institution. In the *process of recruitment and selection of academic staff*, rules and procedures for advertising vacant position and selection of candidate, which are regulated by the Law in the Republic of Serbia have an important role. Employees who have the possibility of adequate *training* and active participation in the selection of their further *career development* possibilities, have got higher level of job satisfaction. The internal and external equity of the *compensation* system has a positive impact on job satisfaction, which with additional benefits could be a requirement for retaining academic staff at higher education institutions.

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DEVELOPMENT OF STEM COMPETENCES THROUGH COOPERATION BETWEEN SECONDARY AND TERTIARY EDUCATION LEVEL; EVIDENCES FROM BROD-POSAVINA COUNTY

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Abstract: *European Union today represents technologically advanced, yet dependant society, facing many social and economic challenges. It is therefore essential for the citizens of EU to develop, from the earliest age, transversal and basic skills in the STEM field (STEM-Science, Technology, Engineering, Mathematics), also recognized in the European Commission's paper on education. Although, knowledge and competencies in STEM field are increasingly important component of the set of skills needed in today's economy of knowledge, still, in the most of the EU countries, interest for the STEM field is decreasing. As a direct result, there is also decreased interest of students for STEM oriented studies and carrier in the STEM field, which represents threat to the competitiveness of the EU economy on the global scene. It is considered that, until 2020. there will be lack of more than 800.000 technological experts, and even on the lower positions, increased level of STEM competences, will be essential. Therefore, this issue is extremely important for the future of EU.*
Current educational plans and programmes are often outdated, focused on reproduction instead on learning outcomes and students. Practice shows that educational programmes and teaching methods, as well as technical conditions, are not following technological development or modern society needs. Teachers are often oriented to the transmission of large quantity of information without concrete application, innovation, creativity or freedom of expression, which leads to the lack of development of social skills and expression of student's own attitudes. PISA results show that Croatian's 15-year old are falling significantly behind their peers in the world, clearly proving negative impact of such a practice to the students' results.
Project „STEM geniuses“, funded by European Social Fund, is developed as a tool in the process of finding the solution to the detected problems. Starting point was encouragement to the stronger cooperation of high-school institutions with Faculty, Scientific institute and Scientific-technological Park, introduction to the best EU practice and education of teachers in the field of modern, student-oriented educational methods. Capacity building of teachers of both Gymnasiums in the field of application of didactical-methodical systems allowed more creativity and autonomy in the selection of learning content and methods with adequate equipment, as well as clearly defined standards and evaluation criteria focused on learning outcomes. In addition, students, parents and the public have raised awareness of the importance of STEM competences for future competitiveness in the labor market.
As a precondition for implementation of new learning contents, innovative curricula were developed focused on competences in the field of STEM and ICT and, in order to assure its successful implementation in the educational system of Gymnasiums, teachers increased competencies while the facilities were equipped with modern equipment. Students, parents and general public were informed about significance of STEM competencies and entrepreneurship

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was introduced as an innovative element and one of the basic components necessary for successful life and learning in the modern society.

Keywords: *STEM competencies, Secondary education, Tertiary education, Brod-Posavina County*

1. INTRODUCTION

Latest economy crisis in year 2008 revealed numerous structural flaws of European economy and, as an imperative, set out the need for strategy that will enable European Union to create smart, sustainable and inclusive economy with high rates of employment, productivity and social cohesion. The most important EU strategic document, Europe 2020, brings the vision of social market economy for 21st century, based on 3 priorities:

1) Smart growth: developing an economy based on knowledge and innovation (promoting knowledge, innovation, education and a digital society)
2) Sustainable growth: promoting a low carbon, resource efficient and competitive economy (making our production more resource efficient while increasing competitiveness)
3) Growth for all: stimulating an economy with high employment and social and territorial cohesion (increasing labour force participation, improving skills and reinforcing the fight against poverty) [1]

In order to achieve smart, sustainable and inclusive growth on the EU level, member states need to act in synergy on their national levels. It can be obtained through implementation of priorities and objectives from EU 2020 into national strategies and objectives.

STEM related competences today represent the most important segment of skills in economy of knowledge. Nevertheless, in most of EU countries interest and achievements in STEM field are decreasing, which puts great risk on realization of EU 2020 objectives and priorities. Having in mind the fact that in world economies, which represent main competitors to the EU economy, there is a trend of growing number of STEM related experts, it is clear why there is concern regarding increase in a gap between demand and supply of qualified STEM related experts in European Union.

In order to deliver priorities and objectives set out in EU 2020 Strategy, European Commission presented initiatives within each priority topic and elaborated activities on EU level and on the level of individual member states. To that aim, initiative „Innovation Union“ foresees that all member states will need to ensure a sufficient supply of science, math and engineering graduates and to orient school curricula on creativity, innovation, and entrepreneurship, i.e. to STEM field.

One of the instruments for implementation of aforementioned initiatives are European Funds, especially European Social Fund which aims, among other things, to enhance educational and lifelong learning sectors as well as to improve human resources and create preconditions for stronger and more competitive economy.

This article presents cooperation of secondary and tertiary education level during the implementation of project „STEM geniuses“, funded by European Social Fund. Project was implemented during 2015 and 2016 by Gymnasium Matija Mesić in Slavonski Brod in partnership with Gymnasium Nova Gradiška and Mechanical Engineering Faculty in Slavonski Brod.

2. ANALYSIS OF EDUCATION SYSTEM IN CROATIA WITH EMPHASIS ON STEM FIELDS

When comparing Croatian education system with education systems in Organization for Economic Cooperation and Development (OECD) member states whose students achieve highest results on international competitions of knowledge and skills, we can say that Croatian system is highly centralized and traditional with rigid structure of subjects and time schedules. Gymnasiums are no exception to that, with organizational structure and curricula that have been unaltered since the mid 1990’s. Existing learning plans and programmes are often obsolete and focused on the reproduction of learning contest instead of learning outcomes, i.e. student himself. In the classroom it has also been evident for a long time that teaching methods in existing learning programmes are outdated and do not follow modern trends in technology or needs of modern society.

Teacher's work is mostly focused on transfer of large quantity of information which does not allow teachers the freedom to apply their knowledge, creativity and innovation consequence of which is lack of development of social skills, expression of statements and opinions of students. Such practice reflects largely to the students' success, as show the results of PISA research according to which Croatian 15 years old significantly fall behind their peers in international context. [2] Similar situation occurs with state final exam for high-school graduates where gymnasium students choose basic exam level, although, they are expected to take higher level in order to be able to enroll to universities of their choice. As for younger students, results in the field of mathematics and natural science also reveal generally low results comparing to international averages. In the field of higher education, during the academic year 2011/2012, out of total number of enrolled students (49.016) only 19.794 have enrolled in STEM related studies. During the next academic year, only 10.034 students fulfilled the criteria for advancing to the second year, which means that 41% of students did not passed all exams related to the key STEM and ICT fields during the previous year. [3]

3. SITUATION ANALYSIS IN BROD-POSAVINA COUNTY

In school year 2012/2013, only 30% of students in Gymnasium Matija Mesić Slavonski Brod have enrolled in one of STEM studies [4], out of which most have enrolled in Mechanical Engineering Faculty in Slavonski Brod. Also, monitoring of success of former students of Gymnasium on faculty also shows problems with progressing to the next academic year. Some of the reasons, i.e. **SPECIFIC PROBLEMS** are **outdated learning programmes** oriented on context and not on student; **lack of laboratories** equipped with modern high-tech equipment; **teachers lacking permanent vocational training** for application of modern didactic and methodical systems and for creation of standards/criterion for validation of learning outcomes, but also **lack of systematic promotion of STEM competencies and sensibilisation** of students, parents and public regarding **competitive advantages** of STEM experts on the labour market already, but especially in the future. This is specifically important for Brod-Posavina County which is one of the 4 counties with **highest unemployment rates** in Republic of Croatia (**29,1%** 12/2014). [5]

4. EU FUNDS IN SERVICE OF STEM KNOWLEDGE AND COMPETENCES

European Social Fund (ESF) is one of the main instruments of European Union for implementation of measures for enhancement of human capital and participation on labour market. It is achieved through the reform of education system aimed at increase of employability of participants in the labour market, relevance and quality of initial vocational education and higher education, as well as at permanent improvement of workers' competencies in order to create innovative knowledge-based economy. Furthermore, ESF is oriented toward implementation of measures related to the networking of higher education institutions, scientific organizations and companies with goal to develop human capital in science and research.

Call for proposals „Promotion of quality and improvement of education system on high-school level“ was implemented within Priority 3 Enhancing of human capital in education, research and development. General objective of the Call was *„implementation of education system that allows acquisition of competences, knowledge and attitudes needed for successful living and learning in the modern society“. [6]*

Specific objective of the Call was *„establishing programme, personnel and material preconditions in gymnasiums in order to allow students to gain additional competencies in the field of mathematics, natural science and information-communication technologies“*. Target groups of the Call were students and teachers in gymnasium programmes, principals and expert assistants in gymnasiums.

5. PROJECT „STEM GENIUSES“ – FRAMEWORK FOR COOPERATION BETWEEN SECONDARY AND TERTIARY EDUCATION LEVEL

Project „STEM geniuses“ established cooperation between secondary and tertiary education sector in order to enhance STEM competencies of students and to foster them to the STEM related career. Partners in project were representatives of secondary sector (Gymnasium Matija Mesić Slavonski Brod and Gymnasium Nova Gradiška) and representatives of tertiary sector (Mechanical Engineering Faculty in Slavonski Brod).

Project set out general and specific objectives and their relevance in relation to the Call and needs of the target area as well as their conformity to the strategic documents of higher level. Duration of the project was 12 months and following activities were conducted:

1. Enhancing teachers’ competencies for preparation and implementation of curricula
2. Development of facultative curricula in the STEM and ICT fields
3. Improvement of material capacities for implementation of newly developed curricula
4. Dissemination of newly developed curricula and promotion of STEM competencies
5. Promotion and visibility
6. Project management and administration

Target groups within this project were teachers (61) and students (55) in both gymnasiums, principals (2) and professors of Mechanical Engineering Faculty in Slavonski Brod (4). [7]

Students of Gymnasium Matija Mesić Slavonski Brod and Gymnasium Nova Gradiška less likely choose STEM studies for 2 reasons – one reason is because they are not informed of possibilities and advantages of STEM career, and second reason is because they don't have sufficient competencies in STEM fields. Furthermore, those students which enroll to the STEM faculties, don't achieve expected results because their STEM competencies are not aligned with higher education requirements, which makes difficult for them to progress to higher academic year and to obtain diploma which would increase their competitiveness on the labour market. Reason for that lies in outdated gymnasium curricula and in the lack of modern equipment in schools, that would allow conduction of various experiments that serve to stimulate independent thinking and conclusion. Competitiveness of gymnasium students on labour market is especially low because their high-school certificate is not valid until they pass final state exam. Additional specialization in STEM, ICT field and work on modern equipment and technology motivates students to continue with their education in STEM field and support their progress to the next academic year, which increases their employability and competitiveness on the labour market.

Teachers in the STEM field lack education for application and usage of new technologies and innovative methods of teaching because school does not provide opportunity for additional improvement of their knowledge and competences that later can be transferred to their students. Through the project „STEM geniuses“ they were given the chance to enhance general and pedagogical capacities and to contribute to attractiveness of not only STEM and ICT field, but also attractiveness of gymnasium programme and their institutions.

5.1. RELEVANCE OF THE PROJECT TO THE SPECIFIC SECTORS IN TARGET GEOGRAPHICAL AREA

Implementation of project „STEM geniuses“ tackles growing problems in several areas:
Knowledge based economy in which there is a growing need for STEM related experts which can answer the challenges of fast changes and need to follow world's trends in technology. In larger region of Brod-Posavina County there is a strong tradition of industrial production which still exist, despite of economy crisis;

Gymnasium education programme needs changes through innovation of teaching plans and programmes, training of teachers, introduction of innovative methods and processes in teaching programme. Poor economic situation in Brod-Posavina County is followed by extremely low rate of investment in material and technical capacities of educational institutions which results in lack of equipment in schools, especially equipment needed to follow-up latest scientific and technological achievements, and slow progress of education quality level. Consequence of this is decrease of students’ competitiveness for further education as well as for labour market;

Progression to the higher education is essential for gymnasium students, because their competitiveness on the labour market is extremely low if they don't continue with their education. Improvement of progression is achieved through the cooperation with Mechanical Engineering Faculty in Slavonski Brod (MEF) during the preparation of STEM curricula;
Youth represent especially vulnerable category with exceptional risk of long-lasting unemployment. Project „STEM geniuses“ contributed to the increase of employability of young people in Brod-Posavina County which is very high on the list of youth unemployment.

5.2. COMPLIANCE WITH STRATEGIC DOCUMENT

In order to achieve synergy with other initiatives and projects aimed at enhancement of education sector, project „STEM geniuses“ is complied with higher strategic documents such as: Operational Programme Human Resources Development 2007-2013 [8]; Strategic plan of

Ministry of Science and Education 2014-2016 [9]; Strategy of Education, Science and Technology [10]; Law on education in elementary and secondary schools [11]; Development Strategy of Brod-Posavina County 2011-2013 [12]; Human Resources Development Strategy of Brod-Posavina County 2011-2013 [13]; Strategic framework for European cooperation in education and training [14]; EU 2020 - Education [15]

5.3. RESULTS OF PROJECT „STEM GENIUSES“

In order to establish programme, personnel and material preconditions that will allow students to gain additional competences in the STEM field, 5 facultative STEM related curricula were prepared and material and human capacities were improved in both gymnasiums. E-learning portal and digital content, as well as education of teachers for usage of digital content in implementation of curricula supported improvement of ICT competences and implementation of Open Educational Resource (OER). All that contributes to the enhancement of quality of education process and improve access to the education to all students under the same conditions as well as free access to education material, their multiple usage, exchange and distribution.

Cooperation with faculty, scientific institute and scientific-technological park, introduction to the best EU practice and education of teachers about newest student-focused education methods contributed to the enhancement of teachers' capacities in both gymnasiums for application of didactical-methodical systems that allows more creativity and autonomy of teachers in selection of content, methods and form of work with adequate equipment, as well as precise examination standards and criteria for learning outcomes. Besides, students, parents and public are sensibilised for the importance of STEM competences in terms of competitiveness on the labour market. Project introduced entrepreneurship as innovative element and one of the basic competences for successful living and learning in modern society. [7]

6. CONCLUSION

Despite different national practices in EU member states, what they have in common is effort to increase number of students in STEM related studies. To that end, numerous initiatives have been started in order to promote positive image of science, to raise awareness of importance of science for the economy, to increase interest of students for science and to improve gender balance in the STEM field. Change in the attitude of young people towards science is long-term and demanding project, which real effects will be seen in the future.
Brod-Posavina County analyzed the situation in the education field and detected problems and needs related to the lack of STEM experts, and decided to make use of EU funds in order to contribute to the solution of detected problems.

Implementation of project „STEM geniuses“ additionally enhanced cooperation between secondary and tertiary education level which resulted in better preparedness of students for faculty programmes and better progression to the next academic year. Additional value was accomplished by connecting the primary and secondary education level through promotion of STEM occupations in primary schools and motivation of primary school students to enroll in gymnasium programmes.

Having in mind that the project's effects are expected to be seen over a longer period of time, it is necessary to monitor enrolment rate to the STEM faculty programmes as well as progression to the next academic year. Depending on the findings, it is necessary to make additional efforts in promotion of science, equipping schools and faculties with modern equipment and enhancing teachers' and professors' capacities for application and usage of modern teaching methods.

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EDUCATION FOR ENTREPRENEURSHIP IN SERBIAN ACADEMIC ENVIRONMENT: CHALLENGES FOR LIBRARIES

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Abstract: *Profit oriented economy needs experts who would be able to contribute to the development. Learning for entrepreneurship is senseless if adequate plans and programmes were not previously created in order to educate students for the Entrepreneurial Age. An academic librarianship should follow contemporary tendencies in the world economy and tend to meet its users expectations. Students are the most numerous among them.*

This paper concentrates on the problems and collections of Serbian academic librarianship with the aim to show how much contemporary economic thought is being followed for the needs of users. It is had in mind that the economic thought makes strong influence on creating knowledge of future entrepreneurs. The theoretical framework of this paper is a library-information one. The method used in it is of an empirical-statistical nature.

The subject cataloguing and classification of the economic materials are being realized under more favorable technical conditions than earlier when we talk on the academic librarianship of Serbia. Professional personnel carry out subject cataloguing and classification of monographies and articles in the academic libraries of Serbia. That staff combines its mother tongue with the professional terminology contributing to the enrichment of library users' vocabulary, particularly if we know that they retrieve the e-catalogues regularly. It is through using professional e-resources that libraries promote their own work as well as the work of every single student, researcher or professor who is also a library user. Libraries were in the very core of the Information Society and they will stay in it if they will keep tending to get closer to their users needs.

The digitization of library materials goes on in accordance with normative acts of the competent libraries. The process of digitization contributed to the opening of a new epoch for the academic libraries having in mind that they transform contents for the needs of users into another form making the process of learning more interactive, practical and more efficient as well. Such a progress stimulates every economic researcher to participate in the process of learning in order to develop his entrepreneurial knowledge and professional orientation. Except that, the academic librarianship is the entrepreneurial one if it keeps finding out new possibilities for attracting users, for including them into the social environment, in fact - into the Knowledge Society.

Keywords: *education, entrepreneurship, academic librarianship, Serbia.*

1. INTRODUCTION

The management of an enterprise will estimate whether that organization needs new technology good enough for achieving higher financial result. The scopes of plan and development in an enterprise impose a way of solving technical problems. Management makes decisions in every enterprise. That same layer will make also decisions whether new

[318] "Svetozar Marković" University Library, Bulevar kralja Aleksandra 71, 11000 Belgrade, Serbia

equipment should be acquired. World market imposes the indispensability of reexamining technology regularly in order to achieve sustainable development.

The entrepreneurship includes in a way the ability to estimate working conditions in disruptive time. An enterprise keeps facing certain risks in its` environment. Therefore, the enterprise has to carry out its` own adjustments. If every enterprise would take care on its` proper accumulation they would get easier to the situation of selecting optimum technology for its` own activity in future. They would contribute in such a way to the economic development of the society which has to face unavoidably the obligations towards younger and older population.

State which is an entrepreneur since the age of New Deal will think much of its` own infrastructure in a contemporary way. Telecommunications become more and more important with an intensified expansion of information. It is due to the development of private universities, that certain higher quality of education is achieved particularly because the competition involves potential postgraduates into the process of selecting school for their further studies. The „Svetozar Marković“ University Library in Belgrade is the central library at The University of Belgrade whose tradition is long enough to insure high-quality education for its’ students.

An enterprise is the basic cell of an economy. Gross domestic product per capita depends on the way it performs its` activity. GDP p.c. is one of the basic economic development indicators in every country. Its` value alters.

Economic information keeps concentrating in different data bases. Telecommunications are getting developed in such a way that multimedia means can be widely and intensively used for promotive purposes of libraries as cultural and educational institutions. Library 3.0 is a digital library. It includes the repositories with full texts of papers such as doctoral dissertations which can be even found in free access. In Europe it is in accordance with Berlin Declaration on Open Access to Knowledge in Sciences and Humanities (1).

„Svetozar Marković“ University Library in Belgrade gives necessary metadata and uploads doctoral dissertations defended in Belgrade (2). They are in free access (3). The University of Kragujevac has its’ PHAIDRA (4). Except that, The University of Niš has also its’ open repository PHAIDRA for the same or similar purpose (5). Therefore each of these three universities takes care of its’ digital repository which contains freely available materials.

Cumulative e-catalogue COBIB.SR has a technical connection with digital repositories PHAIDRA (6). So, every user who would come across some bibliographic description of a doctoral dissertation he would like to read, may receive its’ full text by clicking on a *blue link* e.g. perma-link. A doctoral dissertation in full text received in such a way can be downloaded.

Library in the entrepreneurial world

The entrepreneurial spirit improves the work of a library that a user has to contact for many reasons. Each academic library has a need for investing into its` own building, into the acquisition of new equipment, into the acquisition of book and non-book materials, into maintaining its` own installations. Except that, there is undoubtedly a need to invest into the intellectual capital. The professional development of the employed is extremely important for every marketing oriented library which keeps following technical and scientific progress in real and an e-environment.

It is due to the tables 1 and 2 that the following is to be noticed: there are lot of materials on marketing, trade, finance and banking in the academic librarianship of Serbia. There were 3.759 bibliographic descriptions received through the retrieval of the cumulative e-catalogue COBIB.SR for a key word „entrepreneurship“ typed out in Serbian. However, it is for the same key word that only 685 references were found in the local data base of the „Svetozar Marković“ University Library. The retrieval was realized in October 2018.

It should be mentioned that the cataloguing and classification of library materials in the academic librarianship of Serbia is being realized with book in hands e.g. *de visu*. Except that, the „Svetozar Marković“ University Library is of lending type. Its' work is partly public – not absolutely public. The nature of its work is combined: educational-scientific, partly cultural.

The academic libraries usually are not the public ones. Its' members are mostly those students who study at a faculty or an academy the library belongs to. Professors as well as researchers employed at the faculty or the academy are also among the members of that library.

The central library of the University of Belgrade e.g. the „Svetozar Marković“ University Library, open for users since 1926 is renewed in 2018. It was closed only several days. This fact tells us how important this institution is for the work of student and teaching population in Belgrade and Serbia as well. According to the statistical data for the academic year 2017/2018 in the Republic of Serbia, 256.172 students were inscribed to the studies of all the levels at faculties or the schools of the same rank. It is also known that 43,4% of the total number of the inscribed is of male gender and 56,6% are of female gender. Except that 86,8% of students are inscribed to state universities and 13,2% to private ones. According to the way of financing studies, 41% or 104.909 students were inscribed to state budget and 59% are self-financing (7).

Table 1. Bibliographic descriptions for works in the domain of entrepreneurship in the e-catalogue of the "Svetozar Markovic" University Library in Belgrade - accessed 4th October 2018. (All materials; all languages)

Banking	2.014
Budget	388
Business finance	268
Capital	2.014
Costs	516
Economic development	2.540
Entrepreneurship	685
Finance	3.560
Foreign trade	197
Investments	649
Marketing	2.329
Organization of enterprise	910
Planning of enterprise	144
Prices	227
Trade	3.507

So, having in mind the data from the tables 1 and 2 it can be noticed that the academic librarianship of Serbia has useful materials in its` own offer for those students, researchers, professors, who are interested in entrepreneurship. Except that, the academic librarianship of Serbia has free access to the e-journals with articles in full text. The „Svetozar Marković“

University Library gives also the services of an interlibrary loan service with abroad. It is in such a way that the lack of necessary literature can be partly compensated for.

Although we live in the Knowledge Society which is an Open Society as well, there are less works in free access than library users would like to find. Those authors who give a consent for their papers to be published in free access are the promoters of science.

Table 2. Bibliographic descriptions in the domain of entrepreneurship in the cumulative e-catalogue COBIB.SR accessed 4th October 2018. (All materials; all languages)

Banking	26.510
Budget	4.391
Business finance	1.918
Capital	15.792
Costs	3.882
Economic development	425
Entrepreneurship	3.752
Finance	28.931
Foreign trade	2.126
Investments	6.414
Marketing	20.223
Organization of enterprise	8.545
Planning of enterprise	934
Prices	2.542
Trade	36.251

On the other side, printed form is more expensive but eternal. It is less practical because of the necessity to photocopy the materials which requires additional expenditures. It is a financial burden for users. Talking from empirical point of view, such expenditures are high not just for those students who finished secondary school in Serbia but also for foreign students who enrolled at their studies in Belgrade. They share the destiny of local students.

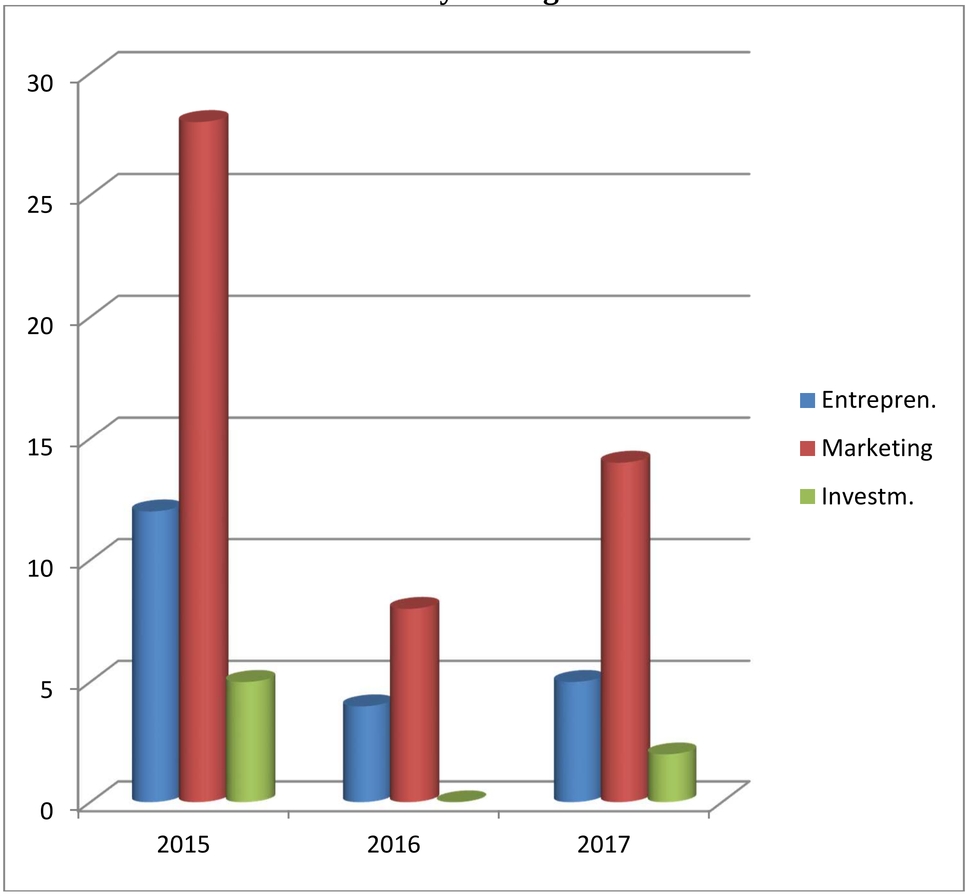
The case of a library user who has a pocket drive is usual. However, students, researchers and many other professionals prefer to send materials to an email address particularly after the retrieval of e-journals. In that case even a pocket memory is not so indispensable.

Yuko Harayama discussed the situation in Japan during a meeting of researchers from Germany and Japan in July 2018. The meeting took place in Germany, at Ruhr-Universität Bochum. As Harayama claimed:

"…Japan is currently half way through the Fifth Science and Technology Basic Plan (2016-20), which seeks to develop a "super smart society" – or 'Society 5.0', a concept introduced by the Japanese government and its Council for Science, Technology and Innovation, under which various 21st century challenges are addressed: the ageing population, climate change, food security, the limited availability of natural resources and the fulfillment of the 2030 Agenda for Sustainable Development" (8).

The *Bologna Process* implies a series of meetings and agreements between European countries to ensure comparability in the standards and quality of higher-education qualifications. That would contribute to an easier migration of the intellectual capital inside Europe. Having in mind all these tendencies The "Svetozar Marković" University Library performs its' activities in accordance with educational plans and programs of the universities in Serbia. However it also keeps acquiring foreign editions mostly through the process of exchange which is being carried out with more than 100 countries worldwide.

Chart 1. The number of bibliographic descriptions on *entrepreneurship*, *marketing* and *investments* in English in the e-catalogue of The „Svetozar Marković“ University Library in Belgrade

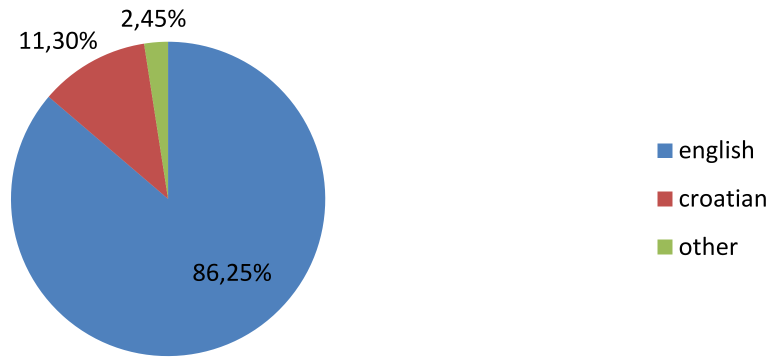


(Access to the e-catalogue: 4th October 2018.)

If we have in mind that the central library of the University of Belgrade acquires literature in foreign languages also, it would be meaningful to have a look at the chart no. 1. According to this illustration, it is obvious that the complete materials in the University Library, on *entrepreneurship*, *marketing*, and *investments* were covered. This chart show that the majority of bibliographic descriptions and materials in English are on marketing during the period 2015-2017.

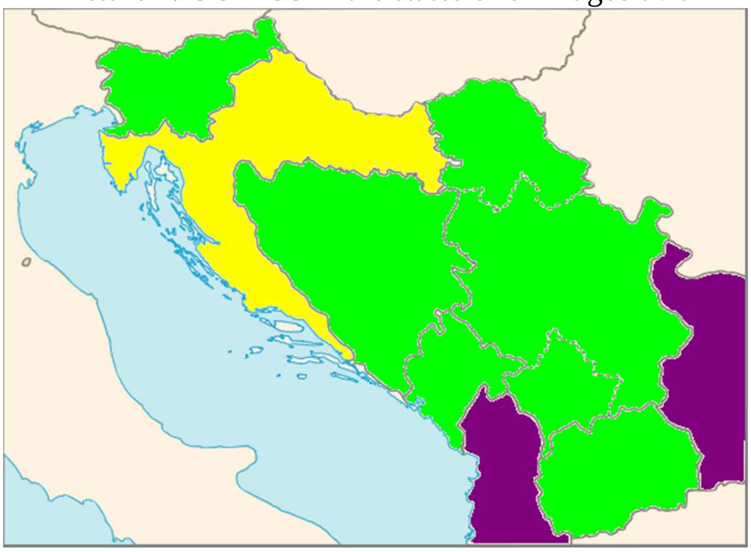
Let us see to the linguistic structure of the materials on marketing: as far as the materials in foreign languages are concerned, it can be noticed that the majority of literature in the collections of the central library of the University of Belgrade is in English, e.g. even 86% of references. Therefore it can be noticed also that 11,30 % of library units are in Croatian. The rest of materials are in other languages. Such a situation is illustrated by the chart no. 2 which is in the form of a structural graph.

Chart 2. Bibliographic descriptions of works on marketing in the collections of the "Svetozar Marković" University Library in Belgrade (only materials in foreign languages)



Nowadays Cooperative On-line Bibliographic System & Services (COBISS) is being implemented in Slovenia, Serbia, at Kosovo and Metohia, in Bosnia and Herzegovina, in Montenegro, and Macedonia. Except that, COBISS is also being implemented in Albania and Bulgaria (9). The states of ex-Yugoslavia where COBISS is being implemented are colored in green on the picture 1.

Picture 1. **COBISS** in the states of ex-Yugoslavia



It is by the retrieval of the European Portal of e-theses DART that we can notice the following: the vast majority of doctoral dissertations which contain the term *entrepreneurship* as a key term are defended in France – even 465 theses. Little less is defended in the United Kingdom – 456. As far as the Netherlands is concerned, for example, there are 256 theses defended which is also a high number (10).

Table 3. The number of e-theses for the key word *entrepreneurship* on The European Portal of E-theses DART

State	No. of e-theses
France	465
United Kingdom	456
Netherlands	256
Sweden	254
Finland	122
Italy	121
Spain	112
Germany	104
Ireland	68
Belgium	48
Greece	31
Switzerland	31
Norway	30
Hungary	21
Czech Republic	17
Denmark	17
Serbia	17
Portugal	16
Estonia	13
Croatia	11
Latvia	10
Poland	7
Slovenia	6
Austria	5
Lithuania	3
Bulgaria	2

Source: www.dart-europe.eu (Accessed 5th October 2018.)

It would be interesting to have a look at the situation in the countries of Ex-Yugoslavia. We may rely also on the table 3. According to it, 17 doctoral dissertations are defended in Serbia. It is the same case in Czech Republic and Denmark (17 e-theses). In Croatia 11 theses where the term *entrepreneurship* is a key one are defended. In Slovenia, 6 theses are defended and in Austria only five theses. This paper doesn`t comment the quality of these materials which are freely available.

Conclusion

The materials which are included into the offer of Serbian academic librarianship consist of books, articles, doctoral dissertations and other resources. The academic librarianship of Serbia processes the materials in entrepreneurship mostly in Serbian and in English, less in other languages. The central university library of The University of Belgrade is of lending type.

The University of Belgrade, The University of Kragujevac and The University of Niš have, each of them, an open digital repository – PHAIDRA (Permanent Hosting, Archiving and Indexing of Digital Resources and Assets). Full texts of doctoral dissertations are downloaded into it. These doctoral dissertations are mostly in free access.

The „Svetozar Marković“ University Library, for example, has an interlibrary loan service with abroad. It is a way the lack of literature is to be partly compensated for. The European Portal of e-theses DART offers full texts from different professional fields including economics and entrepreneurship.

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SCIENTIFIC THINKING: WHO THINKS THIS WAY?

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Abstract: *If the citizens of a country are well educated and make a good use of knowledge, are intelligent and well-informed, then they will undoubtedly make the best decisions, they will perceive clearly, they will understand without bias, thus directly affecting the quality of their live as the result of individual or public decisions, and even according to the pooling principle, all this will bring collective results. But being a mature decision-maker means orienting your decision through scientific thinking, and algorithmic thinking. What does the process of scientific thinking and reasoning mean, is there evidence of scientific thinking in the everyday life of citizens, do people use statistics, surveys, primary and secondary data for making decisions, what about their attitude and behavior about problem solving? Through scientific thinking in everyday life, many people make better decisions than others, because through their reasoning process these individuals judge using objective and not subjective criteria. Currently, in the social Albanian environment, personal decision-making is oversimplified not only by non-scientists, but also by scientists, academics, researchers or scholars, because they are often fatalistic in their judgment, thinking that the results are far less influenced by the quality of their decisions, or they think that they are powerless about the results. Although this is a complex and multi-dimensional topic, that may have different discussion perspectives or starting points, in this paper the principle of scientific thinking will be addressed in a descriptive and general outline, to alert the scientific community as well as to highlight the importance of why science and scientific thinking should be integrated into our daily algorithm of living, especially in this era of great advancement in artificial intelligence.*

Keywords: *Scientific thinking, society, everyday life, decision making, scientific method criteria.*

"... the most important instrument in research must always be the mind of man."
W. I. B. Beveridge (1957)

Introduction

In our complicated world, our lives depend on many, many events and decisions outside of our immediate control as well as many within our control. Science as a way of making rational, evidence-based decisions about the natural world offers the best method we have of ensuring those decisions achieve what we want. [1, n.d., p.2]

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The most important decision you can make is about finance, health and public policy. According to many observations and assumptions, excluding the financial constrain, the decision-making of an individual is strongly influenced by his culture and psychological development too. From a rational point of view, the more financial limitations someone encounters, the more he needs a useful, well-informed and scientific decision-making. Although for example if someone take the decision to finance risk by buying an insurance policy, he overcomes his financial constraint, because by recognizing the risk, he chooses to protect himself against it, which means that a low income individual is the right person who need to be assured in comparison to the high social class that can bear the risk by themself, revealing that rational decision-making will be so in his favor. But why in most cases this attitude is not taken, why decision making is often inappropriate, why the scientific judgment is not often applied during the reasoning and decision-making process? But what is the scientific method, what is the process of scientific thinking and reasoning? Do people use statistical evidences, surveys, primary and secondary data for solving and responding to personal and daily problems? Do people in Albanian society think and act according to scientific decision-making, thinking, reasoning, and scientific protocol? Does natural science come naturally? Is it an organized process? Why very often educated, knowledgeable and well-informed people do not use science in everyday life? Perhaps a large part of people choose to be informed by news in the media and in social networks, but they are not scientific outlets or reliable statistical institutions, they only create the illusion of being informed.

Background

According to Dunbar [2, n.d., p.1]:

> Scientific thinking refers to the thought processes that are used in science, including the cognitive processes involved in theory generation, experiment design, hypothesis testing, data interpretation, and scientific discovery. Many of these aspects of scientific thinking involve cognitive processes that have been investigated in their own right, such as induction, deduction, analogy, expertise, and problem solving. Research on scientific thinking uses many different methodologies such as analyzing historical records, conducting experiments on subjects that are given scientific problems, and building computer programs that make discoveries.

According to Schafersman [3, 1994, p.1] science is:

> Not merely a collection of facts, concepts, and useful ideas about nature, or even the systematic investigation of nature, although both are common definitions of science. Science is a method of investigating nature--a way of knowing about nature--that discovers reliable knowledge about it. In other words, science is a method of discovering reliable knowledge about nature. There are other methods of discovering and learning knowledge about nature, but science is the only method that results in the acquisition of reliable knowledge.

Schafersman [3, 1994] explains that scientific thinking is practiced everywhere, referring to the observation of nature and the universe through scientific methods. He emphasize that not only scientists practice it, but also anyone who uses the scientific method to observe and explore. Even when someone practices the scientific principles during his daily life for bringing knowledge and responding to the questions and problems of life and society is defined as critical thinking.

Schafersman [3, 1994, p.2) also considers that “clearly, scientific and critical thinking are the same thing, but where one (scientific thinking) is always practiced by scientists, the other (critical thinking) is sometimes used by humans and sometimes not”.

As cited in [4, 2012, p.61]:

> Scientific reasoning encompasses the reasoning and problem-solving skills involved in generating, testing and revising hypotheses or theories, and in the case of fully developed skills, reflecting on the process of knowledge acquisition and knowledge change those results from such inquiry activities. Science, as a cultural institution, represents a “hallmark intellectual achievement of the human species” and these achievements are driven by both individual reasoning and collaborative cognition (Feist, 2006, p. ix).

Also in [4, 2012, p.62] is explained that:

> Effective scientific reasoning requires both deductive and inductive skills. Individuals must understand how to assess what is currently known or believed, develop testable questions, test hypotheses, and draw appropriate conclusions by coordinating empirical evidence and theory. Such reasoning also requires the ability to attend to information systematically and draw reasonable inferences from patterns that are observed. Further, it requires the ability to assess one’s reasoning at each stage in the process.

According to [5, 2011, p.21] “scientific method is a methodological approach to the process of inquiry – in which empirically grounded theory of nature is constructed and verified. To understand this statement, it is useful to go back in time to see how the method evolved”.
In [5, 2011, pp.21-22] also is described that:

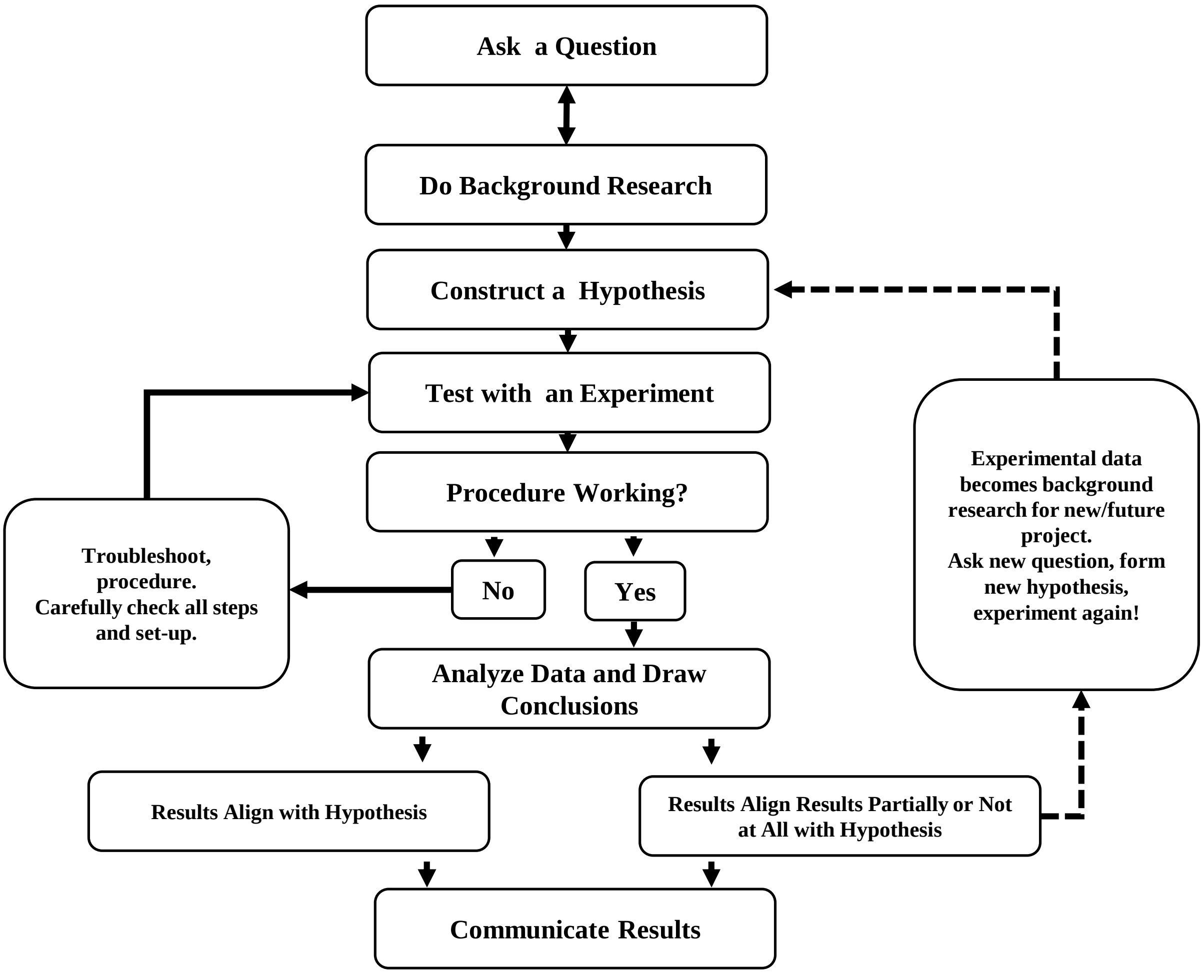
The origin of modern scientific method occurred in Europe in the 1600s: involving (1) a chain of research events from Copernicus to Newton, which resulted (2) in the gravitational model of the solar system, and (3) the theory of Newtonian physics to express the model. What is essentially different between the civilizations before and after the origin of science in the 1600s is a very different conception of nature. Before, nature was merely a manifestation of a super-nature – the supernatural and unobservable – the world of religion. Afterward, nature now is only what is observable in the world. Nature is thought about, described, and explained through experiments and theory and scientific paradigms. No longer do we live in a world of superstition and magic. We live in a modern world of science and technology – without magic. Modern science is both method and paradigms.

Heuristic approaches to thinking involve using rules of thumb to arrive at conclusions. Such rules of thumb are not irrational responses, as they are based upon experience, but rather, they are cognitive shortcuts that reduce the cognitive load necessary to come to conclusions (Chen, Duckworth, & Chaiken, 1999). Unfortunately, conclusions based upon these shortcuts can sometimes be inaccurate. In scientific inquiry, checking and correcting during observation and experiment are necessary to produce credible results. In science, making a correct inference requires carefully using inductive, deductive, and abdicative reasoning. [6, para.1-10]
The scientific method is considered (see Figure 1):

> As a process for experimentation that is used to explore observations and answer questions. When direct experimentation is not possible, scientists modify the scientific method. In fact, there are probably as many versions of the scientific method as there are scientists! But even when modified, the goal remains the same: to discover cause and effect relationships by asking questions, carefully gathering and examining the

evidence, and seeing if all the available information can be combined in to a logical answer. Even though we show the scientific method as a series of steps, keep in mind that new information or thinking might cause a scientist to back up and repeat steps at any point during the process. A process like the scientific method that involves such backing up and repeating is called an iterative process. [7, para. 3-10].

Figure 1: Steps of the Scientific Method. Source: [7]



In [3, 1994, pp. 1-2] is argued that:

> Science is not merely a collection of facts, concepts, and useful ideas about nature, or even the systematic investigation of nature, although both are common definitions of science. Science is a method of investigating nature--a way of knowing about nature--that discovers reliable knowledge about it. In other words, science is a method of discovering reliable knowledge about nature. Reliable knowledge is knowledge that has a high probability of being true because its veracity has been justified by a reliable method. Reliable knowledge is sometimes called justified true belief, to distinguish reliable knowledge from belief that is false and unjustified or even true but unjustified. Every person has knowledge or beliefs, but not all of each person's knowledge is reliably true and justified. In fact, most individuals believe in things that are untrue or unjustified or both: most people possess a lot of unreliable knowledge and, what's worse, they act on that knowledge! Other ways of knowing, and there are many in addition to science, are not reliable because their discovered knowledge is not justified. Science is a method that allows a person to possess, with the highest degree of certainty possible, reliable

knowledge (justified true belief) about nature. The method used to justify scientific knowledge, and thus make it reliable, is called the scientific method.

Study Design

This preliminary study has a qualitative empirical approach, so it does not intend to test some hypotheses to conclude and generalize results for a large population, but only aims to explore the critical thinking of the citizens in everyday life. The main purpose of the study is to generate an understanding of how close the scientific thinking is the individual in his way of acting, thus discovering a general idea about the tendency of thinking, attitude, behavior, action or decision-making of people in everyday life, to answer the main question of the study:

"Do people apply scientific thinking in everyday life?"

Based on the data, the study revealed that Albanian well educated population applies in its attitude and decision-making in everyday life the principles of critical thought and scientific method. The research type of this study is mainly explorative and descriptive, referring to the characteristics of these two types of research as it is explained in [8, 2014].

The main instrument of the study and data collection has been a short questionnaire with some questions about demographic data of the study sample, but considering in focus the main question of the study. The study is based in a non-probability sampling techniques, defined as convenience sampling, therefore the sample of the study is selected through an on-line questionnaire. Before that the respondents have participated in the survey, the data collection instrument or the questionnaire is preliminarily tested on a small pilot sample to test its comprehensiveness and its validity. The data of the study have been collected over a quarterly period, and then are processed and analyzed through descriptive statistics to come up to the main finding of the study to answer the main question of the study as well as to develop an idea that can be translated in a possible hypothesis for a quantitative study in the future.

Data Analysis and Findings

The labor force statistics reveal that the age group 15-64 years occupies almost 97% of the labor force, while 81% of the workforce age group 15-64 years is most likely to have secondary education [9, 2016]. This means that these individuals do not have in-depth knowledge of the various scientific theories, which will be reflected in the productivity and quality of their performance not only at work but even in everyday life. So, we must say that their decision making misses the critical scientific thinking. The sample of this preliminary study consisted of 100 valid questionnaires. After collecting and analyzing the empirical data, in the following are presented the main characteristics of the study sample:

- The average age of the respondents was 26 years, while the respondents' age range was 18-45 years.
- Regarding the level of education 100% of the respondents have completed bachelor program, about 68% of respondents were attending a bachelor or master program, 5% already have a Ph.D., and 19% had already completed a master program.
- Referring to their profession, almost 27% of the respondents worked in the field of accounting and finance; while 11% of the sample worked as teacher, professor and researcher; the rest of the sample worked in sales, banking, owns a small business, in public administration, as waiter, teller, lawyer, student, manager, or were unemployed.

- Also 74% of the sample were female and 26% male.
- Most of the respondents lived in the cities of Vlora and Fier, 57% and 15% respectively.
- Most of the respondents, nearly 73% were unmarried, and live close to their parent's family.

Besides the demographic data, the questionnaire has intended to guide and collect key data through a single main question. The main question of the questionnaire was about a real situation, so the respondents were introduced with a model of application of scientific method and critical thinking in everyday life, a simple model to explore the individual's latent behavior in decision-making in his daily life, as suggested in [10, 2015], and in accordance with the objectives and the purpose of the study.

The main question of the study questionnaire is presented in the following:

Situation: As soon as you enter the house tired after a long working day, you try to turn on the corridor lamp but it does not work (or does not light up). On a scale from 1-5, how do you agree, that about this problem you will judge quickly and default in accordance with the model below.

The way you judge

1. Observation: The light bulb did not light.
2. Question: Is the light bulb burned out?
3. Hypothesis: The light bulb is burned out.
4. Prediction: If I replace the bulb and it lights, then my hypothesis is validated. If the bulb does not light, then my hypothesis is invalidated.
5. Experiment: Replace the bulb.
6. Result: New bulb lights up.
7. Conclusion: My hypothesis is validated. The bulb was burned out.

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

Referring to this question, the survey data reveal that 83% of the sample have responded that ‘agree and strongly agree’ regarding the application this procedure during their decision-making on a daily life problem. So we must emphasize that the question above reveal the scientific method steps, which means that the results above show that highly educated people in Albania use scientific thinking as a basis in their day-to-day decision-making.

Conclusion

This study can be classified as a modest empirical study on the field of scientific thinking. The nature of the study was mainly investigative, so it is not an inferential study because it did not aim to test hypothesis and generate conclusions about them. Obviously, the main finding of this preliminary study will be formulated in the future as a main hypothesis of a quantitative study that will consider a large number of independent or moderate variables such as demographic, cultural, psychological, educational, and definitely many other variables, since the topic of this study is interdisciplinary and moreover scientific theory and science is worthy for everyone. Some societies fear science, but exactly for this reason they must apply scientific process steps in everything they encounter. Despite the data of this study, considering our experience as business school professors we suggest that scientific method and critical thinking must be applied as a subject in all levels of education even in primary and secondary education, because only this way the society will guarantee the development of the scientific method and scientific thinking in each of its step, considering even the actions and personal decisions of the people that make it up. The main constraint or limitation of the study is its sample, referring to the selection of a highly educated sample that even confirmed traces of scientific thinking in everyday life.

However, future studies should be made, considering even other latent questions as well as a probability sampling method.

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DECISION MAKING AND OVERCONFIDENCE: IS THERE A CORRELATION WITH AGE?

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Abstract: *The overconfidence of the decision maker is necessary to achieve good results and could inspire in others a sense of trust, but overconfidence can become an obstacle to decision-making process. So, it can create problems for the organization as for example can damage the organization value, can lead to the loss of competitive advantages, reduction of the market share and incomes, weak tendency to innovation, too slow responses to changes, inaccurate risk evaluation, increased risk to bankruptcy etc. If overconfidence is accompanied by excessive optimism, it may become even more dangerous because the decision maker is confident that his abilities are better than those of others, but he is also convinced that the future will be favorable. Decisions taken under these conditions can have bad consequences, both in the economic and non-material aspect.*
The main goal of the research is to understand if there is a correlation between overconfidence and age. 210 managers have participated in the study. The intention is to identify variables and elements and to discover possible relationships between them, so as to be able to define some general reflections about the age impact on overconfidence. Starting from previous studies, which show a decline of cognitive and decisional abilities as age advances, it has been hypothesized that the correlation between age and overconfidence is negative. The processing and analysis of the collected data indicate that there is no correlation between these two variables. Thus, overconfidence is independent of age.

Keywords: *decision-making, age, overconfidence, cognitive abilities, decision-making skills*

1. INTRODUCTION

Making bad decisions can be due to occasional or systematic errors made in any of the stages of the decision-making process [1]. Occasional mistakes may be related to the content of the information and its validity, or may refer to errors in understanding the problem or situation. Systematic errors are cognitive distortions repeated unconsciously. These may also be the result of errors in interpreting information or related to its reliability and accuracy. Cognitive distortions affect the different phases of the decision-making process and have negative effects on human behavior and relationships because they are not easily recognizable and avoidable. One of the cognitive distortions is also overconfidence.

The confidence of the decision maker in his skills is necessary to achieve good results and to inspire confidence in others, but excessive confidence may become a barrier to good decisions [2]. The decision maker that believes in his abilities appears to others as an expert and thus affects their judgments. The bias of overconfidence has a huge influence on the behavior of the decision makers. Due to the excessive belief in personal abilities, the decisions made can be not

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well thought out, hasty or driven by certain emotions that deform reality. If overconfidence is accompanied by excessive optimism, it may become even more dangerous because the decision maker is confident that his abilities are better than those of others but he is also convinced that the future will be favorable. Decisions taken under these conditions can have bad consequences, both in the economic and non-material aspect, negatively affecting the image of the organization, the level of know-how, and so on.

2. AIM OF THE STUDY AND RESEARCH QUESTION

The overconfidence of the decision maker is necessary to achieve good results and could inspire in others a sense of trust, but overconfidence can become an obstacle to the decision-making process. So, it can create problems for the organization as for example can damage the organization value, can lead to the loss of competitive advantages, reduction of the market share and incomes, weak tendency to innovation, too slow responses to changes, inaccurate risk evaluation, increased risk to bankruptcy etc.

The main goal of the current research is to understand if there is a correlation between overconfidence and age. 210 managers have participated in the study. The intention is to identify variables and elements and to discover possible relationships between them, so as to be able to define some general reflections about the age impact on overconfidence. To support the main purpose, the research question is as follows:

1. What is the age impact on the overconfidence?

In consistency with the main goal and the research question the hypothesis to be tested is formulated as below:

H_1: The correlation between overconfidence and age is negative.

3. RESEARCH METHODOLOGY

For the current study was adopted the quantitative research and for the data collection was used the questionnaire, which was designed to investigate the relationship between overconfidence in the decision-making and age. The model used is the Scale of Rosenberg. This scale is designed to measure the individual's orientation on himself and his perceptions of skills and abilities and is a very useful and widely used global measurement. However, there are some differences from the model of [3]. Thus, the original model includes 10 statements and is based on the Likert scale from 1-4. In the present research only 7 of 8 statements are the same as those of the Rosenberg model and must be evaluated on the Likert scale 1-5.

To test the hypothesis of the research is first used the Pearson correlation coefficient and then is calculated the correlation coefficient of Spearman. The analysis is made on equal-interval scales, based on the sum of the scores for all the statements of the questionnaire.

4. LITERATURE REVIEW

Overconfidence is an important aspect that can differentiate adult behavior from that of young people referring to the decision making. However, it must be emphasized that the results of the studies in this regard are not convergent. Previously, [4] and [5] concluded that adults are less

prone to overconfidence, while [6] consider the opposite. Unlike these conclusions, [7] found the same level of overconfidence in both adults and young people.
The differences between young people and adults about overconfidence can derive from the changes that cognitive and decisional skills endure over time. Once again, it must be emphasized that empirical evidence does not allow definitive conclusions to be drawn. As age advances, the individual undergoes substantial changes regarding the processing speed, memory, reasoning, concentration, and executive functions [8]. It has been shown that these changes move in the opposite direction with age. The decline of the memory and processing speed and also a greater recourse to simpler strategies lead adults to be more incoherent than young people about their decisions [9].

For making decisions, adults consider less information than young people [10]. The more information they have, the more difficult becomes for adults to distinguish between relevant and irrelevant information [11]. Furthermore, the authors suggest that the more experience the decision maker has, the more he relies on pre-built preferences. Based on this assumption, [12] concluded that adult preferences are more stable and help them to quickly identify relevant information. [13] have noted that adults prefer to decide in contexts where there are few possible solutions, while [14] have shown that to eliminate alternatives, adults tend not to consider all the information available. Over time the operational memory is reduced. This leads adults to have difficulty in keeping various information in mind and making comparisons [15].

The impact of age on decision-making can affect the quality of decisions taken [16]. The question that arises is whether really there are differences in the skills and quality of decisions related to age. According to [17] adults adopt different strategies in information processing, but decision-making skills do not become worse. On the other hand, [15] believes that adults tend to avoid decision-making and seek less information, but as age advances we do not have a decline of the decision-making skills, but we can note the use of different strategies and cognitive processes.

When talking about the impact of age on the skills and quality of decisions it might be interesting to consider the relationship between age and wisdom. Defining wisdom is not easy. However, it can be stated that wisdom refers to intelligence and ability to understand complex problems and relationships, and increases following a wide range of positive and negative experiences [18]. In this regard, it could be concluded that adult decision maker are wiser, which means they are able to better understand complex situations and thus make more effective decisions. The empirical evidence is also contradictory in this case. [19] did not found differences between young people and adults. However, adults showed a high level of performance for problems or situations that they considered of particular importance. On the other hand [20] have concluded that as age advances, the decision-making skills become worse and consequently the quality of decisions taken decreases. It has been shown that adult decisions in the financial field are of lower quality than the financial decisions of young people [16].

It is interesting to consider the effect that experience can have on the quality of decisions. In this regard we may think that adults make better decisions than young people because of the higher experience. Again, empirical evidence does not offer definitive conclusions. Thus, [21] argues that competent and more experienced people need the same time as individuals who are new in the workplace to make a decision, but the decision made is better. On the other hand, [22] found a lower decision-making performance in adults with more experience. Adults in some circumstances make better decisions than young people because of the higher experience [23].

It must be emphasized that the relationship between overconfidence and age is much more complex than it may seem. Thus, overconfidence does not occur in all situations. To understand this we must refer to the theory of perceived self-efficacy [24]. When a particular decision is placed in a context that is relatively familiar to the decision maker, personal knowledge is favored, which contributes to higher self-efficacy assessments leading to overconfidence. On the contrary, unfamiliar contexts can lead the decision maker to think that does not have the necessary skills to decide effectively, making him underconfident. Thus, the same decision maker can be overconfident about a decision, but can feel underconfident in another situation.

5. EMPIRICAL APPROACH

As noted earlier, the relationship age-overconfidence is quite complex. Starting from the results of empirical evidences definitive conclusions cannot be formulated. Some of them report a positive correlation between the two variables, others a negative correlation, and still others no correlation. Taking into consideration also the numerous studies on the relationship between age and cognitive and decisional skills, most of which report a negative correlation between the variables, it has been hypothesized that adults are less overconfident than young people. Thus, the hypothesis to be tested is formulated as follows:

H_1: The correlation between overconfidence and age is negative

Table 1: Pearson correlation coefficient for age-overconfidence

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.971	6	.987
Likelihood Ratio	1.148	6	.979
Linear-by-Linear Association	.000	1	.985
N of Valid Cases	210		

Table 2: Spearman correlation coefficient for age-overconfidence

			The group of factors for Section 1: Over-confidence (summation at intervals)	Age
Spearman's rho	The group of factors for Section 1: Overconfidence (summation at intervals)	Correlation Coefficient	1.000	-.001
		Sig. (2-tailed)	.	.988
		N	210	210
	Age	Correlation Coefficient	-.001	1.000
		Sig. (2-tailed)	.988	.
		N	210	210

Referring to Tables 1 and 2 we note a statistically irrelevant relationship between age and overconfidence. The correlation coefficient of Spearman is negative, but shows once again that between the two variables there is no correlation (Sig = p = 0.988> 0.05; r_s = -0.001).

6. CONCLUSIONS AND FUTURE RESEARCH

The current research was focused on overconfidence, which is considered an important factor that can influence the decision effectiveness. The basic idea of the study is that a certain level of overconfidence is important to make good decisions, but if we exaggerate then the consequences are negative. More specifically, the current research tries to explore how overconfidence is influenced by age. Starting from previous studies, that show a decline of cognitive and decisional abilities as age advances and that adults are aware of this, it has been hypothesized that the correlation between age and overconfidence is negative. The processing and analysis of the collected data indicate that there is no correlation between these two variables. Thus, overconfidence is independent of age.

It would be interesting to understand the reasons of these results, and then to investigate the topic in depth. For example, we may investigate how experience, the perception of control and self-attribution influence overconfidence.

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APPENDIX A

	Please, highlight your attitude for each of the statements below.	STRONGLY DISAGREE 1	DISAGREE 2	NEITHER DISAGREE NOR AGREE 3	AGREE 4	STRONGLY DISAGREE 5
1.	I feel that I have a number of good qualities.					
2.	I certainly feel useless at times.					
3.	I am able to do things as well as most other people.					
4.	I feel I do not have much to be proud of.					
5.	On the whole, I am satisfied with myself.					
6.	I wish I could have more respect for myself.					
7.	I take a positive attitude toward myself.					
8.	Within the organization, others have better decision-making skills than mine.					

MULTILINGUAL COMMUNICATION WITH GERMAN-SPEAKING BUSINESS PARTNERS

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Abstract: *Results of European researches show a link between successful foreign trade and foreign languages, specifically between export and using the language of the export market instead of English as a lingua franca. Knowing the language of the business partner can be a deciding factor for a successful deal. Business partners from German-speaking countries are more open to communication and making personal contacts in business meetings if the person they are talking to shows great interest by knowing and using their native language. They are more likely to build a real relationship with their foreign business partner, which positively reflects on the deals.*

The problem is that the level of German of most of the foreign business persons is not sufficient to use it for negotiations, so they don't use it at all, and instead they interact in English as a lingua franca. In order to examine the need for knowing German in Macedonian export and its coverage, an empirical research was conducted in small and medium production enterprises in the Republic of Macedonia. Most of the enterprises have unmet needs for knowledge of German so they use only English in contacts with the business partners. The results of the survey and the proof of the directly proportional link between the knowledge of the language of the export market and the export performance, by the theoretical research with documentation analysis from other surveys in Europe, were presented to the companies that participated in the survey. The need for German-language knowledge for overall communication in business meetings cannot be achieved in short period of time, so they were advised to use German whenever appropriate with their current level of German language skills.

A complementary research with the same enterprises was conducted on the impact of using German besides English as a lingua franca. The success rate was compared to the percentage of success of the deals when only English was used. The results show that using both German and English, especially in the first contact, increases the percentage. Such multilingual communication has the same impact if compared with the researches of using the native language of the business partner.

Foreign business partners should start their meetings in German even though the level of their German is low. The more important issues can further be discussed in English as a lingua franca. It is important to trigger the mental process of motivation of the potential business partner which is performed in his native language – German.

Keywords: *Foreign language use, business meetings, German, English, impact*

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1. INTRODUCTION

Although English is the language most commonly used on the international market it is not enough to meet the demands of today's business relations. Not knowing the language of business partners is a factor which can interfere in their mutual relations and enter into conflict with economic interests. Knowing and using the language of the export market is advantageous not only to reduce the possibility of misunderstandings through the use of the English language as a lingua franca, but also because of the positive psychological and psycholinguistic effect of using the language of the business partner. The mental process of motivation takes place in the mother tongue so that the process of transferring needs to decisions can best be influenced trough the partner's language. [1] According to research shown in the paper, Germans are more open to communication and making personal contacts in business meetings if the person they are talking to shows great interest by knowing and using their native language. The offer of a globalized market is increasingly balanced in quality and price so that knowledge of the buyer's language can be the deciding factor for choice.

The problem is that the level of German of most of the foreign business persons is not sufficient to use it for negotiations, so they don't use it at all, and instead they interact in English as a lingua franca.

This paper presents results from the following studies: the role of foreign language skills and German language skills for business deals, research of the need and use of German in small and medium sized enterprises (SMEs) in the Republic of Macedonia (RM), a complementary research with the same enterprises on the impact of using German besides English as a lingua franca on the percentage of success in the deals compared to using only English.

2. IMPACT OF FOREIGN LANGUAGE USE IN BUSINESS MEETINGS

"In an international competition which is getting harsher and harsher, success can be achieved only by someone who is able to understand and apply culture and the affects of customers, partners and rivals, and to transfer them into his own personal interests." [2]

2.1. FOREIGN TRADE AND LANGUAGE USE

Results of European researches show a proportional link between successful foreign trade and use of foreign languages, specifically between export and using the language of the export market (adaptation) instead of English as a lingua franca (standardization). European companies who use linguistic adaptations increased their sales in 2011 as a direct result of using the language of the export market, 41% of the companies for over 25% and another 35% have 16% to 25% increase in sales for the same reason [3]. A total loss of 100 billion euro per year of the European Union economy due to insufficient foreign language skills in SMEs was noted in 2006 [4]. Danish research [5] and results from Reuter and Minkkinen [6] show that the use of German in business contacts with Germany leads to success. A United Kingdom research from 2004 [4] shows that export performance is 77% higher in enterprises which give great importance to using the language of the customer. It is similar in Ireland, according to a research report from 2008, on determining the foreign language skills and needs in 1000 Irish SMEs as part of the subproject 2: "Languages for enhanced opportunities on the European labor market", part of the project TNP3-D [7].

A research called the “PIMLICO Project” conducted in small and medium enterprises from EU member state, on language management strategies and best practice in European SMEs suggests that European enterprises are still losing deals as a result of language and cultural barriers [3].

The German language is second after English in terms of the languages that businesses in Europe consider as most important to be learned [4].

2.2. GERMAN VS. ENGLISH

„If I am selling to you, then I speak your language, aber wenn du mir etwas verkaufst, dann must du Deutsch sprechen!”[324] The one who is master of the language of his business partner is best prepared to pursue his interests.

The attitude of the Germans towards the use of their mother tongue in business contacts with a business partner from abroad is shown by Andersen 1990 who noted the language and cultural barriers in the meetings and tried out measures to overcome them. In his beginnings he tried to communicate in English, but quickly realized that this leads to various problems. He noted that using only English makes it difficult to get to know each other. Presenting yourself, expressing one's own attitudes or conducting a free conversation is very difficult because the mother tongue wasn’t used. Despite his sufficient knowledge of English, he concluded that English is the second choice. As a result of language problems, personal relationships were not built before the business conversation started. This led to the problem of not knowing how to talk to a partner because he did not know anything about him and his expectations. After he perfected his knowledge of German and began to use German in deals with Germany it proved to be the simplest and most influential solution for all participants. He claimed that the Germans immediately showed satisfaction that the possible future business partner spoke their language and mostly began to speak a lot about themselves, their experiences with the Danes, and so on. Andersen, after many years of experience with deals in Germany, says he had the feeling that Germans who talk a lot or talk with their partner signal that their partner is sympathetic. They are relaxing, they want to communicate and develop a real relationship with their foreign business partner, and this reflects positively on the deals. According to Andersen, there is a huge difference whether English or German is used in communication and recommends everyone to use the mother tongue of the buyer.

3. IMPACT OF MULTILINGUAL COMMUNICATION

Communication ability in multiple languages is considered as a central qualification, as an opportunity and a precondition of the ability to be prepared for the global labor market. The knowledge level of other languages for overall conversation in international business is mostly not sufficient, especially for presentation of products, professional technical conversation or negotiations, so English as a lingua franca used for all interactions. Multilingual conversation in business meetings is a solution to meet the expectations in nowadays international business deals and market and to express oneself completely.

The effect of the simultaneous use of both languages, the partner’s language and English on the success rate of deals, was compared with the effects of using only English through a research conducted in the Republic of Macedonia with SMEs in international business.

[324] „If I am selling to you, then I speak your language, but if you sell me something, then you have to speak German” -Willy Brandt, former chancellor of Germany

3.1. METHODOLOGY

In order to determine the impact of using German and English in business contacts with Germans results from two researches with questionnaires were compared.

The first research [8] was conducted in 2012 to examine the need for knowing German in Macedonian export and its coverage through an empirical study with SMEs with production. The study refers to SMEs because they make up the largest employment market in RM with 98% of the total number of the active economic sectors. Questionnaires were sent by e-mail in cooperation with the Chamber of Commerce of the RM and only 17.50% were answered. In 2014 [9] additional 400 questionnaires were sent to other SMSs, with a feedback of 16.75%. As 35.7% of the total number of SMEs in RM are registered as wholesalers and retailers, the same questionnaire was sent to 500 of these SMEs. A much lower response rate of 5.4% was recorded. 27 enterprises answered, 21 of which had export business in German-speaking countries and six that wanted to export in the future. The results proved unmet needs and lack of German language skills and the directly proportional link between the knowledge of the language of the export market and the export performance. The enterprises were aware of the unmet needs for knowledge of German, so as a result of the lack of adequate knowledge of the German language they are forced to use English.

The questionnaires also contained questions about the percentage of use of German and English and the conversational situations in which they are used. The results of the survey with the proof of the directly proportional link between the knowledge of the language of the export market and the export performance and recommendation for their future contacts, were presented to all enterprises that participated in both surveys i.e. answered the questionnaire.

The need for German-language knowledge for overall communication in business meetings cannot be achieved in short period of time, so they were advised to use German whenever appropriate with their current level of German language skills, especially for small talk in first contacts and for general conversations.

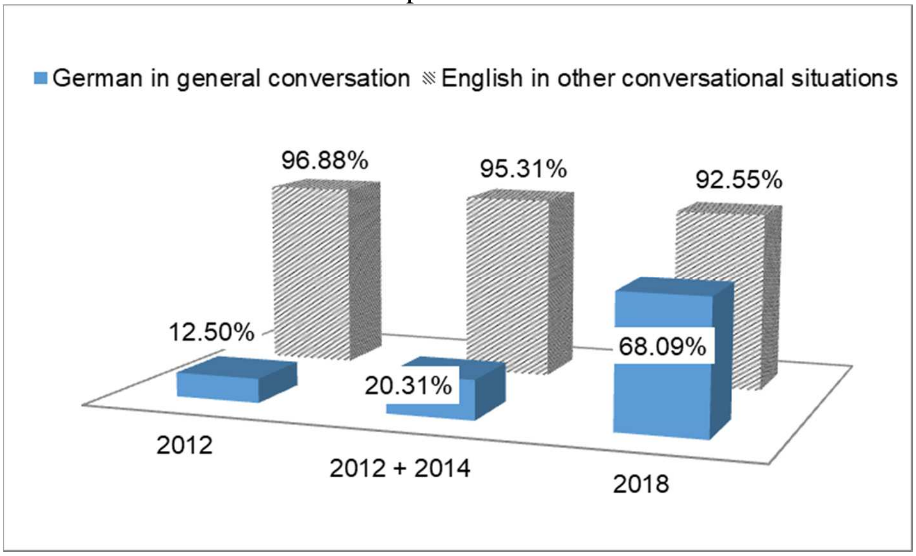
A complementary research in 2018 with the enterprises that had answered 2012 and 2014 and presented the results with and without business contacts with partners from German speaking countries was conducted on the impact of using German besides English as a lingua franca with a high feedback of 76.19%. The use of both German and English was compared in the different conversational situations and the success rate in the first two surveys and the new one from 2018.

3.2. RESULTS

The results show that using both German and English, especially in small talk in the first contact, small talk and general conversation, increases the percentage of success. Such multilingual communication has the same impact if compared with the researches of using the native language of the business partner in other countries.

If the use of German in general conversation is compared, we can see that the enterprises use German much more than years before.

Figure 1: Use of German and English in communication with German-speaking business partners

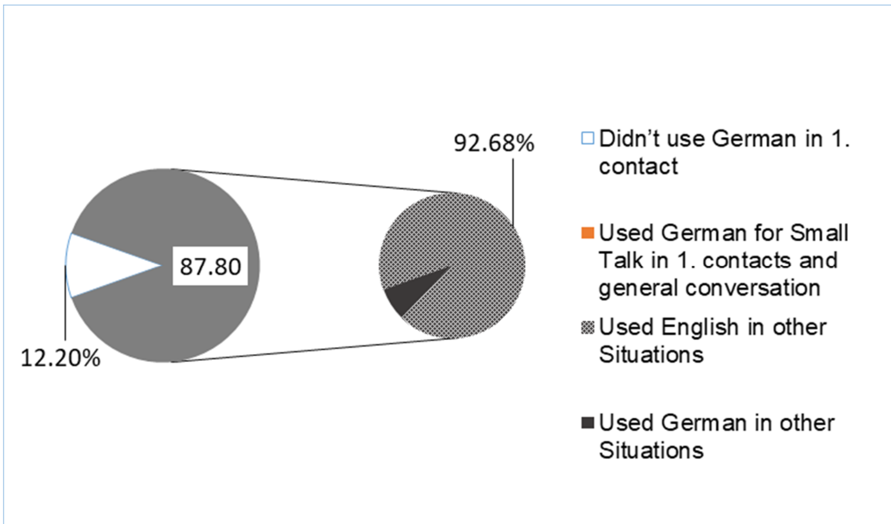


The high percentage of 68.09% in figure 1 can be derived from two circumstances:

1. The enterprises from the first two surveys that had already exported to Germany have increased their use of the German language in general conversational situations by 24.47%.
2. Most of the enterprises 95.35% of 74.14% that answered the questionnaire in 2018 and had no business contacts with Germany from the previous surveys have built one in the meantime.

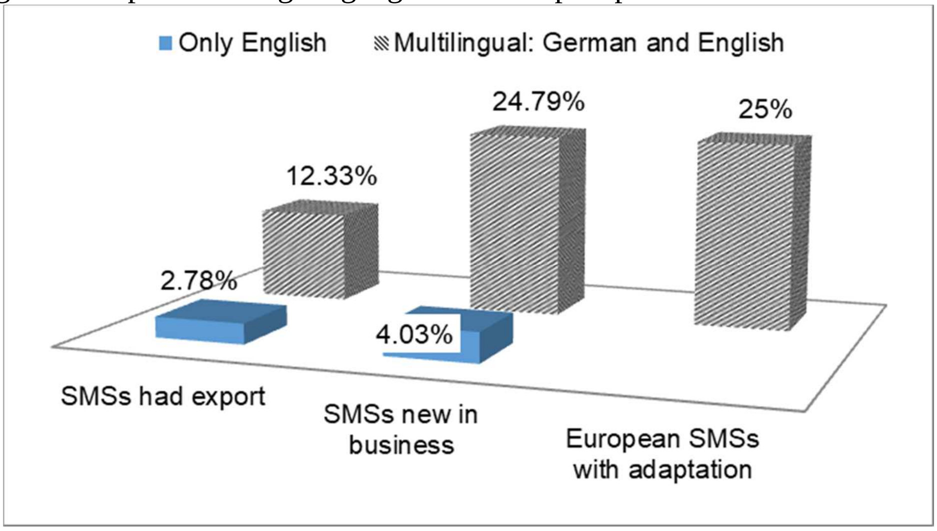
Asked about the language they used in their first contact for small talk 87.80% of the SMEs that reached the German market after 2012 or 2014 answered that they directly started to speak German and 7.32% of them spoke German during the further business discussion, while the others used English in the further conversation, as presented in figure 2. These enterprises showed interest with responding first questionnaire, so it can be assumed that they have taken in account the results and recommendations of the research that have been sent to them, so they adapted themselves linguistically to the German business partners' right at the beginning.

Figure 2: Use of German by SMEs who started export after getting results and recommendations



The positive reflection of the adjustment is evident in percentage of success of 24.79% for these enterprises. There is no difference compared to the results of the European enterprises research on the same topic. There are even no large deviations between the percentage when they use the German language just to make the contact in small talk and general conversation and the use of the language in all situations of business talks, as presented in figure 3.

Figure 3: Impact of using languages on the export performance with Germany



The enterprises that already had export to Germany and increased their use of German mostly in general conversation and small talk also increased their export performance (figure 3). The other SMSs have insignificant increase of sales.

4. CONCLUSION

The use of the native language of the business partner and the successful outcome stand in proportional relation, which means they are closely related and condition one another. This also applies even when the native language is only used for small talk and general conversation because the level of knowing the language is low and the conversations are multilingual. English as lingua franca should always be the second choice.

Foreign business partners should start their meetings in German even though the level of their German is low. The more important issues can further be discussed in English as a lingua franca. It is important to trigger the mental process of motivation of the potential business partner which is performed in his native language.

The new dimension of international trade makes a shift from pure export to international cooperation. There is no longer only a movement of products, the willingness to encourage and maintain cooperation with business partners is required, and so is the coordination, the resolution of problems and so on. Communication is not limited only to professional messages, but it is also oriented towards communicative relationships.

Investing in the development of foreign language skills have economic advantages and positively influences the productivity and the success of SMEs and the country's economic development.

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TECHNOLOGY – THE KEY TO SUCCESS IN BUSINESS ENGLISH CLASSES

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Abstract: *Nowadays we witness a steady increase in the appearance of all kinds of technological equipments that can help us, teachers as well as students, that improve our work in class. We are living in a world dominated by the constant appearance of all kinds of technological inventions which contribute, more or less, to the way English as a foreign language is taught nowadays. The learning tools for teaching English have constantly been subject to innovation. The situation is the same when talking about a sensitive issue that is represented by mastering the language of Business English. During recent years the necessity of vocabulary teaching has gained more and more importance and, as a consequence, the appearance of all kinds of methods regarding teaching vocabulary has been subject to different debates between teachers of Business English. Vocabulary acquisition is utmost important since, in order to communicate fluently and accurately in a foreign language, mastering a large number of words and moreover mastering a large vocabulary in a certain domain, in our case the field of Business English, represents a necessary step. The appearance of different kinds of technological "helpers" has made our work way easier than it used to be just a couple of years before.*

In order to gain fluency and efficiency in speaking a foreign language, teachers have to make use of the technological devices that seem to be extremely attractive to students and their use seems to be somehow a key to success. The aim of the present paper is to throw some light on more efficient and entertaining ways of teaching Business English to students of Economics, dealing with different Business English related materials. The role of the teacher, the need of supportive materials and the necessity of having a possible logical alternative to learning have also been analyzed throughout the paper. The process of teaching as well as the process of learning can be undergone with the help of some attractive technological inventions, which seem to be more and more fashionable. The diversity of the learning activities can help us enhance and expand our knowledge of the most commonly used Business English vocabulary, grammatical structures and to develop the specific language skills. The emerging technology does not undermine the traditional ways of teaching a foreign language. On the contrary, it comes as an element that supports and completes this complex process of teaching and acquiring a foreign language. Our experience proves that the use of technology in teaching Business English has led to more interesting, more dynamic and more challenging classes. Thus, in our digital world, where everything is controlled and dominated by the Internet and constant appearance of newer and smarter technological inventions, their contribution to the methods of Business language teaching is undeniable.

Keywords: *teaching, technology, language, tools*

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We live in a digital world and technology is everywhere: it is in our offices, it is in our homes, it is in our lives; actually it has invaded (in a benefic way) our entire system of working as human beings. The technological inventions and the existence of the Internet have brought about great contributions in the field of foreign language teaching. Thus, it is no wonder the technological devices are nowadays an integral part of our language classes. Our lives are characterized by being accelerated, so it is no wonder that our students have to face new demands and have to be very well prepared for their future careers. Along with the changing of the methods used by the teachers in class, the 20th century has brought about important changes in the tradition of English language teaching. This process is constantly developing through the launching of newer and newer applications and devices all the time. Technology has to be integrated in classes, even though the changes brought to the act of teaching and learning can be both positive and negative. Teaching a foreign language is a challenging and often difficult process so, the teachers have to find out the most suitable technological aid and to discover how technology should be used in order to have a positive impact in class. Students must be prepared for their future roles in the society, no matter in what field they will activate; thus, the teachers as well as the educators sense the potential that technology has in increasing the motivation in learning foreign languages, by engaging the learners and improving the outcome of this process. All the persons involved in the process want to achieve the success of the endeavor of learning a foreign language, a process that is influenced by various factors that finally must lead to a positive outcome. During the history of foreign language teaching, a lot of methods have come to light; thus, teachers have to determine the most effective and suitable method of teaching and this process implies time and effort consumption. Technology has always been there, in the teaching and learning environment, one form or another, facilitating the students' learning experience.

Some examples in the history of foreign language teaching

The use of technology and teaching/learning a foreign language have always been related to each other, since we know that there have been language laboratories early in the 60s and 70s of the last century. Years ago language laboratories used to consist of small cabinets for students, having headphones for each one, a microphone and a cassette while the teacher was monitoring the students' activity. The creation of the language laboratories has represented a first step in the connection of the technology to the language learning process. If five hundred years ago Latin was the language of trade and education, nowadays English is the most widely studied language in the world. In Ancient times, Latin was taught by translating passages from the first language to the second one and vice versa. This has been considered to be a standard language teaching method. In 1982 Asher and James consider that "*methods are the combination of techniques that are used and plasticized by the teachers in the classroom, in order to teach their students and the approaches are the philosophies of teachers about language teaching that can be applied in the classroom by using different techniques of language teaching"*[327].

The **structural approach** – the next method that appeared in the history of language teaching – is mainly based on the techniques of the direct method but putting an emphasis on reading and writing. This method has a strong argument in the fact that we have to teach students the arrangement of the words in order to form a pattern that may be meaningful.

[327] Asher J. , James, D., Learning Another Language Through Actions, Los Gatos, 1982;

The **oral approach** appeared somewhere between the 1930s and the 1960s being developed by the British linguists Harold Palmer and A.S.Hornsby. The selection of the material and its presentation and, of course, the context in which it is presented, are key factors, actually key differences between the oral approach and the direct method. Although the teachers nowadays are not aware of the importance of this method in the history of second language teaching, its role is undoubtedly great. The need for communication has led to the appearance of this method, which is not actually a method in itself, but an approach which goes beyond theorizing, transcending the boundaries of theory. Thus, not only grammatical and vocabulary structures are important, but the focus is put on the elements that compose the entire process of communication. Learners are engaged in the use of the language for meaningful purposes, in a pragmatic and functional way.

In the 1970s, Chomsky's revolution in linguistics underlined the importance of the **"deep structure"** of language, talking also about the affective and interpersonal nature of the process of learning from a psychological point of view. As a result, new methods appeared, being based on the psychological factors in the process of language learning.

The above ones represent just a few examples that have been selected by us from the various examples that exist in the history of foreign language teaching, in order to emphasize the constant concern of linguists, teachers and also psychologist to make the endeavor of learning/teaching a foreign language as easy and accessible as possible. Back then, technology was not present in the lives of the people who wanted to learn a foreign language while nowadays the development of the language skills started to depend on the existing technology. The number of learners is increasing and along with it the process of teaching is influenced by the modern tools and the technology that is at hand. E-learning platforms, videos, podcasts, applications and a huge number of websites are accessible currently and more and more teachers use these useful tools to make the process of learning diversified and easier. An increase in the quality of teaching and learning processes has been noticed along with the implementation of a wide range of multimedia that can avoid the routine and boredom of the same type of exercises that can be solved in a traditional course book. These traditional materials offer open-close exercises, rephrasing exercises, or translation exercises which do not give students the chance of practicing the spoken language. The issue of the speaking skills in a foreign language has long been debated, as this is actually the final goal of teaching and learning a foreign language. The sense of real communication can be achieved by using new broadcasts, interviews, songs that students can listen to. Due to the fact that nowadays almost everyone owns a smartphone or a laptop, the activity of creating a podcast or recording is at hand to almost everybody, thus having the chance to practice the pronunciation. The development of the listening skills but also the expansion of the vocabulary and language patterns can be expanded by using videos, songs or documentaries. The digital versions of crosswords, Scrabble or hangman represent a good source of both learning and entertainment for all age groups. Moreover, the development of the writing skills can be achieved by encouraging students to create blogs as they find this activity encouraging and also engaging as they can write about the subject they find interesting. The idea that a larger audience, and not only the teacher can read, the student's virtual journals make them put a bigger effort in the act of writing. The positive influence comes also from the fact that they get feedback from a larger audience. But if there are some students who are reluctant to writing weekly in a blog, they can be encouraged in having at least digital portfolios of their best works.

The use of new technologies, such as a laptop, a projector, an interactive board and also the access to Internet make lessons more accessible for the teacher as well as for the students. The teacher can provide newer and more challenging materials which give students the possibility of attending actively the class, being more involved and satisfied with the obtained result. This is the main reason why it is crucial for teachers to use technology and multimedia since we are facing a generation that is opposed to the older one which underestimates and criticizes its importance. The benefits and the variety of the methods that can be approached in English classes, by introducing digital materials give teachers the possibility of adjusting the material to individual needs, expectations and interests. By raising the students' interest, the teachers provoke creative thinking and, thus, students are encouraged more and more to practice the language inside the classroom but also outside it, in familiar environments, not feeling isolated and breaking the language barriers. The fact that, the students are exposed to the requirements of the real world, allows them to develop skills that are needed in future workplaces. The authentic materials make students face the everyday usage of the language, in different life situations, thus preparing them for the future workplace's demands. Moreover, nowadays students can use different kinds of devices such as laptops, computers, tablets and smart phones to overcome the feeling of boredom in learning a foreign language. Monotony can be overcome since newer and more interesting materials can be accessed. The use of learning platforms help the students consolidate what they have already learnt, making them develop their own style and pace of learning. By relating to different authentic situations, students can also have insights of different fields of work and different aspects of living. But no matter which of these tools we use in classes, the role of the teacher is a challenging one since the teacher is the person in the front who designs and delivers the learning material, the learning tools and actually guides the entire learning experience. The fact that technology is there does not necessarily mean that it will be used efficiently. It depends on the teacher how it is used.

When teaching English as a second language, teachers must take into consideration the four basic language skills that must be developed: speaking, listening, reading, and writing. These skills can be divided into two main categories: input skills and output skills. Each of these skills has different educational tools that are suited with. The **listening skill** is supposed to be a main language skill as by listening students can acquire the vast majority of their education. Saricoban says that *"listening plays a vital role in the student's language development"*[328]. The listening comprehension can be achieved by the help of the computers, radio educational programs, use of CD players, etc. The **reading skill** is an important input skill as it represents the process of understanding the message of a written text. Constantinescu claims that *"reading depends on the vocabulary and background knowledge of the learner in the second language"*[329].

The following lines will give teachers some ideas on how they can make meaningful use of the existing technology and how to choose the materials to be used in classes. Students are supposed to be good communicators in English when they graduate university; they have to be able to share thoughts, ideas in many forms and to discuss different situations of life. So, the communication and collaborative skills must work together. Moreover, they need to create clear images and to be able to convey them to their interlocutor. When we learn something, we store it in the short-term memory, being able later to bring the information to light by using some connectors to the existing knowledge. Teachers can support their students in this process by organizing the information, by using digital learning resources and computers that prove to be at hand. The mental representations of the students are done by the help of the digital learning resources, processing content and even learning activities, information being presented by the

[328] Saricoban A., The Teaching of Listening, The Internet TESL Journal, 1999;
[329] Constantinescu A. I., Using Technology to Assist Vocabulary Acquisition and Reading Comprehension, The Internet TESL Journal, 2007;

use of audio recordings, videos, texts, and so on. In 2008 Mayer claimed that *"Research on multimedia learning have demonstrated more positive outcomes for students who learn from resources that effectively combine words and pictures, rather than those that include words alone."* When the students interact with the information provided through different resources, they process it and store it in the working memory. And research shows that the interaction between the students and the digital resources create a more meaningful learning activity than the one created by the teacher. Although these resources can be very attractive to students, they not always represent a learning support in English classes. The teacher needs to know how to present the resources themselves and how to integrate the information, making use of sound educational principles. John Sweller, in 1988, when talking about cognitive load theory, tells us that *"the learning resources must be designed to reduce the load on our working memory in order for us to be able to construct schema"*. The construction of the frame is extremely important, and thus, all the activities that are not directly related to it have to be excluded. There are two other things that are crucial in choosing the digital learning materials: the experience of the learners and the complexity of the material that has to be in accordance with the level of the learners. Moreover the resources have to cover the topic that is being taught and the information has to be conveyed directly. When talking about the learning materials we include all types of materials including those ones which improve the speaking skills of the students. We all know that the communication is the process of conveying a message from the sender to the listener. The functions that both perform have to be positive ones: the sender has to put the message into words, into spoken language while the listener has to receive the message and understand the language of the message. There are several speaking activities available on the Internet, among which we mention: the use of voice chatting and the use of specialized programs. Besides developing the speaking skills of the students we can also insert writing activities supported by technology. And at this point things are a little bit easier. Although, for the students, writing activities are challenging, the use of the technology can make the process more enjoyable and much easier. The existing word processing programs can improve grammar skills and even the use of study of grammar can be a more motivating one in comparison with the traditional one.

In order to evaluate the benefits of using technology in learning English as a second language, we have undertaken a case study, by using a questionnaire form given to the students of the Faculty of Economics, from University of Oradea, Romania. The results of our study are the following:

- 85% of the students use technology in their everyday lives;
- 95% of the students consider that technology has helped them improve their English;
- 95% of the students consider that the use of the Internet improves their English vocabulary;
- 95% of the students consider that the use of the Internet helped them develop their writing skills;
- 85% of the students consider that the use of the Internet helped them develop their listening skills;
- 85% of the students consider that the use of the Internet helped them develop their speaking skills;
- 75% of the students prefer classes using technology to learn the English language.

The results of the case study that we have undertaken show us exactly that the majority of the students consider that the use of technology helps them improving their second language skills, preferring classes based on the help of the computer instead of the traditional ones. We have also noticed that there were some drawbacks regarding the traditional methods of learning a second language. The first and the most important, in our opinion, is that students consider these classes lacking the connection between theory and practice. And as we have already mentioned in the above lines, the ultimate goal of our classes is for our students to be able to express themselves in English in certain life situations. The second drawback is that the traditional method lacks motivation and the sense of excitement. Another drawback is that the traditional method is somehow teacher-focused, as the activities are based on the teacher and not on the students, while the modern technology used in the process of learning, give the significant role to the student. Another important drawback is that the conventional technical methods are way slower than the modern ways in learning English.

Conclusions

Technology represents an excellent support in teaching and learning a second language. It does not reject traditional methods but it comes as a completion of the entire process in the fact that it offers a wider range of knowledge forms. Thus, the language classes become more attractive, dynamic and interesting. Taking into consideration these aspects, the conclusion is absolutely obvious: we live in the era of the technology, thus, the process of learning English as a second language has to be based on modern technology that has to be continually updated. The instruction process has to contain attractive, demanding and up-to-date materials that can be achieved by the use of the modern technology. The devices used in classes can be regarded as a means of transferring the information to the learner and putting the learner in the situation of practicing the foreign language. They can be also regarded as a link between theory and practice, thus developing the language skills. Moreover, as there is a clear demand for technology in language classes among the students, the educational institutions should put a clear emphasis on the modernization of the technical capabilities, equipments and laboratories which represent a clear support in the complex process of learning a second language.

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INNOVATIVE PROJECT FOR ROMANIANS HEALTH PROBLEMS. THE LIFESTYLE CENTER FOR HEALTH

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https://doi.org/10.31410/itema.2018.965

Abstract: *At present, in the context of the development of society, this great world is sick, and wherever the children of the people live, the mistaken customs and suffering abound. Despite the progress of medical and surgical science; in spite of the army of the great skilled physicians who, like a white army, are thrown into the fight against disease and death, in all civilized countries, suffering and illness grow rapidly. We mingled in the good course of the wonderful human machining, and its delicate mechanism was made to work against the law of its life and resistance; the consequences were sickness and death. What is the remedy? Above all, it is knowledge. What are the laws of our being, both spiritual and physical?*
It is the mission of that Center to completely rebuild the people; His bringing to life project came from discovering the needs of men to give them health, peace and completeness of character. How to preserve and improve health, how to prevent and treat disease is the goals of this Center.
The perfect remedy for the sick of mankind is to guard and cherish all the spiritual, mental and physical laws of our being. Teachings are not purely technical. They can also be understood by non-specialists. The exposed requirements regarding spiritual, mental and physical health and well-being are so logical that they can be fulfilled. Of particular value is what is related to disease prevention; for, as an old proverb says, it is better for a foresight than for abundant treatment.
Clarifying prevention requires immediate intervention in Romania, but also in other countries of the world. This document clarifies the most important aspect of prevention, lifestyle and education.

Keywords: *health, education, prevention, lifestyle, well-being.*

INTRODUCTION

Individuals and legal persons have the right to establish medical and sanitary institutions (curative, prophylactic, pharmaceutical and other) and are responsible for their financial and technical-material insurance, for the organization of healthcare and for their quality, according to the legislation in force. And we will refer specifically to Preventive Medicine Centers and Preventive Medicine Hospitals in the Western countries and then to Romania (Herghelia-Tg Mureş, Podiş-Bacău, Codlea- Braşov- building, Malul Mierii- Dâmboviţa).
These centers have started on a health education basis as the author says: Healthy lifestyle practices are planned for people to be determined to adhere to the principles of an optimal lifestyle (Pakholok O., 2013).

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The purpose of this study is to present the principle according to which all state or public organizations and citizens are obliged to respect, in their work, the law on health. One of the principles of the health care system is also that of accountability for each person's health. The method used is to promote health education through health promotion programs through health education for the population.

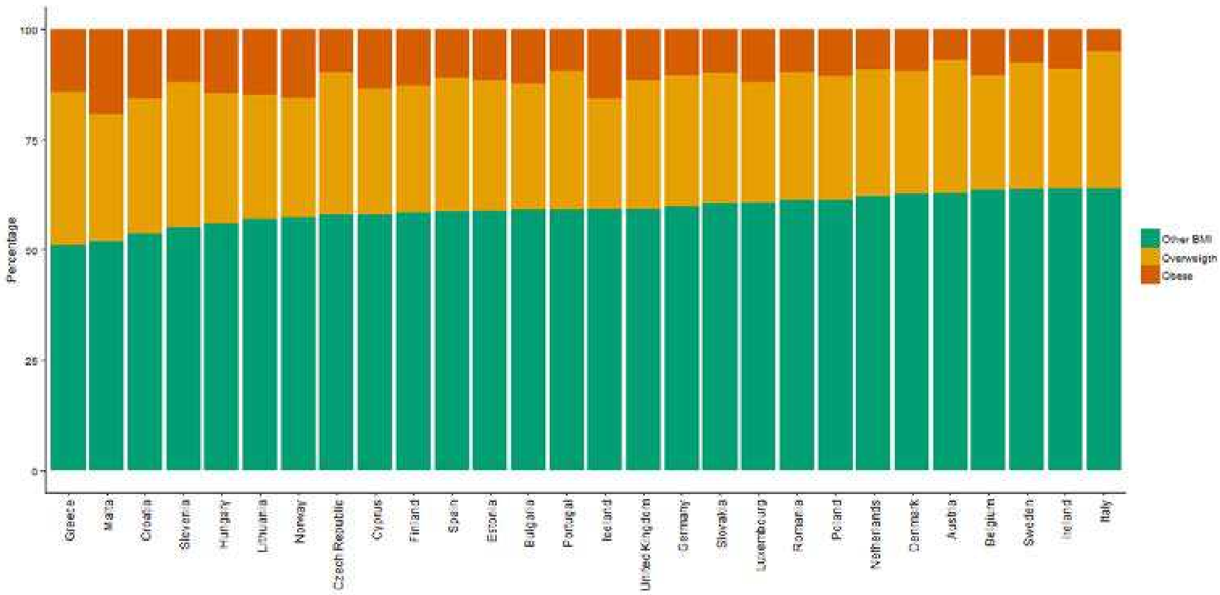
CONTEXT

The impact of health education in such preventive medicine centers will somewhat influence the health of the population. Education, age and occupation are very important in conforming to health through education. Empowering the population for health involves identifying a better health program. Through population accountability programs, change can be promoted in order to adopt a healthy lifestyle.

The results of December 2014 showed that, from the body mass index point of view Romania was among the countries with a fairly high percentage of overweight, but obesity was lower than other European countries (Figure 1).

One of the findings of the study was that countries that had higher spending on health have a better state of health for the inhabitants, and a healthier lifestyle leads to increased life expectancy.

Figure 1: Overweight in all countries



Source: Final report Maceli

This can be a real support in the process of changing and gaining health. Generally, the main factors influencing lifestyle are dietary trends, physical exercise, even unhealthy habits; As well as working conditions, public and domestic behaviors. In order to channel resources for better health, health clubs, sports halls, fitness centers have been set up so that people can invest in their health.

CIRCUMSTANCES

In order to identify the fulfillment of the task of accountability of the population to health, we will have indicators that show how effective the strategic objectives of health education were. To strengthen the goals, healthy lifestyles will be promoted through various products and services so that people can be attracted to invest in health. Individuals are affected by stress and a sedentary lifestyle, rated as "modern diseases". The impact of obesity on the population will in some cases influence the health of citizens.

Obese children and adolescents have an increased risk of joint problems, sleep apnea, social, psychological problems. The obese child has a high risk of becoming obese adult. That is why it needs to intervene early, preventing health complications. A UNICEF 2009-2010 report that looked at 11, 13 and 15-year-old children in 29 countries showed that the highest percentage of obese children was registered in the US (nearly 30%), our country being (15%) (Figure 2). The percentage of children who ate daily breakfast (considered the main meal of the day) was the highest in the Netherlands (almost 90%), Romania being in the last place (about 45%) (Figure 3).

Figure 2: Percentage of overweight children

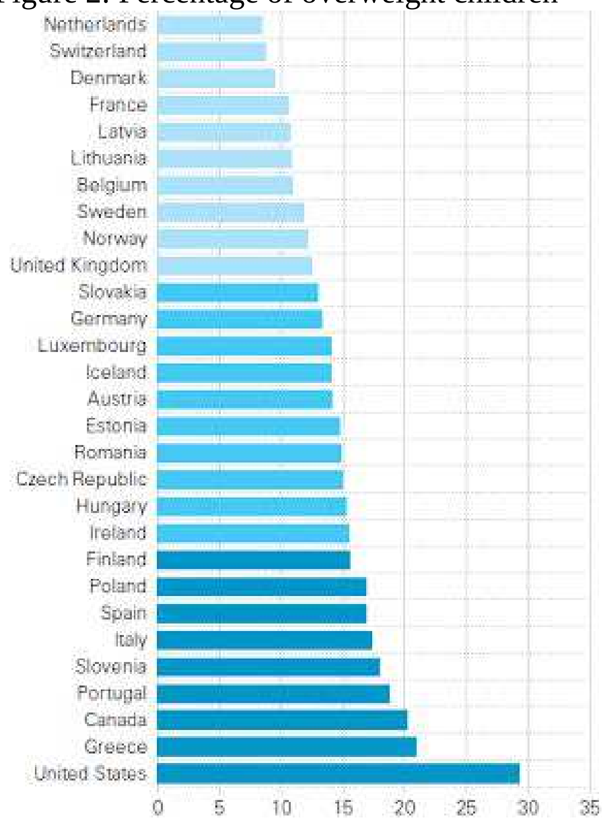
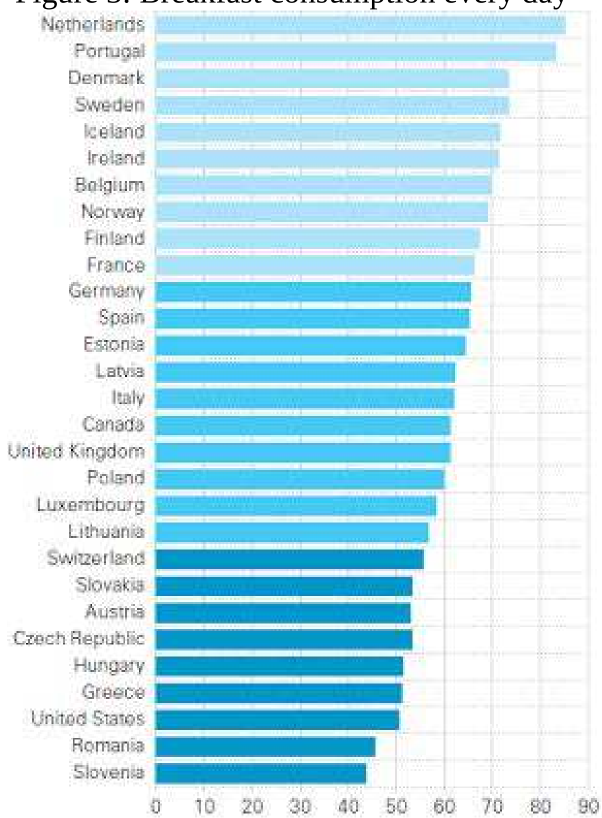


Figure 3: Breakfast consumption every day



Source: UNICEF Report 2009-2010

There is more and more the category of people who could have correctly lifestyle, and have a balanced diet so that they are not affected by these "diseases" even outside the city. There are several different types of stress. It is generally accepted that accumulated stress can fuel health problems and food can help or hinder the process, inevitably involving many people. Education, age, occupation are of great importance. These include sedentary work, balanced nutrition and exercise time. We know that balanced nutrition is not the best way to have optimal health. But diet can relieve disease symptoms, and a program to promote an ideal diet, as well as preventative medicine, would support the move to a change in gaining health.

CONCLUSIONS

For people to become more responsible for health, strategies must be found so that lifestyle change can be a good outcome for health education. By going through different stages of change, day after day, new good habits can be adopted so that people can acquire practical solutions to combat bad habits that affect health. To gain success from health education, it takes an impact of change that develops a process of adopting a new lifestyle. To start a change program, a target and goals are needed over a determined period. A monthly analysis of the change process reports can highlight the pluses and minuses of the Health Empowerment Program and the adjustment and adoption of new education strategies.

It is the mission of the Malul Mierii Center to completely rebuild the people; His bringing to life project came from discovering the needs of men to give them health, peace and completeness of character. How to preserve and improve health, how to prevent and treat disease is the goals of this Center.

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THE LEND OF LIFESTYLE CHANGE AS A WAY TO ACHIEVE BETTER ECONOMIC & MANAGEMENT SUCCESS

Marinel Cornelius Dinu[332]

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Abstract: *The development of society also requires special care for health. Health is a special human capital that benefits individuals and society. It is defined by the state of harmony established between the natural gifts received by people at birth and the choices set for a particular lifestyle throughout life.*
The goal of this paper is to present several ways to balance the chosen lifestyle, to identify and eliminate the causes of the most common diseases and to show its influence on the entire societal development.
Research focuses on the role and effects of good changes in nutrition and behavior. When the right lifestyle is adopted, change is a gain (Reunen, 2015), with individual and social consequences. To put health problems into daily activities and habits involves identifying factors that directly affect people's lives and labor - such as shortcomings, dissatisfaction, or stress. In order to achieve better results, people use to adhere to different principles; however, they often receive opposite effects, which they know to read them correctly, their value and needs, and the real conditions of life (Pakholoc, 2013).
The objective of the paper is based on the challenges offered to all categories of people who decide to change their behavior and lifestyle by adopting alternatives to stress, sedentary and dysfunctional nutrition. Two hypotheses are considered (cognitive and emotional) to deepen the analysis between the desire to take a new initiative to get health and to develop new relationships between different actions such as the decision to change, the abandonment of wrong habits and the creation of a new mentality, for the individual and society benefit.

Keywords: *life style, health, added value*

INTRODUCTION

In a society where are difficult situations (Viciu, 2012) in all fields of activity it is useful to identify best, measurable and successful best practices or activities to promote a healthy lifestyle (Robinson, 2014). It is intended to show how these practices are planned for people to be determined to adhere to the principles of an optimal lifestyle (Pakholoc, 2013).

Among individuals affected by stress (Cohen, 1983) and a sedentary lifestyle, rated "modern diseases", there are more and more those in the category of people who could manage a healthy lifestyle so that they are not affected by these "diseases" just outside the cities (Olshansky SJ, 2006). This is the challenge for young people and adults who want to adapt to sedentary work, as they attach to at least a few moments of physical activity (Groven, 2013) that positively influence the body and the mind.
The objective program is for better health through a balanced diet (Johansson, 1999), so that the diseases of the century do not affect the population. We know that balanced nutrition is not

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the best way to have optimal health. But diet can relieve disease symptoms, and a program to promote an ideal diet, as well as preventative medicine (UNIYAL, 2004), would support the move to a change in gaining health (Campbell, 2006). The benefits of balanced nutrition are noted in the central nervous system, inducing a sense of well-being. Dedicated time for scheduling activities to support a healthy diet such as practicing it induces this sense of relaxation. On the other hand, a sedentary life without a balanced diet is followed by a decrease in interest in change and in gaining health.

CONTEXT

The purpose of this paper is to suggest the option of change for gaining health through a changed lifestyle. Promoting a healthy diet also involves an assessment so that we should analyze the perspective of the purpose.

In the present study the paper proposes the following verification: there is a relationship between dedicating a time for lifestyle change and the perceived damage resulting from the omission of a healthy lifestyle.

Table 1: Health books and nutrition classes

Read books of health	**Buy health books**	**Take free nutrition classes**
16/70	31/70	60/70
23%	44%	85,7%

Source: personal contribution

Figure 1: Health books and nutrition classes

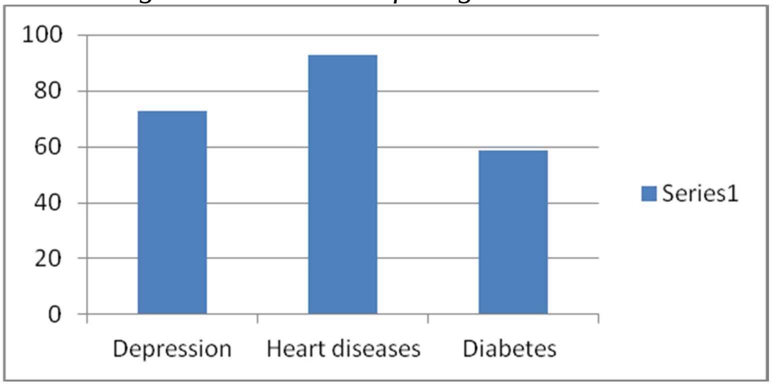
Source: personal contribution

Table 2: The levels of dangerous diseases

Depression	**Heart diseases**	**Diabetes**
51/70	65/70	41/70
73%	93%	59%

Source: personal contribution

Figure 2: The levels of dangerous diseases



Source: personal contribution

It seems that the analysis results that the stress is on the second place among diseases subjects, which is a high-risk (73%) compared to the level of heart disease (93%).

Regarding the relationship between frequency of participation in physical activity and perceived stress levels, we found it below average among people.

It seems that those who devote time to exercise can be characterized as "active and healthier", is a "very good" physical condition.

This overview motivational indicates that persons, who devote time to get the change needed by food, realize the importance of healthy food in achieving a healthy lifestyle.

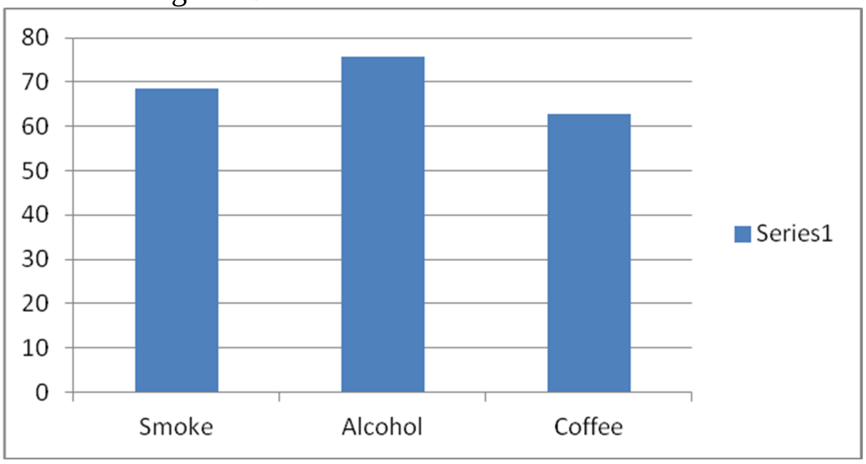
Table 3: Favorable contributions to diseases

Smoke	**Alcohol**	**Coffee**
48/70	53/70	44/70
69%	76%	63%

Source: personal contribution

Table 3 shows that many people use alcohol (76%) followed by smokers (69%) and coffee drinkers (63%), contributing favorably to the diseases listed above.

Figure 3: Favorable contributions to diseases



Source: personal contribution

CIRCUMSTANCES

The new trend in health, adopted in large companies, supposes that in order to create a new style of approach, which includes the promotion of health in the products or services rendered an attraction to the investment. Companies tend to adopt the behavior of customer attractiveness through slogans that contain health analogies. Studies have shown that people have a defensive attitude towards moving to a healthy diet. However, young people and adults tend to have a balanced lifestyle. The key condition for increasing the success rate of a balanced lifestyle is good management of change. The term "change" is completely eliminated, the individual bears the universal footprint of an "ideal untouchable", regardless of the optimal results awaiting the completion or health that he will acquire. Without change management positions, every change of impact on society does not result. Failure to manage change will not result in the expansion of a healthy lifestyle. Such health campaigns would underline principles such as engagement and promulgation, which requires a radical shift in the organization and ways of gain tracking - in other words, the campaign aims to reorganize how it designs health gain through health programs from all points of view, sometimes involving profile readjustment.

To become a manager of change to gain program health, it's important to know how to manage change steps. Organizing tasks involves health gains and means to work in specific areas so that every step towards promoting a smart health program style becomes a step towards the skill of effective change perspective. As regards the setting of objectives, it is indicated that they are implemented in the long term and short-term identified tasks. Also, a periodical analysis of the achieved goals or of the progress made on various activities can become an indicator of performance to be taken into account.

In order to create a balance between personal life and collective life and to stay as efficient as possible for the time being, it is important when individual loading with some problems is delegated to other members of the team, others to be rejected from the beginning and for the average ones to identify technical solutions for faster resolutions (Reunen 2015).

Another way to succeed in fighting change is to prioritize, simplify or even eliminate some of the mechanisms of change. After some consideration, certain techniques of change must be removed from the strategy, and it is important to apply the mechanisms accepted in the process of change and the organization of more important mechanisms and techniques (Gulap, 2013). Rejecting additional strategies, even if they have a direct impact on the main activities that need to be done may most often be the correct approach, studies have shown that many techniques and strategies require efficiency deflation, the individual is forced to focus on different steps and procedures.

CONCLUSIONS

The conclusions that we have from the processing and interpreting data, validates our hypothetical research. Based on our data, we conclude that, for the proper health program of change and gain health, we should find a balance, and steps from strategies should be practiced daily little by little using practical solutions for combating unhealthy habits and sedentary lifestyle (Belanger, 1997).

To successfully accomplish the mission of becoming a moment of change, tasks can still be about starting from the overall image of the goals, then creating a small image in order to select one or two primary objectives per day. As regards the setting of objectives, it is indicated that they are implemented in the long term and short-term identified tasks. Also, a monthly analysis of the objectives achieved or of the progress made with regard to various changes may become an indicator of performance to be taken into account.

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MAXIMIZING THE AMOUNT OF PICKED FRUIT REGARDLESS OF SPECIES AND VARYING CHARACTERISTICS BY IMPLEMENTING PRINCIPLES OF HUMAN – ROBOT INTERACTION IN GREENHOUSES – MODEL MULTIHBOT

Sara Gračić[333]

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Abstract: *The expectation of increasing yields to meet the growing food demand of the increasing population resulted in the new agricultural trend of producing robust machinery combined with precise farm traffic as well as a high price to pay. Constant high pressure on the soil and repeatedly traversing exactly the same route results in concentrated soil compaction damage and machine failures decrease productivity and income. If possible, investments in new machines do not guarantee the increase of goods in the same amount. Farmers work in harsh, even hazardous conditions (pesticides, fungicides and herbicides for plant protection), which have negative impact on their health. On the other hand, science has advanced in the field of robotics, so possibilities and effects of implementing these achievements in agriculture are being examined. Agricultural robots (AGROBOTS) are an extension of a human hand with the goal of replacing him/her in performing difficult tasks and/or in hazardous environments and/or with a variable climate. They can traverse unstructured, unpredictable terrains, while being exposed to the environment. It is expected of them to perform very complex tasks e.g. picking different types, sizes, shapes and colors of fruits, in a highly variable environment where illumination is unequal, locations are random and undefined and climate related factors can drastically worsen working conditions (mud, strong winds, dust, different light settings depending on the position of the sun and the clouds), which will affect their performance. Therefore, it is important to understand the principles of Human-Robot Interaction (HRI), which gives insight into how people and machines can collaborate to achieve desired results. Based on literature review of scientific papers from Google Scholar and Mendeley, the author has identified two problems related to agrobots, which will be in focus of this research. First problem is related to harvesting fruits in real surroundings, because robots are not always able to distinguish a leaf from a fruit. Second problem is that these robots are limited to picking only one type of fruit. To solve these problems, MultiHBot, a robotic model based on HRI was designed. Human controls the picking process via Wi-Fi console through robotic vision, arms and scissors. When a human spots a fruit, he/she instructs the robot to "harvest" it. This ensures that all fruits will be picked, thus maximizing performance which is measured in quantity of picked fruit and revenue. This also means that MultiHBot can be used for harvesting every culture, thus eliminating the need for having different robots for different cultures, with an obvious benefit of cost cutting. MultiHBot could also be used for spraying seeds, if necessary. The robot's movement along the floor rail is automated and positioning is based on sensors. Combining human intelligence for performing complex part of procedures with robotic automation of simple parts will eliminate physical presence in the field and ensure successful completion of the whole process, increase in productivity and income.*

Keywords: *Agrobots, Human-Robot interaction, process*

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1. INTRIGUING FACTS ABOUT (MODERN) AGRICULTURAL PRODUCTION

It is expected of agriculture to increase yields to meet ever-growing food demand of the increasing world population, which essentially means more intense crop and cattle cultivation to produce more food [1]. This has resulted in a trend of manufacturing robust agricultural machinery combined with precise farm traffic [2] and a high price to pay. Constant high pressure on the soil, due to complexity, size and weight of the equipment and repeatedly traversing exactly the same route results in concentrated soil compaction damage and machine failures decrease productivity and income [2].

Assuming investing in the state-of-the-art agricultural machinery is possible (which depends of farmers' financial strength), increase in production in the same ratio is not guaranteed. Production volume is determined by the surface of cultivable area which cannot be increased; soil fertility; matching different cultures with adequate type of soil; specific area's climate; irrigation systems etc. Serbia is faced with migration to cities, brain drain and white plague, which are erasing villages, thus leaving hectares of fertile land uncultivated. Floods are causing problems due to inadequate protection systems.

Farmers work in harsh, even hazardous conditions (pesticides, fungicides and herbicides for plant protection), which have negative impact on their health. On the other hand, science has advanced in the field of robotics, so possibilities and effects of implementing these achievements in agriculture are being examined.

2. ROBOTICS RESPONDS TO SPECIFIC AGRICULTURE CONDITIONS

Due to unfavorable/specific conditions in agriculture [3], robots are being applied as a perspective alternative to decreased number of farmers, which is considered a mayor bottleneck in agricultural production [4], [5]. AGROBOTS are an extension of a human hand with the goal of replacing him/her in performing difficult tasks and/or in hazardous environments [6] and/or with variable climate.

They can traverse unstructured, unpredictable terrains [7], while being exposed to the elements [6]. It is expected of them to perform very complex tasks e.g. picking different types, sizes, shapes and colors of fruits, in a highly variable environment where illumination is unequal, locations are random and undefined and climate related factors can drastically worsen working conditions (mud, strong winds, dust, different light settings depending on the position of the sun and the clouds) [7], which will have effect on the quality of their performance [6]. So, it is important to understand the principles of Human-Robot Interaction, which gives insight into how people and machines can collaborate to achieve desired results.

3. PRINCIPLES OF HUMAN-ROBOT INTERACTION (HRI)

HRI is committed to understanding, designing and evaluating robots for use by humans or their collaboration [8], it includes knowledge in robotics, human factors, cognitive science, natural language, psychology and human-computer interaction to understand their relationship [7].

HRI can be: *remote* - human and robot are separated spatially or temporally and *proximate* – when they are collocated [9]. Robots can be completely automated and with their further development, it will be expected of them to perform more complex tasks [7]. By including a human, robots' performances improve, which can lead to cost cutting and economic feasibility of a project - a limiting factor for commercialization of AGROBOTS [10].

Instead of autonomous robots, use of teleoperations [11] based on HRI [8] is proposed. In HR relationship, this is a human's understanding of location, activity, status, environment of the robot and the level of certainty related to these data. In RH relationship, this is the knowledge a robot has of human's commands and restrictions that may require changing course of action or command noncompliance.

Awareness of the location means understanding where the robot is currently located or moving towards, where it was, where it still needs to go. *Awareness of activities* means understanding what the robot is doing and its progresses, whether human intervention is needed and is the robot performing tasks it should. *Awareness of status* means understanding information about the platform, computer system, cameras, sensors, speed, energy level and status of a task, e.g. the remaining amount of spraying liquid. *Surroundings awareness* means knowing what is around the robot while performing tasks e.g. farmers, other robots and weather conditions. *Overall mission awareness* means understanding all of the above stated and deciding on future robot activities.

The advantage is in combining human "know how" and robot's accuracy, repetitiveness and strength to remove farmers from hazardous locations [7], e.g. when spraying plants [12], ease of use and better performance [13]. Still, farmers must be on the alert, and the question, for some, remains: are efficiency, comfort and health worth the cost of such systems [7]? Those should get familiarized with work-related diseases and economics of healthcare systems.

4. RESEARCH BACKGROUND

BoniRob (V2) with greater robustness for continuous outdoor use and a reusable platform for multiple agriculture purposes with application modules ("BoniRob-Apps") was introduced in [16]. Penetrometer App integrates a mechanical actuator for measuring soil properties which penetrates to a depth of about 80 cm and shows constant characteristics and allows replications for a large number of measurements. Phenotyping App is used for plant characterization based on multi-sensor applications, including morphological and spectral characteristics, which will enable single plant management. Precision-Spraying App detects green surfaces and sprinkles only plants with herbicides, thus drastically reducing the amount of pesticide used.

In [14] empirical evidence in favor of human-robot cooperation in target recognition tasks are presented. Detection was increased by 4% compared to a human and by 14% compared to a fully autonomous robot and detection time was reduced [15].

The authors in [7] developed a robot for selective vineyard spraying. Traditionally, hand sprayer or tractor carrying sprinklers is used, thus resulting in excessive use of pesticides and endangering a farmer's health. The HR sprinkler enables targeted spraying and decreases pesticides usage, while a farmer is at a safe distance.

In the AURORA project [17], a robust, low-cost robot, capable of autonomous navigation in different types of greenhouses, is proposed. Authors in [18] present a robot that monitors plants' health, dispersion of chemicals, medicines and fertilizers in greenhouses.

In [19], an autonomous mobile robot controls pests and is in charge of disease prevention in commercial greenhouses. It can independently navigate through the rows, while pesticide spraying system covers plants evenly in defined dosages.

Navigation methods of mobile agricultural robots in greenhouses are discussed in [20]. Many problems are caused by repetitive, dangerous tasks performed by humans, which can be easily avoided by using robots. Autonomous navigation was solved by using intended and pseudo-reactive techniques. The first uses a mapping algorithm to create a safe path without obstacles. The second uses feedback from the sensors to move safely through the greenhouse. Both approaches were tested in a real environment, with promising results.

A robot for the recognition and cutting of sweet peppers in greenhouses was introduced in [21]. It has a built-in image processing system with parallel stereo vision. A prototype has been made. Experiments show that the robot's performance depends of the fruit recognition, since it has the ability to choose sweet peppers. The left camera has to recognize a sweet pepper. If it does, it calculates the distance on the left side along the x and y axis. The right camera performs the same task. If both cameras detect a fruit, 3D coordinates are determined. The scissors open, harvest the fruit, insert it into a basket, close and the robot continues the search. In the first experiment, all peppers were successfully cut, because there were no leaves. In the second, carried out in realistic conditions, all the peppers were identified, but only those on the left and the centre were cut, while the peppers on the right were not, because the robot did not see them from the leaves.

5. PROBLEMS IN FOCUS OF THIS RESEARCH

The experiments in [21] showed that harvesting fruits in realistic conditions is not accurate and the robot is limited to a specific type of fruit. First problem in focus of this research is to ensure that a robot picks all the fruits from a plant in order to maximize the effect, i.e. to harvest all fruits to provide more food and maximize revenue. Second problem in focus is to extend harvesting capabilities to other cultures, thus creating a universal greenhouse robot.

6. MULTIHBOT

MultiHBot is a robotic system based on HR interaction principles. It enables human control of the processes of identifying and cutting fruits and it can be used for picking any type of fruit, by using human knowledge and instructions. The robot has a camera for visualization, two robotic arms, with 7 degrees of freedom, for moving leaves and scissors for cutting fruits.

The robot is mounted on floor rail used for circulating through the greenhouse. Human interacts with the robot via console and voice commands. Sensors are set in front of each plant. When a robot registers the signal, it stops, rotates the camera, basket, arms and scissors towards the plant.

The console has two circles, each for maneuvering one robotic arm. A human uses the circles when performing leaf coverage check-up. If the check-up results in a covered fruit, a human has the ability to position robotic arms and direct the scissors to cut the fruit. The robot puts the fruit in the basket.

At the end of each lane, the basket is changed, thus ensuring that the weight of picked fruits does not cause problems in speed or excessive pressure on the floor rail. When the robot is passing by the basket to enter the next lane, the basket registers it and automatically goes to the entrance using the same floor rail. When the processes are finished, robot and baskets are returned to their initial starting points.

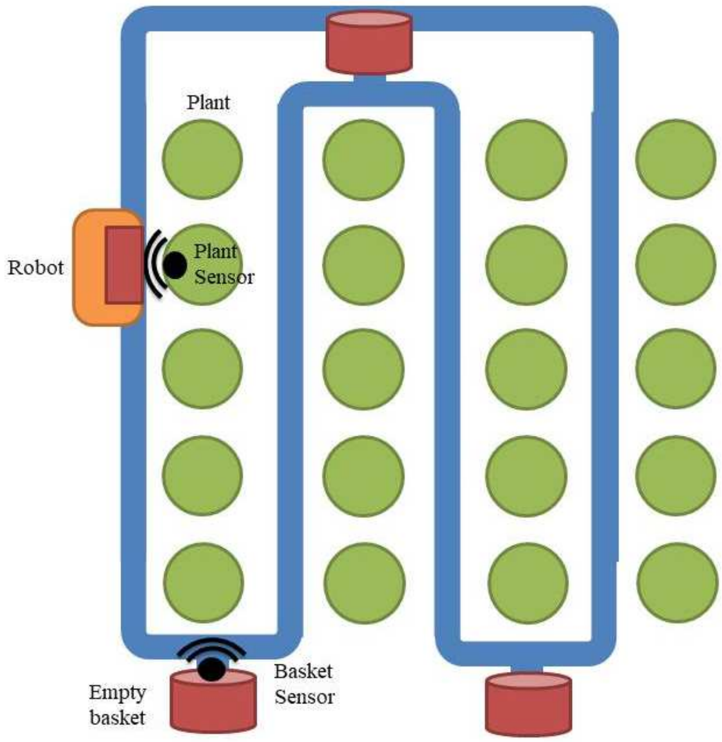

Figure 1: MultiHBot picking fruits in a greenhouse

In this way, the problem of not differentiating a fruit from a leaf is solved, as well as the problem of constructing robots for picking only one type of fruit, because human intelligence distinguishes leaf from fruits, regardless of species. Robotic field work will enable the replacement of human presence in a classical working environment, while ensuring successful execution of tasks in order to increase productivity and consequently, income.

Although the model could also be used for spraying seeds, it will not be used for this purpose, because the idea is to grow organic food, as a mandatory part of healthy lifestyle, which is gaining more importance world-wide.

7. CONCLUSION

Technology can be used to facilitate and improve working conditions of agricultural producers. Two problems, the inability to distinguish fruits from leaves and performing tasks for only one type of fruit were successfully solved with MultiHBot, as part of fully automated greenhouse, and human interventions. Future research of the author will be focused on higher level of automation of MultiHBot.

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ANALYSIS AND FORECASTING OF PRICE PARITIES FOR VEGETABLES IN SERBIA

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Abstract: *The analysis and forecasting of price parities for vegetables were made in relation to the prices of cereals – wheat in Serbia. The objective of the analysis and forecasting of these parities is to forecast the relative economical (price) positions of certain vegetable crops by comparing them to agricultural (field crop) products represented by wheat as the most important field crop in Serbia.*
The analysis and forecasting of the price parities was made in relation to wheat for the following vegetable crops: potato, bean, tomato, pepper, onion and cabbage.
The price parities were analyzed by means of descriptive statistics for the period 1994–2017. The analysis included the basic statistical indicators: average value of occurrence, extreme value (minimum and maximum), coefficient of variation and average annual rate of change (r). Based on the established parity change rates (r) in %, the forecast was made for the period 2018-2022.
The data used in the analysis refer to the prices in Serbia. The price series in this paper are either taken from or formed on the basis of statistical publications of the Institution of Statistics of the Republic of Serbia for the relevant years. In addition to the official publications, data from the websites of the statistical institutes of the Republic of Serbia were also used as a data source.
Relative prices, i.e. parities of vegetables in comparison with wheat, as an indicator of the relative economic position of vegetables in comparison with other competitive crops, showed similar trends as the absolute, discounted prices. Slight increase of parity was noted for pepper, while the parity for bean and tomato showed significant increase. Slight decrease of parity was recorded for potato and onion. The parity for cabbage showed significant decline.

Keywords: *vegetables, price parity, Serbia, forecasting*

1. INTRODUCTION

Vegetable production can and should play a significant role in rural development. Realistic assumptions for this hypothesis are as follows:

- The time required for vegetable production is relatively short, meaning that the land can be used for 2, 3 or 4 seedlings per year, which significantly increases the capital turnover, thereby improving economic results;

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- Vegetables are extremely important for a healthy diet;
- In the conditions in our country it is possible to grow dozens of different vegetable crops;
- Vegetable production is labour-intensive (requiring high investments in labour force and employment);
- Production of vegetables requires intensive investments (in irrigation, protected area, foil, other intermediate material);
- Vegetable production creates enormous mass of organic matter;
- Vegetable production entails the need for development of livestock production (owing to the need for organic fertilizers).

The most important economic factor in the development of agriculture is price relations (parities). There are three main types of price parities:
- Price relations between agricultural products and inputs in agriculture,
- Price relations between certain types of products within agriculture, and
- Price relations between agricultural and food products.

The price parities between certain types of products within agriculture affect the development of certain lines and branches of agriculture.

Analyses and forecasting of product characteristics of certain vegetable crops, areas, yields and annual production in Serbia and the region have been carried out by a number of authors: [1] - [8].

In addition, a certain number of papers dealt with forecasting vegetable prices and their parities. The models most commonly used for forecasting were ARIMA models ([9] - [12]).
The subject of the research in this paper is the analysis and forecasting of vegetable price parities in relation to the price of wheat in Serbia.

The objective of the analysis and forecasting of these parities is to forecast the relative economic (price) position of certain vegetable crops in relation to competitive agricultural (field crop) products, i.e. cereals, represented by wheat as the most important cereal used for bread in Serbia.

The analysis and forecasting of price parities was made in relation to wheat for the following vegetable crops: potato, bean, tomato, pepper, onion and cabbage.

2. METHOD OF RESEARCH & DATA SOURCES

The price parities were analyzed by means of descriptive statistics for the period 1994–2017. The analysis included the basic statistical indicators: average value of occurrence, extreme value (minimum and maximum), coefficient of variation and average annual rate of change (r). Given the values of a time series Y with the length n, the average rate of change index is:

$$G = \left(\frac{Y_n}{Y_1} \right)^{\frac{1}{n-1}}$$

and the average rate of change: -

$$r = (G - 1)$$

where:

r = the average annual rate of change
G = the average annual index of change
Y_1 = the absolute value of the first member of the time series
Y_n = the value of the last number of the time series
n = the length of the series (the number of years).

Based on the established parity change rates (r) in %, the forecast was made for the period 2018–2022.

The data used in the analysis refer to the prices in Serbia. The price series in this paper are either taken from or formed on the basis of statistical publications of the Institution of Statistics of the Republic of Serbia.

3. RESULTS OF RESEARCH

The study includes a descriptive statistical analysis of the price parities for each analyzed vegetable crop in relation to wheat, followed by forecasting of the parities for a five-year period based on the established average annual rates of change (r).

The discussion and conclusion include a comparative qualitative analysis of the price parities of the analyzed vegetable crops, in order to forecast a relative trend of economic importance for each vegetable crop in relation to cereals as the most represented group of field crops in Serbia.

3.1. Potato/wheat price parity

The descriptive statistical analysis of changes in the potato/wheat price parity in the period 1994-2017 is presented in Table 1. In the analyzed period, the value of 1 kilogram of potatoes on average corresponded to 1.42 kilograms of wheat, showing considerable variations and recording a slight rate of average decline, below one percent per year. The most favorable parity was in 2000, while the most unfavorable parity was noted in 2005. Since 2014, the potato/wheat price parity has been quite stable, around 1.35.

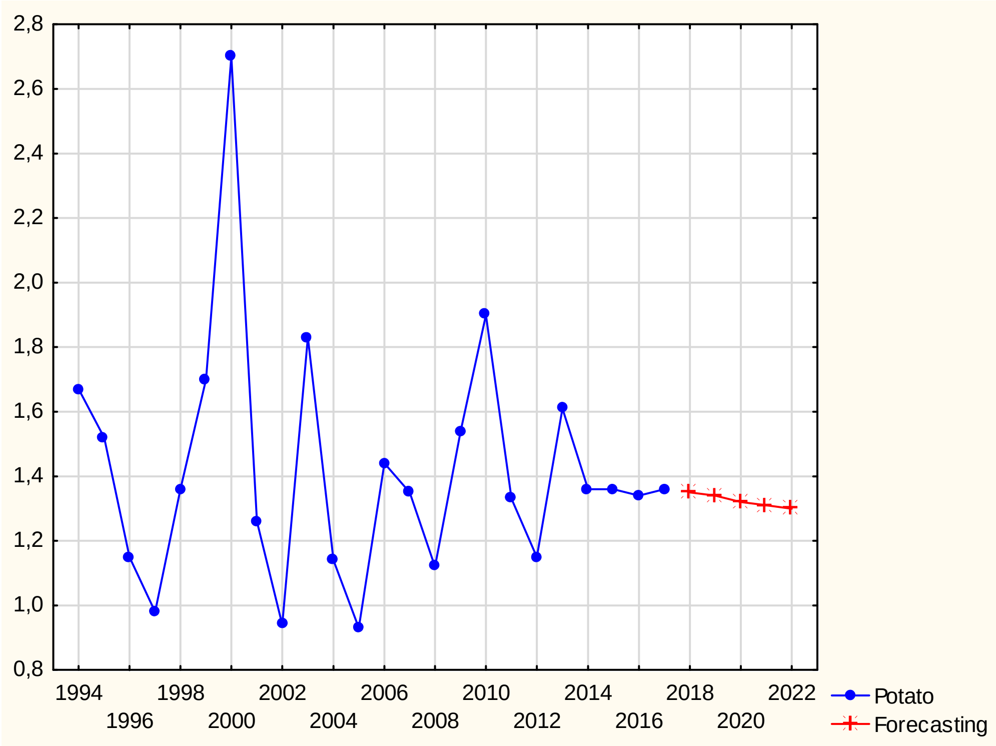
Table 1: Descriptive analysis of potato/wheat price parity in the period 1994-2017

Vegetable	Average	Interval of variation		Variation coefficient (%)	Average rate of change (%)
		Minimum	Maximum		
Potato	1.42	0.93	2.70	26.61	-0.89

Figure 1 shows the original data on potato/wheat price parity and the forecast for the following five years.

The parity will slightly decrease, so at the end of the forecasting period it will decline to the level of 1.3 kilograms of wheat per kilogram of potatoes.

Figure 1: Analysis and forecasting of potato/wheat price parity



3.2. Bean/wheat price parity

The descriptive statistics of the bean/wheat price parity in the period 1994-2017 is presented in Table 2. In the analyzed period, 1 kilogram of beans was worth on average over 9 kilograms of wheat. The maximum value of the parity was achieved in 2014, while the minimum value was observed in 1996. The variations in parity were similar to the variations in potatoes. The bean/wheat price parity shows a moderately increasing trend.

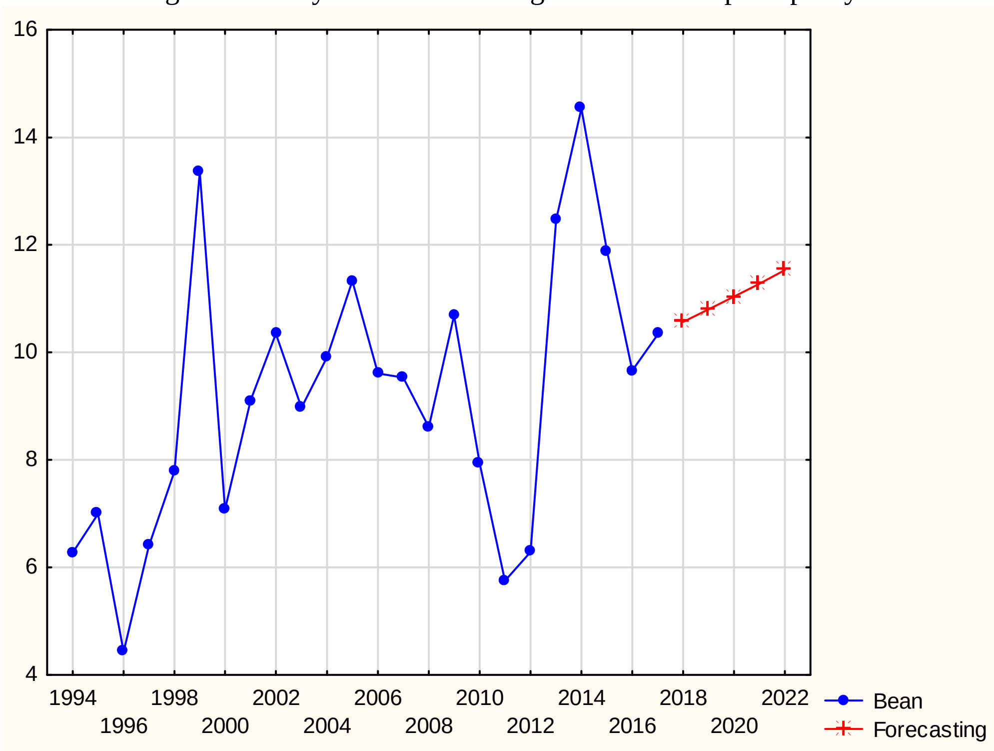
Table 2: Descriptive analysis of bean/wheat price parity in the period 1994-2017

Vegetable	Average	Interval of variation		Variation coefficient (%)	Average rate of change (%)
		Minimum	Maximum		
Bean	9.14	4.43	14.54	27.61	2.20

Figure 2 shows the original data on the bean/wheat price parity and the forecast for the following five years.

The price parity will improve, so it is forecast that in 2022 it will reach the level of 11.5 kg of wheat per kilogram of beans, which is significantly higher compared to the average value in the analyzed period.

Figure 2: Analysis and forecasting of bean/wheat price parity



3.3. Tomato/wheat price parity

In the analyzed period, a kilogram of tomatoes was worth on average almost two kilograms of wheat. The tomato/wheat price parity showed extremely high variability over the years. The most favorable parity was in 2014, while the most unfavorable parity was recorded in 1996. The tomato/wheat price parity showed a positive trend in the studied period.

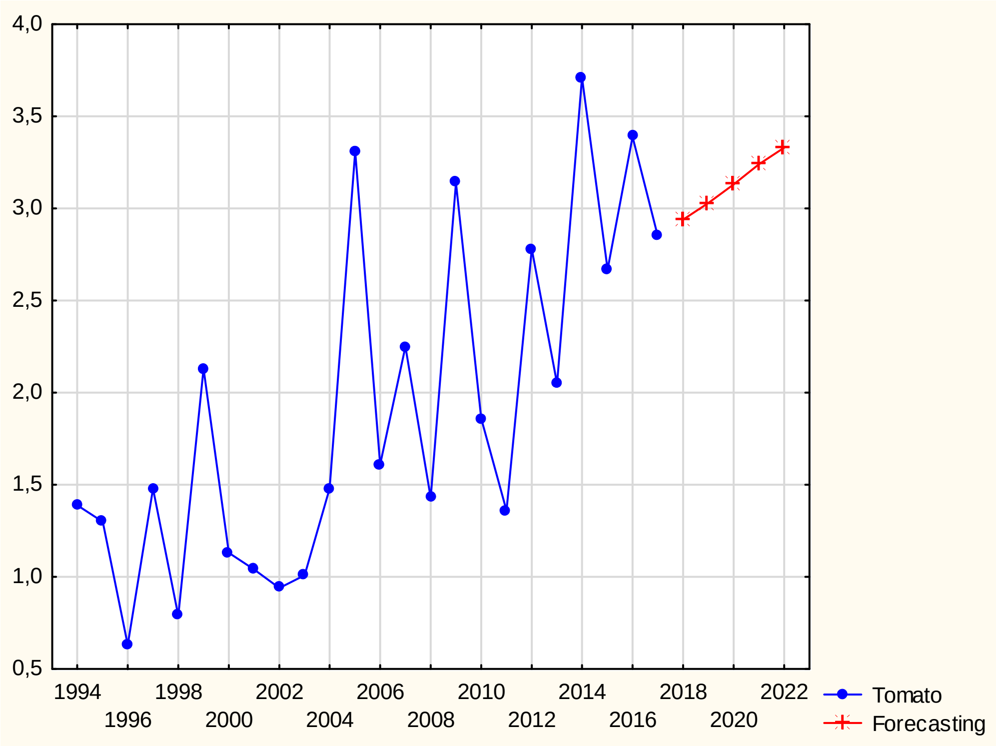
Table 3 presents a descriptive statistical analysis of the changes in the tomato/wheat price parity in the period 1994-2017.

Table 3: Descriptive analysis of the tomato/wheat price parity in the period 1994-2017

Vegetable	Average	Interval of variation		Variation coefficient (%)	Average rate of change (%)
		Minimum	Maximum		
Tomato	1.91	0.63	3.71	47.64	3.17

Figure 3 presents the original data on the tomato price parity and the forecast for the following five years. In the fifth year of the forecast, the price of tomato will reach a level of 3.33 kilograms of wheat.

Figure 3: Analysis and forecasting of tomato/wheat price parity



3.4. Pepper/wheat price parity

Descriptive statistics of the pepper/wheat price parity in the analyzed period is shown in Table 4. A kilogram of peppers was worth on average about 2.3 kilograms of wheat, with moderate variations over years. The maximum value of the parity was achieved in 2000, while the minimum parity was observed in 1997. The pepper/wheat price parity shows a slightly increasing trend.

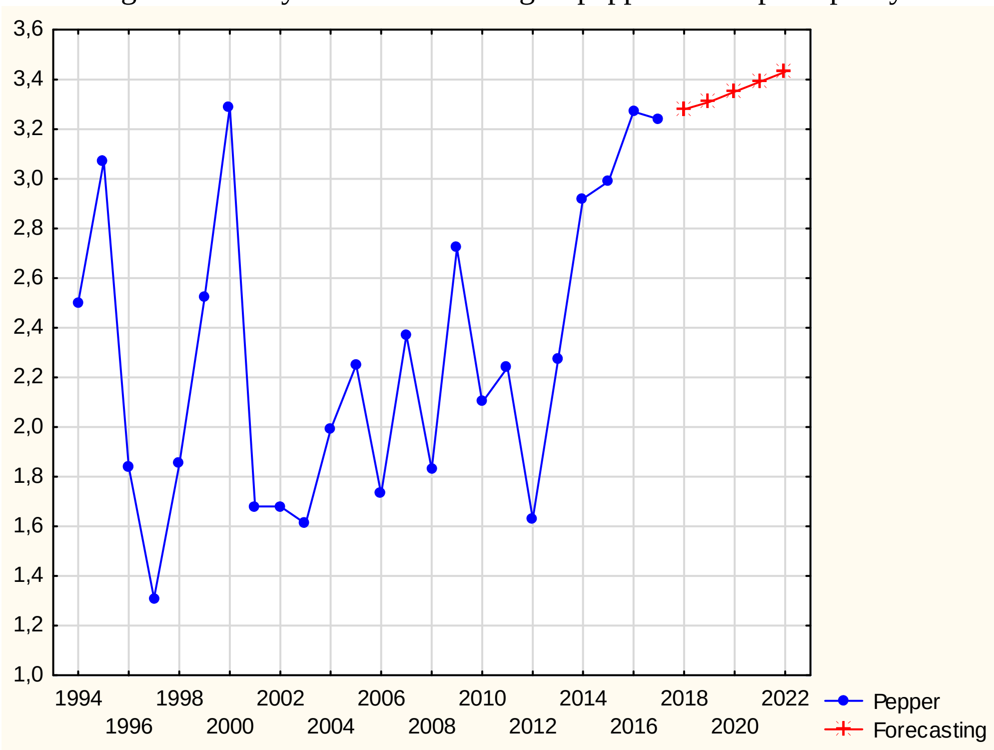
Table 4: Descriptive analysis of the pepper/wheat price parity in the period 1994-2017

Vegetable	Average	Interval of variation		Variation coefficient (%)	Average rate of change (%)
		Minimum	Maximum		
Pepper	2.29	1.31	3.29	26.26	1.13

Figure 4 shows the original data on the pepper price parity and the forecast for the period 2018-2022.

The price parity will significantly improve, so it is forecast that in 2022 the price of peppers will reach a level of 3.43 kilograms of wheat.

Figure 4: Analysis and forecasting of pepper/wheat price parity



3.5. Onion/wheat price parity

The price of onion in the analyzed period was on average 50% higher than the price of wheat. The onion/wheat price parity shows high variability over the years. The most favorable onion/wheat price parity was in the first year of the analyzed period (in 1994), while the most unfavorable parity was in 2014. The price parity shows a slightly downward trend.

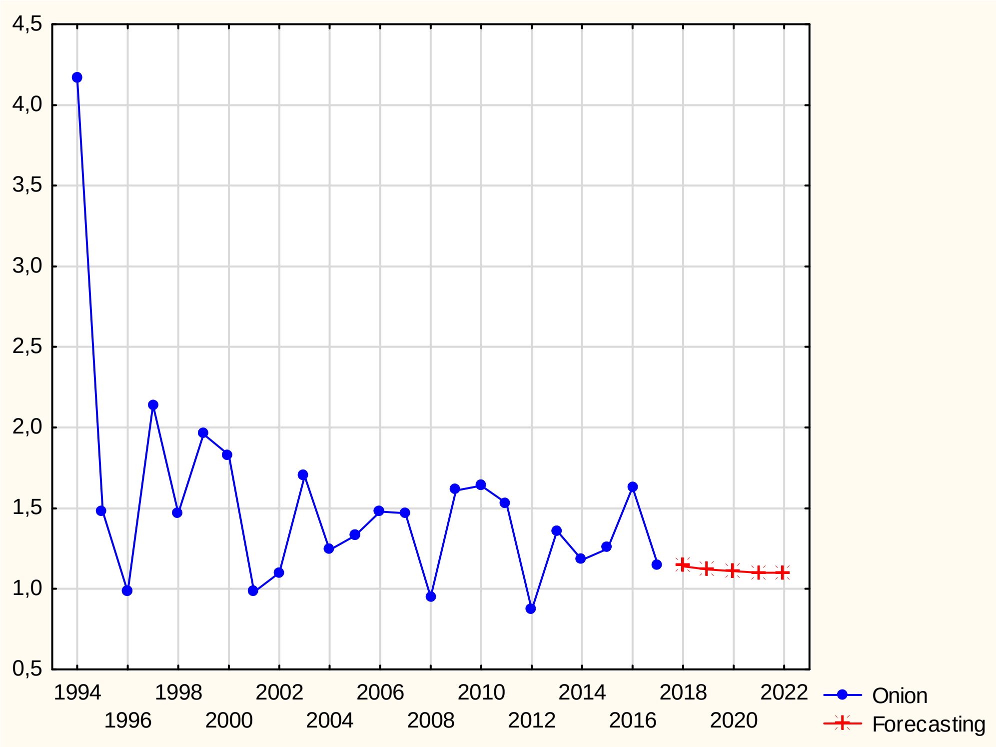
Table 5 presents a descriptive statistical analysis of the change in onion/wheat price parity.

Table 5: Descriptive analysis of the onion/wheat price parity in the period 1994-2017

Vegetable	Average	Interval of variation		Variation coefficient (%)	Average rate of change (%)
		Minimum	Maximum		
Onion	1.52	0.87	4.17	42.80	-1.14

Figure 5 shows the original data on the onion price parity in the analyzed period and the forecast for the following five years. In the last year of the forecast period, the prices of onion will drop to the level of 1.1 kilograms of wheat, which is significantly lower compared to the average recorded during the analyzed period.

Figure 5: Analysis and forecasting of onion/wheat price parity



3.6 Cabbage/wheat price parity

In the analyzed period, a kilogram of cabbage was worth on average around 40% more than a kilogram of wheat. The cabbage price parity shows high variability over the years. The most favorable cabbage parity was recorded at the beginning of the analyzed period (in 1994), while the most unfavorable parity was in 2013. The cabbage/wheat price parity has a downward trend.

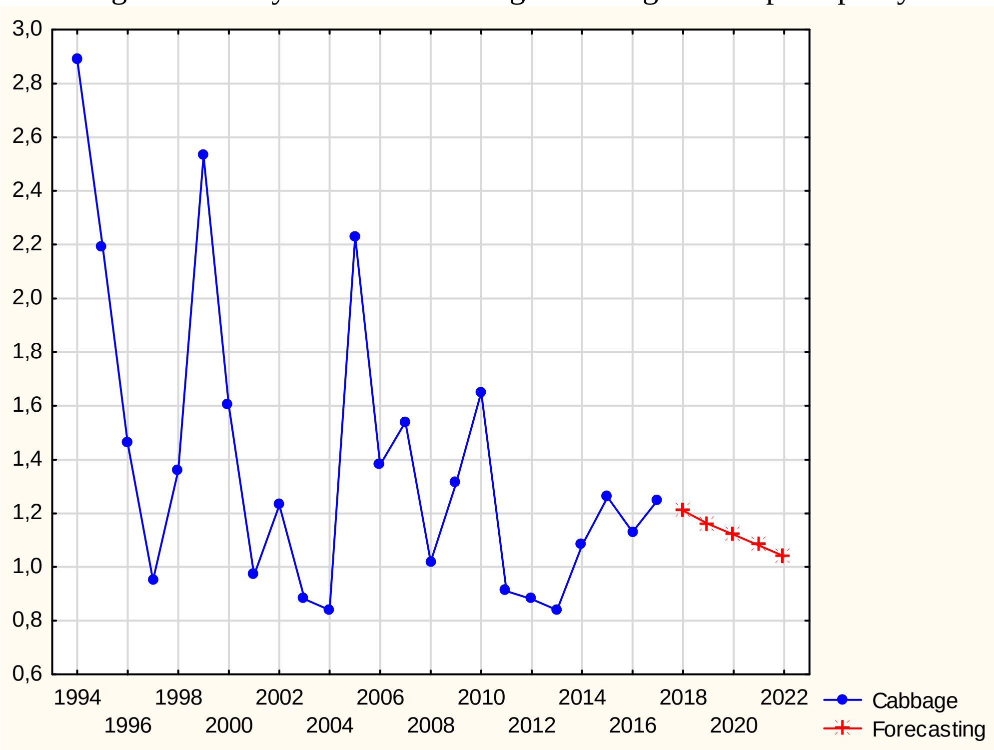
Table 6 presents a descriptive statistical analysis of the change in the cabbage/wheat price parity in the period 1994-2017.

Table 6: Descriptive analysis of the cabbage/wheat price parity in the period 1994-2017

Vegetable	Average	Interval of variation		Variation coefficient (%)	Average rate of change (%)
		Minimum	Maximum		
Cabbage	1.39	0.84	2.89	40.03	-3.58

The original cabbage/wheat price parity in the analyzed period and the forecast for the following five years are shown in Figure 6. It is forecast that in 2020 the price of cabbage will fall almost to the level of wheat.

Figure 6: Analysis and forecasting of cabbage/wheat price parity



4. DISCUSSION & CONCLUSION

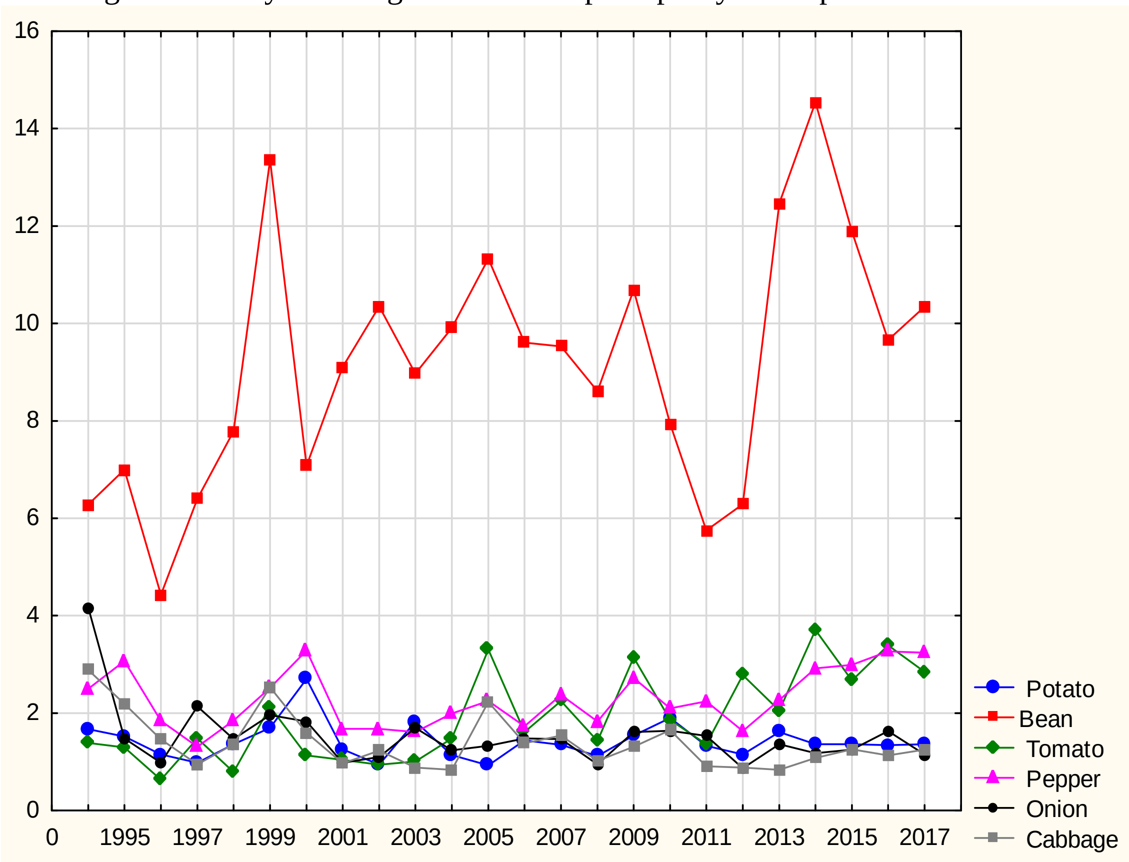
Figure 7 shows the price parities for all analyzed vegetable crops. It can be observed that the parities of all vegetable crops (except beans) are at approximately the same level. The most favorable and unfavorable price parities were different for certain crops in different years. The most favorable parities for onion and cabbage were at the beginning of the analyzed period, i.e. in 1994. For potatoes and peppers, the most favorable year was 2000, while for beans and tomatoes it was 2014.

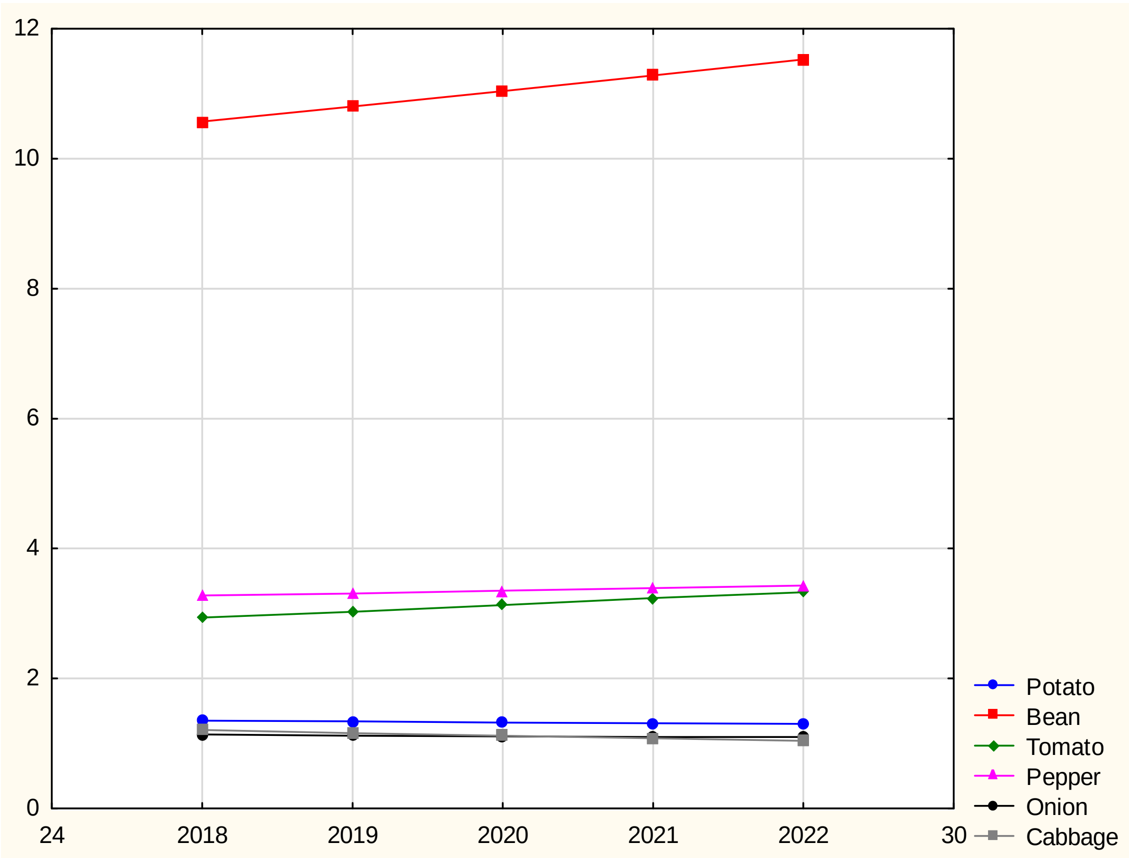
Forecasting the price parities for all vegetable crops in the period 2018-2022 is summarized in Figure 8.

Based on all of the above, the following conclusions can be drawn:

- Relative prices, i.e. parities of the vegetables in comparison with wheat, as an indicator of the relative economic position of the vegetables in comparison with other competitive crops, had similar tendencies as the absolute, discounted prices,
- Slight increase of parity was noted in pepper (r=1.13%),
- The parity of bean (2.20%) and tomato (3.17%) showed significant increase,
- Slight decrease was observed in the parity of potato (-0.89%) and onion (-1.14%),
- Significant decrease was observed in cabbage (-3.58).

Figure 7: Analysis of vegetables/wheat price parity in the period 1994-2017.





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GROUNDWATER MANAGEMENT AND AGRICULTURE

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Abstract: *Over the last decades, groundwater irrigation has become commonplace in many regions worldwide. This is largely a consequence of the advances in drilling and pumping technologies and of the development of hydrogeology. Compared with traditional surface water irrigation systems, groundwater irrigation offers more reliable supplies, lesser vulnerability to droughts, and ready accessibility for individual users. However, poor groundwater management and legal controversies are currently at the base of social disputes in the water exploitation. A through and transparent assessment of the relative socio-economic value of groundwater can contribute to mitigate or avoid potential conflicts. In this paper, we develop a mathematical model that studies the exploitation of a common groundwater resource in order to take into account the strategic and dynamic interactions among the users of the resource. It is known that a number of different factors may increase the welfare gains of firms but also cause the overexploitation of the aquifer. The aim of the model is to analyze policy options and economic forces that influence the groundwater irrigation sector and its development.*

Keywords: *Groundwater extraction, Agriculture, differential games.*

1 Introduction

Aquifer overexploitation is a serious problem in many regions of the world. The extra use of this resource has caused, in the last years, water table drawdowns and depletion.

Intensive use of groundwater leads to a wide array of social, economic and environmental consequences such as land subsidence, increases in the vulnerability of agriculture and other uses of the water to climate change, increases in pumping costs, Burke (2003).

The open-access nature of natural resources, such as groundwater and the accompanying externalities, in combination with the failure to treat natural resources as capital, has made this an attractive research area, Brown (2000), for the development of rules for efficient water allocation among competing uses over time and space Koundouri and Xepapadeas (2004).

We consider a groundwater resource used for irrigation by several farmers. Common groundwater resources are often exploited under a common property regime,that is the access is restricted to land owners situated over the aquifer.
Interest in water resources conflict resolution has increased over the last decades and various quantitative and qualitative methods have been proposed for conflict resolution in water resources management. Numerous papers have studied this issue (for example Gisser and Sanchez (1980), Negri (1989), Provencher and Burt (1993), Rubio and Casino (2001, 2003))

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and have concluded that private exploitation is inefficient, in terms of stock and welfare, in comparison to optimal exploitation. This inefficiency is due to the various externalities which appear because of the sharing of this type of resource, namely the pumping cost externality which characterizes the fact that withdrawals made by one farmer lower the water-table level, resulting in an increase in pumping costs for the other users. On the other hand, the stock externality, also called strategic externality, represents competition between farmers because of the limited availability of the water stock (see Provencher and Burt (1993)). For an overview of these results, it is possible to see Koundouri (2004). Esteban and Albiac (2011) take ecosystem damages into consideration in modeling aquifer management regimes and they show that by including these environmental externalities into the analytical framework, results can change substantially. Biancardi and Maddalena (2018) analize the case in which firms are divided in cooperators and defectors in the exploitation of the groundwater resource.

In this paper we see that countries are different for their behaviour. The motivation of our work is based on the idea that some exogenous stumbling block are not taken into account in previous studies. The issue of illegal wells is paramount in the aquifer it is not present in all papers quoted. Illegal water use is, in fact, a key issue to understand many of the problems related to depleting and overexploited stocks. Empirical evidence demonstrates that illegal activities, including unlicensed water extraction, illegal logging and pollution discharges, are at the root of the degradation of water-related habitats. FAO (2008) calls attention to the role of agriculture in the deterioration process. Some authors have recently begun to analyze the problem of non-compliance with resource management regimes, based on the literature on social norms in common property resource.

Our extension to existing literature is that we consider heterogeneous farmers in terms of behavior of the exploitation of the water resource. In particular, we consider N identical firms that differ in terms of their choice to extract in legal or illegal way. It is clear that illegal extractions are a significant stumbling block on the path towards the implementation of better management policies.

We study the exploitation of a common groundwater resource as a differential game in order to take into account the strategic and dynamic interactions between the users of the resource by several farmers. In particular, we analyze open-loop equilibria and we illustrate the implications of the different strategies on extraction rates and groundwater table levels. Results highlight the effects of the penalties on the height of the water and on the quantities of water pumped.

The paper is organized in the following way. Section 2 presents the model, while Section 3 presents the differential game and computes open-loop Nash equilibria. Section 4 proposes a comparative statics about the parameters of the model. Section 5 concludes.

2 The basic model

The model proposes a dynamic equation for the water table and a set of net benefits from groundwater use. The differential equation which describes the dynamics of the water table is obtained as the difference between natural recharge and net extractions

$$\dot{H} = \frac{1}{AS}\left[R + (\gamma - 1)W\right] \quad H(0) = H_0 \tag{1}$$

where H is the height of the aquifer, i.e. the water table elevation above some arbitrary level that is considered as being the bottom of the aquifer, R denotes the natural recharge, AS is the area of the aquifer, $0 < \gamma < 1$ is the constant return flow coefficient of irrigation water and W is the amount of the groundwater pumped.

Access to the aquifer is restricted by land ownership and consequently the number of farmers is fixed and finite over time. We assume that N is the number of farmers and that they are divided in two groups: m farmers who have a permit and pump legal water and are said legal farmers and N-m farmers who are not authorized to pump but still do it they are said illegal farmers. Let w_l $(l = 1,\ldots, m)$ and w_i $(i = m + 1,\ldots, N)$ the pumping rate of the legal and illegal farmers so that the amount of groundwater pumped is

$$\sum_{l=1}^{m} w_l + \sum_{i=m+1}^{N} w_i = W$$

The net benefits obtained from production by a given farmer k are

$$\pi_k = F(w_k) - C(w_k, H)$$

where $F(w_k)$, for $k = i$ or $k = l$, is the benefit of water use and $C(w_k; H)$ is the cost of water pumping, which depends on the amount of water pumped by the user, w_k, as well as on the height of the water table H, because as the water table sinks deeper, pumping costs should increase. Regarding production benefit we have that:

- The marginal benefit of using water is non-negative but decreasing, i.e.

$$\frac{\partial F}{\partial w} \geq 0 \text{ and } \frac{\partial^2 F}{\partial w^2} \leq 0$$

Regarding pumping costs the following properties are true:

- The marginal cost of pumping water is non-negative and increasing, i.e.

$$\frac{\partial C}{\partial w} \geq 0 \text{ and } \frac{\partial^2 C}{\partial w^2} \geq 0$$

- The effect of the water table height can be summarized by

$$\frac{\partial C}{\partial H} \leq 0 \quad , \quad \frac{\partial^2 C}{\partial H^2} \geq 0 \quad \text{and} \quad \frac{\partial^2 C}{\partial w \partial H} \leq 0$$

The benefit functions for illegal farmers are affected by penalties associated with illegal behavior. They are expressed by the following term

$$P(w_i, \phi, f)$$

where the enforcement intensity $0 \leq \phi \leq 1$ is the probability of catching illegal firms and $f \geq 0$ is the level of penalty. In order to find the closed form equilibrium, we refer to a specific functional form of benefits and costs. The net revenues of a legal firm are equal to the willingness-to-pay for groundwater minus the extraction costs of the resources

$$\pi_l = \frac{-\beta}{2} {w_l}^2 + \alpha w_l - (c_0 - c_1 H) w_l$$

The net revenues of an illegal firm are equal to the willingness-to-pay for groundwater minus the extraction costs of the resources and minus penalties

$$\pi_i = \frac{-\beta}{2} {w_i}^2 + \alpha w_i - (c_2 - c_1 H) w_i - \phi f w_i$$

where $\alpha > 0$ and $\beta > 0$ are constants that describe the effects of irrigation on the crop, the fixed costs are $0 < c_2 < c_0$ instead the marginal pumping cost per acre foot of water pumped per foot of lift is $c_1 > 0$, equal for legal and illegal countries.

3. The differential game

In the optimal control problem, the objective of each country is to maximize its discounted profit. We propose a differential game, in which we calculate open-loop Nash equilibria in order to determine both the optimal paths of the extraction levels and the dynamic of the water table. Time t is continuous, with t in $[0, +\infty[$ and countries discount future costs using the constant rate $r > 0$. We use a non-cooperative game framework solved in a backward order. As result of the first stage, m legal firms and $N - m$ illegal ones exist and, in the second stage, firms choose their pumping levels.

Fixed the pumping levels of illegal countries, legal firms bind to a level of extraction that maximizes the discounted value of their payoff:

$$\pi_l = \max_{w_l} \int_0^{+\infty} e^{-rt} \left\{ \frac{-\beta}{2} {w_l}^2 + \alpha w_l - (c_0 - c_1 H) w_l \right\} dt$$

Given the pumping levels of legal countries, illegal firms bind to a level of extraction that maximizes the discounted value of their payoff:

$$\pi_i = \max_{w_i} \int_0^{+\infty} e^{-rt} \left\{ \frac{-\beta}{2} {w_i}^2 + \alpha w_i - (c_2 - c_1 H) w_i - \phi f w_i \right\} dt$$

In both cases the dynamic of water table is the same:

$$\dot{H} = \frac{1}{AS} [R + (\gamma - 1) W] \quad H(0) = H_0 \tag{2}$$

The results are proposed in the following proposition

Proposition 1 The unique stationary open-loop Nash equilibrium for the water table and the rate of extraction for legal and illegal countries are

$$H^* = -\frac{R}{\mu N c_1(\gamma-1)} - \frac{1}{Nc_1}\left[N\alpha - mc_0 - (N-m)(\phi f + c_2)\right] \tag{3}$$

where

$$\mu = \frac{rAS}{r\beta AS - (\gamma-1)c_1} > 0 \tag{4}$$

and

$$w_l^* = -\frac{R}{N(\gamma-1)} - \frac{\mu(N-m)(c_0-c_2-\phi f)}{N} \tag{5}$$

$$w_i^* = -\frac{R}{N(\gamma-1)} + \frac{\mu m(c_0-c_2-\phi f)}{N} \tag{6}$$

Proof 1. In order to solve the problem proposed, we use the maximum principle.
Let us define the current value of the Hamiltonian H in the standard way.

$$\mathcal{H}_l = \frac{-\beta}{2}{w_l}^2 + \alpha w_l - (c_0 - c_1 H)w_l + \frac{\lambda_l}{AS}\left[R + (\gamma-1)\sum_{l=1}^{m} w_l + (\gamma-1)\sum_{i=m+1}^{N} w_i\right] \quad l = 1, ..., m$$

$$\mathcal{H}_i = \frac{-\beta}{2}{w_i}^2 + \alpha w_i - (c_2 - c_1 H)w_i - \phi f w_i + \frac{\lambda_i}{AS}\left[R + (\gamma-1)\sum_{l=1}^{m} w_l + (\gamma-1)\sum_{i=m+1}^{N} w_i\right] \quad i = m+1, ..., N$$

where λ_l and λ_i are the adjoint variables.

We obtain the following set of necessary conditions for an interior open-loop equilibrium:

$$\frac{\partial \mathcal{H}_l}{\partial w_l} = 0 \Longleftrightarrow -\beta w_l + \alpha - c_0 + c_1 H + \frac{\lambda_l}{AS}(\gamma-1) = 0 \quad l = 1, ..., m$$

$$\frac{\partial \mathcal{H}_i}{\partial w_i} = 0 \Longleftrightarrow -\beta w_i + \alpha - c_2 + c_1 H - \phi f + \frac{\lambda_i}{AS}(\gamma-1) = 0 \quad i = m+1, ..., N$$

which give us:

$$w_l = \frac{1}{\beta}\left[\alpha - c_0 + c_1 H + \frac{\lambda_l(\gamma - 1)}{AS}\right] \quad l = 1, ..., m \tag{7}$$

$$w_i = \frac{1}{\beta}\left[\alpha - c_2 + c_1 H - \phi f + \frac{\lambda_i(\gamma - 1)}{AS}\right] \quad i = m+1, ..., N \tag{8}$$

The adjoint equations are:

$$\dot{\lambda}_l = r\lambda_l - c_1 w_l \quad l = 1, ..., m$$

$$\dot{\lambda}_i = r\lambda_i - c_1 w_i \quad i = m+1, ..., N$$

and the trasversality conditions being:

$$\lim_{t \longrightarrow +\infty} e^{-rt}\lambda_l(t) \geq 0 \qquad \lim_{t \longrightarrow +\infty} e^{-rt}\lambda_l(t)H(t) = 0 \quad l = 1, ..., m$$

$$\lim_{t \longrightarrow +\infty} e^{-rt}\lambda_i(t) \geq 0 \qquad \lim_{t \longrightarrow +\infty} e^{-rt}\lambda_i(t)H(t) = 0 \quad i = m+1, ..., N$$

Taking into account that, at the steady state

$$\dot{H} = \dot{\lambda} = 0$$

the first order conditions and the adjoint equations are used to determine the stationary equilibrium :

$$\dot{\lambda}_l = 0 \Longleftrightarrow \lambda_l = \frac{c_1 w_l}{r} \Longleftrightarrow \lambda_l = \frac{c_1 AS}{r\beta AS - c_1(\gamma - 1)}(\alpha - c_0 + c_1 H) \quad l = 1, ..., m$$

$$\dot{\lambda}_i = 0 \Longleftrightarrow \lambda_i = \frac{c_1 w_i}{r} \Longleftrightarrow \lambda_i = \frac{c_1 AS}{r\beta AS - c_1(\gamma - 1)}(\alpha - c_2 + c_1 H - \phi f) \quad i = m+1, ..., N$$

and moreover

$$\dot{\lambda}_l = 0 \Longleftrightarrow w_l = \frac{r\lambda_l}{c_1} \quad and \quad \dot{\lambda}_i = 0 \Longleftrightarrow w_i = \frac{r\lambda_i}{c_1}$$

From differential equation (2) we have

$$\dot{H} = 0 \Longleftrightarrow R + m(\gamma - 1)w_l + (N - m)(\gamma - 1)w_i = 0$$

By substitution of w_l and w_i, we obtain the steady state value of water table given by equation (3) and the rate of extraction for legal firms (equation(5)) and for illegal ones (equation (6)).

The stationary open-loop Nash equilibrium depends on the number of firms that exploit the aquifer, on the number of legal and illegal firms and on the parameters that characterize penalties.

Now, we consider the system composed by the adjoint equations and the dynamic of the water table

$$\begin{cases} \dot{\lambda}_l = r\lambda_l - c_1 w_l \\ \dot{\lambda}_i = r\lambda_i - c_1 w_i \\ \dot{H} = \dfrac{1}{AS}\left[R + (\gamma-1)\displaystyle\sum_{l=1}^{m} w_1 + (\gamma-1)\sum_{i=m+1}^{N} w_i\right] \end{cases}$$

Substituting (7) and (8) we obtain the following system

$$\begin{cases} \dot{\lambda}_l = q\lambda_l + lH + L \\ \dot{\lambda}_i = q\lambda_i + lH + Q \\ \dot{H} = s\lambda_l + v\lambda_i + Hz + M \end{cases}$$

where

$$q = \frac{r\beta AS - c_1(\gamma-1)}{\beta AS} > 0 \;,\quad l = -\frac{{c_1}^2}{\beta} < 0 \;,\quad L = -\frac{c_1(\alpha - c_0)}{\beta} \;,\quad s = \frac{m(\gamma-1)^2}{\beta(AS)^2} > 0$$

$$Q = -\frac{c_1(\alpha - c_2 - \phi f)}{\beta} \;,\quad v = \frac{(N-m)(\gamma-1)^2}{\beta(AS)^2} > 0 \;,\quad z = \frac{c_1 N(\gamma-1)}{\beta AS} < 0$$

$$M = \frac{R\beta + N(\gamma-1)\alpha - (\gamma-1)[mc_0 + (N-m)(c_2+\phi f)]}{\beta AS}$$

The equilibrium point of the system is

$$\bar{H} = -\frac{Qv + sL - Mq}{sl + vl - zq} \;,\quad \bar{\lambda}_l = -\frac{Mql + Lvl - Lqz - Qvl}{q(sl + vl - zq)} \;,\quad \bar{\lambda}_i = -\frac{Mql + slQ - slL - zqQ}{q(sl + vl - zq)}$$

Which is the same obtained in Proposition 1. The stability properties of the stationary state

$$(\bar{H}, \bar{\lambda}_l, \bar{\lambda}_i)$$

can be analyzed evaluating the following associated Jacobian matrix:

$$J(H, \lambda_l, \lambda_j) = \begin{pmatrix} q & 0 & l \\ 0 & q & l \\ s & v & z \end{pmatrix}$$

We have that the determinant of the Jacobian matrix of the system of differential equations is negative

$$Det\, J(\bar{H}, \bar{\lambda}_l, \bar{\lambda}_i) = q[qz - l(s+v)] = \frac{N(\gamma-1)c_1 r}{\beta AS} < 0$$

These results imply that the steady state of the system is a saddle point and that there exists an optimal path which leads to it.

The roots of the characteristic equation associated with the homogeneous part of the system are three, are all real and are two positive and one negative. The negative root is

$$x = \frac{-[(\gamma-1)(1-N)c_1 - r\beta AS] - \sqrt{[(\gamma-1)(1-N)c_1 - r\beta AS]^2 - 4\beta AS(\gamma-1)rc_1 N}}{2\beta AS}$$

Then, using the trasversality conditions to select the stable solution and the initial water table $H(0) = H_0$, to calculate the coeffcient of the solution, the following path

$$H(t) = H^* + (H_0 - H^*)e^{xt}$$

is the open-loop Nash equilibrium path. The equilibrium water table path converges to the stationary equilibrium water table, which does not depend on the initial water table.

3.1 Comparative Statics

In this Section we propose an analysis of the steady state $(H, w_l, w_i) = (H^*, w^*_l, w^*_i)$ when the parameters of the model change. Table 1 shows the results of this analysis. The parameters effects have been estimated from the partial derivatives of the equilibrium coordinates H^*, w^*_l and w^*_i .

First of all it is possible to see that if the number of countries N that exploit the resource increases, then the steady state of water table and the rate of extraction, both for legal and for illegal countries, can increase or decrease. The same result we have studying the partial derivative of the steady state respect to the number m of legal countries, in fact it is possible that it is positive or negative.

In relation to parameters f and ϕ that characterize the punishment of illegal countries, we see that if they increase than the height of the water as well as the rate of extraction of legal countries increase while the rate of illegal countries decreases.

About the natural recharge, the equilibrium coordinates increase, instead with respect the area of aquifer AS, the share of H decreases while the fitness of w_l and w_i decreases or increases. About the fixed costs c_0 and c_2 the height of the water always increases instead the rates of extraction can increase or decrease, about the parameter c_1 all the components of the equilibrium can change.

	H^*	w_l^*	w_i^*
$\nearrow N$	$\searrow\nearrow$	$\searrow\nearrow$	$\searrow\nearrow$
$\nearrow m$	$\searrow\nearrow$	$\searrow\nearrow$	$\searrow\nearrow$
$\nearrow f$	$\nearrow$	$\nearrow$	$\searrow$
$\nearrow \phi$	$\nearrow$	$\nearrow$	$\searrow$
$\nearrow R$	$\nearrow$	$\nearrow$	$\nearrow$
$\nearrow \alpha$	$\searrow$	0	0
$\nearrow \beta$	$\nearrow$	$\nearrow\searrow$	$\nearrow\searrow$
$\nearrow r$	$\searrow$	$\searrow\nearrow$	$\searrow\nearrow$
$\nearrow c_0$	$\nearrow$	$\searrow$	$\nearrow$
$\nearrow c_1$	$\searrow\nearrow$	$\searrow\nearrow$	$\searrow\nearrow$
$\nearrow c_2$	$\nearrow$	$\nearrow$	$\searrow$
$\nearrow AS$	$\searrow$	$\searrow\nearrow$	$\searrow\nearrow$

4. Concluding remarks

In this paper, we have extended the literature quoted, examining the presence of legal and illegal firms in a common groundwater resource exploitation. In the literature, numerous papers have studied groundwater exploitation, in particular, examining only the socially optimal exploitation or the private exploitation of the aquifer and they have concluded that private exploitation is inefficient, in terms of stock and welfare, in comparison to optimal exploitation.

This ineffciency is due to the various externalities but never they include the possibility that firms can be legal or illegal. Illegal water use is a key issue to understand many of the problems related to depleting and overexploited stocks. Empirical evidence demonstrates that illegal activities, including unlicensed water extraction, illegal logging and pollution discharges, are at the root of the degradation of water-related habitats.

So, our aim is to consider N countries that differ in terms of choice of their behavior, legal or illegal. We have shown as a the dynamic game, the number of legal and illegal firms affect the steady states of the water table and the rate of extraction for the two types of behavior. In particular, we have proposed a comparative statics analysis with respect to all parameters which characterize the model underlying the rules of penalties.

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AGRICULTURAL LANDS, STRATEGIC INVESTMENT IN ROMANIA'S SUSTAINABLE DEVELOPMENT

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Abstract: *The European land market is undergoing continuous transformation. Every European state is trying to protect its capital, this vital resource that may depend at one point even on the sovereignty of a state. Sustainable development of a country means protecting the environment, water, air, soil, biodiversity in the context of today's explosive economic growth. Romania is among the European countries with fertile, productive land. Local agriculture must develop production models where land management does not lead to overexploitation until depletion. The exponential growth of the earth's population leads to a growing demand for food, agricultural products. Agricultural land represents a limited resource that ensures food security. One of the main objectives of sustainable development – considering the geopolitical areas and European policy for protecting specific areas - is to put to good use the economic potential of the regions in an increasingly globalized economy.*

Keywords: *sustainable development, land market, agricultural land, overexploitation, global economy*

1. INTRODUCTION

The contemporary international environment, including the European one, is in a continuous change. This environment also includes the land market, vital resource and strategic capital for each state. We are linked to the physical-geographic environment, to the concrete space with resources and natural resources, with the economic elements obtained through human intervention, to regions of maximum economic interest and their impact on the environment.

2. CONTENT

Romania is one of the leading countries of Europe regarding the fertility of the earth, but also as arable land per head of the population. Global policies and strategies for preserving and using primary resources also include Romania.

On Terra, the total arable area per head of the population is estimated at 1.5 ha.
Agriculture is a source of food and an essential engine for economic growth.
The food issue on a planet with such an exponential growth of the population (7.65 billion inhabitants in September 2018) is a continual challenge and is intrinsically linked to:

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- food security from a qualitative and quantitative point of view;
- exploiting existing potential;
- the protection of the environment and natural resources;
- economic models with the highest production without depleting the fertile land through overexploitation.

The land market of Romania undergoes major changes, but a law that protects this valuable resource (although it was initiated in 2014) has not yet been completed.

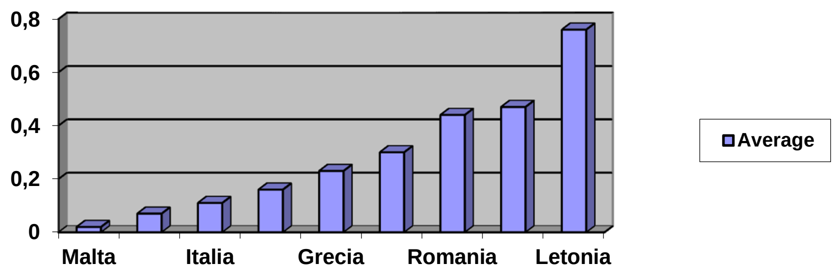
According to a study by the Transnational Institute for the European Union's Agriculture Committee, more and more agricultural land in Eastern Europe is being purchased by foreign citizens outside the European Union, but also from the European Union.

Romania has liberalized the land market on 1 January 2014.
Romania's agricultural area is 55.9% of the country's total area and 7.36% of Europe's surface area. According to data provided by the National Institute of Statistics, out of 13.9 million hectares of agricultural land, 8.2 million ha are arable land. According to the European Union study, about 5.3 million ha of land belong to foreigners, i.e. around 40%, out of which 30% are foreigners from European Union and 10% citizens resident in non-EU.

More and more European countries choose to protect their agricultural lands, and they impose restrictions on their purchase by foreign citizens. In 2017, Serbia adopted a project whereby foreign citizens who want to buy agricultural land in this country have to live here for at least 10 years before buying land. (Bloosberg and Agerpress). The French President Emmanuel Macron declared in the summer of 2018 that “France's agricultural land is a strategic investment on which our sovereignty depends, so we cannot let hundreds of hectares be bought by foreign powers.” In Hungary, there is also a law limiting the sale of agricultural land to foreign citizens.

Sustainable development means exploitation, but also protecting the country's land potential, protecting the environment: soil, water, air, in the context of the food demand increase and current explosive economic growth.

Figure 1: Average of agricultural land / inhabitant



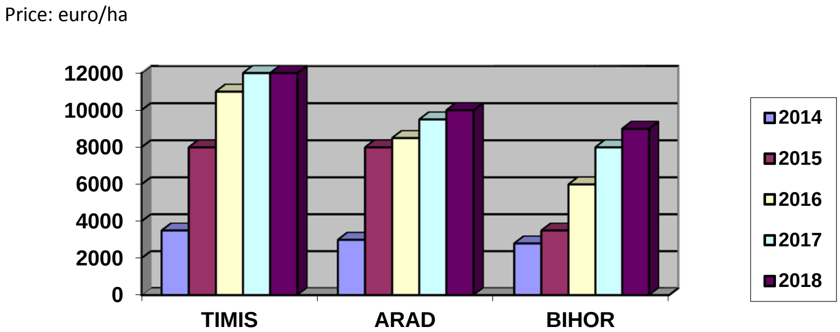
(Source: World Bank Development Indicators, 2015)

Over the past 10 years, Romania has become a pole of attraction for foreign investors. One of the most active markets for agricultural land transactions is the western area of Romania, followed by Bărăgan (table 1).

Table 1: Agricultural land values, 2014-2017 (source: LAPAR)

County	2014	2015	2016	2017	2018
Timiş	3000-3500	6000-8000	11000	12000	12000
Arad	2500-3000	7000-8000	8500	9500	10000
Bihor	2500-2800	3000-3500	4000-6000	7000-8000	9000
Ialomiţa	2000-2400	3000-4500	5000	6000	7000

Figure 2: The chart of price increase of agricultural land in the Western Plain of Romania



The price of agricultural land in Romania is still small compared to the land in Europe; in France the land is sold at prices between 8,000-25,000 euro/ha, in Germany between 25,000-33,000 euro/ha, in the Netherlands with prices between 25,000-60,000 euro/ha, Bulgaria between 4,000-8,000 euro/ha, and in Hungary between 6.000-11.000 euro/ha. In Slovakia, the land ranges between 8,000-12,900 euros/ha and in Italy between 15,000-100,000 euros / ha, according to Euro stat data.

According to the Ministry of Agriculture, in 2018, the most expensive land traded was:

Arad County:	32 ha	537,000 euro	16,800 euro/ha
Timiş County:	85 ha	558,000 euro	6,500 euro/ha
Iaşi County:	50 ha	350,000 euro	7,000 euro/ha

Buying farmland is more expensive than permanent pasture; the same for the irrigated land, as well as the mixed areas, were more expensive. The agricultural lands of Romania are very attractive for soil quality and proximity of the grain processing plants processers in Western Europe.

Foreign agencies specializing in land transactions say that foreign investors prefer this area for the superior productions than other European countries. The purchase of agricultural land has become an object of investment, not only an object of work for many investment funds on all continents. The investors say the land is of good quality, and the growing world demand for food makes it necessary to revive agricultural production.

3. CONCLUSIONS

In an increasingly globalized economy, capitalizing the economic potential of all regions is one of the fundamental objectives of sustainable development. It is imperative to respect geopolitical spaces and European policy to protect the specific areas. For Romania, a country with agricultural potential, it is imperative to develop a law that protects the land, encourages modern agriculture and protects local farmers. The example of European countries that condition their sales and protect their land fund must be followed. Agricultural land represents a strategic investment, and land is a means of production for an indefinite period.

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CLIMATE CHANGE AND OPTIMAL DESIGN PROBLEM OF AGRICULTURAL INSURANCE FOR DEVELOPING COUNTRIES

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Abstract: *This paper discusses the agricultural damage managing problems in the aftermath of a climatic disaster with particular focus on the progress of agricultural insurance in* developing *countries. There are numerous barriers to design an accurate (optimal) insurance plan in developing countries which reduce the efficiency of insurance contracts. Farmers in developing countries produce under multiple risks and their revenues are not sufficient to cover agricultural credit debts and insurance premium. This paper proposes a simple approach to mitigate agricultural risks through insurance by taking farm revenue on its center. The contribution of the paper is to show how optimal insurance plans could be designed for sustainable farm revenues in developing countries.*

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Keywords: *Climate change, damage managing, agricultural insurance, developing countries.*

1. INTRODUCTION

The effects of climatic variability and change on agriculture have become an important area of research since the early 2000s. The Intergovernmental Panel on Climate Change (IPPC) defines vulnerability to climate change as “the degree, to which a system is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes” [1]. Vulnerability means, as defined by the IPCC [1], openness to multiple exposures that could adversely affect livelihoods, ecosystems, environmental services, resources, and infrastructures.

Over the twentieth century, world agriculture has evolved under a variety of climatic regimes. As the climatic change debate gained academic and scientific priority several scholars began to pay special attention to the climate change and public adaptations issues Congleton [2], Shughart [3],Gawel and Lehmann [4] are among those scholars who help create a rich literature in the field.

Generally speaking agricultural production faces multiple sources of risks. Among others two major risks are of serious concern to the agricultural economy. These are price risk and production risk. The first is caused by potential volatility in prices due to liberalization of trade while the second results from uncertainty about the level of production caused by the effects of climate change. Due to global warming it is likely that production risk will increase in coming decades.

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Present study has particular focus on the progress of agricultural insurance in developing countries. Based on an examination of specific experiences and difficulties of developing countries, it aims to reveal the role of public support policies and private institutions in mitigating agricultural risk through insurance.

2. RESEARCH METHOD

The research method used in this study is a comparative analysis of practices and experiences of the developing countries using different agricultural insurance models with regard to specific barriers such as public policies, government support, agricultural credits facilities, and bureaucracy etc. to formulate an efficient contract both on the public and private side. On the basis of these specific barriers, the paper proposes a simple approach to agricultural insurance by taking farm sustainability as a sustainable revenue problem which combine agricultural credit and agricultural insurance problem in the core of the farmers' concerns.

3. AGRICULTURAL DAMAGE MANAGING PROBLEM

Historically, agriculture is a risky economic activity and producers face various types of risks and uncertainties such as production risk, yield risk, price risk, storage risk, market risk, financial and credit risk. Under uncertainties, all unpredicted agricultural risks cannot be mitigated fully; however, they can be minimized up to certain level with the help of insurance. Under uncertainty, expectation from insurance would be to cover farm income losses under adverse weather conditions. There are continuous efforts among the developing countries to manage the agricultural risks through differentiating insurance products against various risks. Risks faced by farmers are numerous, varied and specific to the area and climate. Some major risks faced by farmer are shown in Table 1.

Table1. Some Major Risk Faced by Farmers

Risk	Nature	Impacts
Adverse weather events	Rainfall, extreme temperature variability	Loss of partial or total product, lower yields, lower income
Biological risks	Disease, pests, contamination	Loss of partial or total product, lower yields, lower income
Price risks	Price volatilities in the markets, low prices,	Loss of income because of lower prices
Political risks	Regulatory changes, political upheaval, trade war	Restrictions to the market access, changes in costs and taxes.
Health risks	Illness contamination, death	Loss of farmers and productions, loss of income

Source: Author

Although, the main difficulty for developing countries is that the livelihood of a large proportion of their population depends on agriculture on small size holdings with little revenues. It is also very common structural weakness in developing countries that small producers having limited resources cannot access directly to the agricultural insurance without the support of governments. The problems of small producers in developing countries can be summarized into two points: First, low level revenues in small sized farming cannot allow to them cover agricultural insurance premiums and second, insurance schemes in developing countries are limited and provide only a basic risk cover plan. However, other risks related to farming, such as plant and animal breeding, crop and animal husbandry practices as well as precautionary prevention measures against adverse weather events and farming planning for managing need also to be covered.

AGRICULTURAL INSURANCE AS A FORM OF RISK MANAGEMENT

As a form of risk management agricultural insurance may help farmers to hedge against a contingent loss during their agricultural activity. So, they transfer risk of loss from themselves to another entity in exchange for a premium or a guaranteed and quantifiable loss to prevent a large and possibly devastating loss. Agricultural insurance mainly may include crop insurance and also livestock insurance, and aquaculture. Crop insurance is the most developed sub-line of agricultural insurance market, accounting nearly for 90 percent of the global premium underwritten worldwide.

In developed countries three factors contributed to the growth in agricultural insurance. The first factor was the increase of the agricultural insurance premium volume by the increase of the number of the insurance contracts. The second factor was the increase of the demand for insurance against raising climate risk in agriculture. The third factor was the increase of public sector support in agricultural insurance market. According to the World Bank classification, there are three main groups in agricultural insurance scheme.

Table 1: Agricultural Insurance Products and Payouts

Type of Agricultural Insurance Product	*Payouts*	*Availability*
Index Based Agricultural Insurance∗		
Area-Yield Index	Area-Yield Loss	USA, India, Brazil
Crop Weather Index Insurance	Weather Index Payout Scale	USA,CANADA, Mexico, India, Malawi
*NDVI' Index Insurance ****	NDVI Index Payout Scale	Mexico, Spain, Canada
Livestock Mortality Index Insurance	Livestock Mortality Index Payout scale	Mongolia
Forestry Fire Index Insurance	Burnt area Payout Scale	USA, Canada
Indemnity Based Agricultural Insurance**		
Named Peril	Percentage of Damage	Widespread
Multiple Peril	Yield Loss	Widespread

Source: World Bank, 2009. [5]

∗Insurance payouts calculated on the actual loss at the insured unit level
** Insurance payouts based on the actual loss at the insured unit level
*** NDVI: Normalized Deviation Vegetation Index

Generally speaking an indemnity based agricultural insurance contract provides a farmer insurance against a named peril or multiple perils. Concerning named peril insurance, the name of the suggested injured case is made explicit in the insurance list. The calculation of the damage is based on the production cost or on the expected crop revenue. The level of the loss in production is determined as a percentage of the damage occurred by the insurer expert after the damage occurs.

As an example, we presume that a farmer signed a named peril insurance contract with conditions specified below:

Insured Peril: Hail
Sum Insured: US$ 30.000
Indemnity Limit: Full Value
Aftermath of Disaster Loss Control by the Insurer:
- 50 % of the insured unit with 0% damage

- 50 % of the insured unit with 40% damage

Total Damage Calculation: 50%*0%+%50*40% = 20%
Indemnity Calculation: Percentage of damage = 20% *US$ 30,000

INNOVATIVE INSURANCE PRODUCTS

There are a number of new innovative insurance methods which propose to cover producers against uncertainty of income with the support of public and private sector. Among others, there are rainfall, livestock, and seed crop and crop-revenue insurance plans.

Crop- Revenue Insurance Plan
This type of insurance product combines the production and price risk. This insurance plan takes into account of the quantity losses in the aftermath of a climate disaster by valuation of farmer's loss on the basis of the market price or target price.

Rainfall Insurance Plan
Rainfall insurance is frequently in use in some large countries. In India, for example, this insurance product has been developed by an insurance company and some banking and non-banking financial institutions are related in its effective application.

Index- based Insurance Plan
Index-based insurance as the most appropriate insurance is highly associated with the losses of crop and livestock. Compared to others this product is highly diversified and allows some special innovative products, namely *Area Yield Index, Satellite Vegetative Index, Mortality Rates for Livestock.*

4. BARRIERS TO AN EFFICIENT INSURANCE PLAN IN DEVELOPING COUNTRIES

There are several difficulties in writing agricultural insurance. First, the definitions of the nature of the risks in the contract should be clear. Second, the coverage of the damage should also comprise the geographical dispersion of agricultural production and the complexity of the biological process of production. The both should be defined clearly to eliminate all potential asymmetries of information in the future. Third, there should be enough support from public funds.

From the point of agricultural insurer, verifying and valuation of catastrophe claims requires special attention and technical expertise. A thorough valuation of catastrophe claims is very important and claims should neither be magnified nor minimized. Insufficient technical expertise may generate incorrect decisions about the level of damage. Non technical experts are unable to distinguish between high-risk and low risk producers.

From the point of producer, if a non adequate expert set premiums on the basis of averages, he/she may attract only high-risk producers and, thus, generate asymmetries of information. In such cases low-risk producers, thinking that they may be considered as high –risk producers, may use less fertilizer or plant in less fertile areas or plant out of season.

Another difficulty on agricultural insurance contracts is setting the geographical dispersion of agricultural lands. Geographical dispersion generates huge operational and administrative costs if an agricultural land is widespread and products are not standard.

PROBLEMS ON INSURANCE SCHEMES IN SOME DEVELOPING COUNTRIES

Latin American Countries

Drought and floods are common as devastating perils that affect agricultural production in almost all Latin American countries. Hailstorms are frequent in southern countries, in Central America and in Western Mexico. Winter storms are common in Argentina, Chile and Uruguay. Tornadoes damage agricultural production in eastern Mexico and Baja California peninsula. Tropical storms affect agricultural production in Mexico, Central America and the Caribbean. Tsunamis have devastating effect on agricultural production in the Coastal area of the Pacific and Caribbean region [6].

Argentina
In Argentina nearly 25 percent of the total crop lands are highly open to hail risk and they are insured against hailstorms risk. Among others, wheat, soya bean, sunflower, maize and grapevines are under insurance program as important crops. Private sector insurance companies are growing and nearly twenty five companies compete in the sector. However, insurance sector needs to be diversified against multiple risks [6].

Brazil
Agriculture sector is very important for the Brazilian economy and provides various agricultural commodities to the world economy. Government subsidizes the crop insurance but the share of covered crop production in comparison to total crop production remains low. According to some experts, present government insurance program has some weaknesses and needs to be revised. Brazilian insurance system is based on a simple coverage package which includes too much risk with a weak coverage [6].

Asia - Pacific Countries

China
China is affected every year by huge natural disasters and agricultural sector faces enormous financial losses. On average 45 million hectares of crop area is affected by drought, flood and rainfall. According to the FAO reports, these natural disasters and other damaging factors, namely insects, pests and crop and animal diseases, cause a loss of nearly 12.5 billion US dollars in China. Crop production is more adversely affected than husbandry production. Agricultural insurance system has shown a significant development since 1982. Chinese government supports insurance companies. [6].

India
Agriculture is the primary sector which employs 70 percent of Indian population and contributes nearly 20 percent of Indian national GDP. For Indian people agricultural insurance is vital but it remains mostly insufficient [7].

First, crop insurance scheme was started under the Life Insurance Corporation of India (LIC) in 1972 in Gujarat for cotton (H-4 Cotton). However, cotton is not the only agricultural product affected from disasters. In India, the selection of covered product is based on "*Individual approach*" or on the initiative of government. Cotton insurance scheme was implemented in Gujarat, Maharashatra, Tamil Nadu, Anthra Pradesh, Karnataka and West Bengal but covered only a limited number of farmers. Afterwards, the scheme included some other products, namely groundnut, wheat and potato up to 1980 [7].

In the 1980's, a Pilot Crop Insurance Scheme (PCIS) based on *Homogenous Area Approach* which included oilseeds, cereals, millets, cotton, potato and gram was implemented in 13 states of the country. Within this scheme government supported 50 percent of the premium.

Comprehensive Crop Insurance scheme which started in 1985 in 15 states and 2 union territories covered 76.28 million farmers [7].

A National Agricultural Insurance Scheme (NAIS) was established in 1999 and it was implemented in 23 states 2 union territories. Three remarks can be made concerning this national scheme: First, the national system is based on homogenous area approach; second, the yield guarantee approach is in application; and third, system covers all borrowing farmers. This nationwide system covers the food crops, oilseeds, as well as commercial horticultural crops. In 2000's, India started to implement in 38 districts the Farmer Income Insurance Scheme (FIIS), being one of the most frequent risks, rainfall also was introduced in agricultural insurance scheme.

Mongolia
Livestock sector is the backbone of the Mongolian economy. It supports nearly half of the population in rural areas and accounts for 87 percent of agricultural GDP which constitutes around 14.6 percent of the national GDP [8]. The share of agriculture in the export is around 5.9 percent. Existence of variety of risks in this sector makes it to be considered uninsurable. Therefore, an Index based Livestock Insurance Project began to be implemented in the country as a solution. This project received a mutual financial assistance from IDA, World Bank and Japanese Government between 2005 and 2010 [8].

Although agriculture is still important for Mongolian economy, a strong growth in mining industry in the past few years, with a contribution of only 11.7 percent into GDP in 2003 to 22 percent in 2015, has had serious implications for agriculture sector mainly due to migration of labor from agriculture to the mining industry. Only one important agricultural product, cashmere, became an export product. Cashmere retail provides the main export revenue while the importance of other agricultural products diminishes and their coverage against climate change with an insurance scheme reduces [9]. According to the experts in the field, without agriculture growth there is little chance of diversifying the Mongolian economy and breaking its dependence on mineral export for reducing poverty and hunger. On the other hand, as a result of a harsh climate it is difficult to promote cultivation. One possible solution proposed from FAO and ISFB is to promote a labor intensive production around the urban areas of the major cities by creating arable or horticultural lands [9].

Malaysia
In Malaysia agriculture sector is divided between big and small farmers. There are large numbers of small scale producers and, unfortunately, they have very feeble interest in purchasing of insurance because of low revenue problem. But, the large scale producers are more interested in insurance coverage contract. The crop insurance include palm oil, rubber, cocoa, tropical fruits such as durian, mango and mangosteen. It is clear that crop insurance program is more common than livestock insurance in Malaysia. So, a crop insurance program is undergoing a development facing diverse risks including climate change [9].

Philippines
Every year, Philippines suffer around 22 cyclones and also endure risks of drought and pests attack. For managing these risks, Land Bank of the Philippines, as a prime public bank for

agricultural sector, started a crop insurance program in 1981. Since 1984, a nationwide crop insurance company “Philippines Crop Insurance Corporation” offers risk management support to producers. Especially for maize and rice, there is a compulsory involvement of farmers in the crop insurance scheme because these are the most important export products. So, in this country export products receive more support than others and they also have some other types of incentives by the government [9].

5. AGRICULTURAL INSURANCE IN TURKEY

In Turkey, transformation of the farms into large scale lands is expected to improve land use with potential benefits for agricultural productivity and water resource management. Another key concern is that water scarcity, water quality and soil erosion become more and more significant as a result of climate change [10].

In Turkey, traditional agricultural insurance has been available only for hail since 1957; however, only 0.5 % of agricultural areas were insured until 2000s. Therefore, in 2005 an agricultural insurance pool “TARSIM” was created in Turkey, as a public-private partnership in agricultural insurance. TARSIM is responsible body for managing all works and procedures of this pool. It provides insurance coverage for catastrophe risks like drought and frost that cannot be covered by a single insurance company but also provides standardization in insurance contracts which cover the risks under the scope of the law [11].

In crop insurance TARSIM provides a wide range of covers for every type of crop regardless of the region. The pool realized an expansion into drought insurance based on a pilot scheme and also into epidemic diseases for livestock insurance. In livestock insurance, the use of smart glasses in loss adjustment for taking audio and video recordings started in some areas on the basis of pilot projects [11].

One of the significant effects of the TARSIM on agriculture sector is that the producers start to apply modern agricultural techniques because of the insurance requirements. For example, for hail risk insurance, farmers have to build modern greenhouses. Another important effect of TARSIM is that the insurance penetration is significantly increased from % 1 in 2006 to 15 % in 2016. In this insurance pool there are nearly 25 insurance companies. Insurance market had a positive reaction to the system.

Only registered farmers may apply for the insurance. For a valid application, farmer’s land and crop information for the pertinent year should be updated in Farmer Registration System (FRS). Later, farmers make their application to one of TARSIM’s member insurance companies or their agencies. The insurance company or its agency will conduct relevant queries on the farmers’ information via TARSIM’s online system. In the aftermath of a natural disaster, loss adjustment is carried out by loss adjusters (experts) appointed by TARSIM. After completion of the claims file, finalized indemnity amount will be paid by TARSIM within 30 days to the insured through a bank [11].

The insurance covers any losses on crop, livestock, garden plants, poultry, aquaculture and greenhouses (cover construction, technical equipment and crop) after risk assessment due to hail, storm, flood, whirlwind, fire, earthquake, and snow and hail weight. Producers should present their claims notification within 24 hours directly or via an agency to TARSIM. There is 50% premium subsidy by the government for all covered products.

6. OPTIMAL DESIGN PROBLEM OF AGRICULTURAL INSURANCE

HOW CAN WE DESCRIBE THE SITUATION OF A SMALL SIZE HOLDING PRODUCER IN REGARD TO OPTIMALITY OF HIS INSURANCE CONTRACT?

We assume that farmers produce under normal supply and demand conditions. If they encountered a production shortfall in crop, they might expect this to result in a rise in price. To some extent, such a rise will cancel out the financial loss of the farmers who suffers a production shortfall. But this will only be the case, if they harvest sufficient crop and sell it at sufficient premium over the expected price. Unfortunately, if the reason of the shortfall is a climate disaster, there would not be sufficient crop. Therefore, crop-revenue insurance provides a guaranty of the revenue in the case of a shortfall in revenue from crop sales.

Proposition: A Basic Model- Small Size Farmer Facing Climate Change Challenge

Risks faced by farmers are numerous, varied and can be specific to the area and climate. Some major risks faced by farmers are shown in the Table below.

Table 3. Some Major Risks Faced by Farmers

Risk	***Nature***	***Impacts***
Adverse weather events	Rainfall, extreme temperature variability	Loss of partial or total product, lower yields, lower income
Biological risks	Disease, pests, contamination	Loss of partial or total product, lower yields, lower income
Price risks	Price volatilities in the markets, low prices,	Loss of income because of lower prices
Political risks	Regulatory changes, political upheaval, trade war	Restrictions to the market access, changes in costs and taxes.
Health risks	Illness contamination, death	Loss of farmers and productions, loss of income

Source: Author

Under volatile supply and demand conditions a farmer may encounter following prices:

Grower's Price: Producer's price on the harvested area (1)

Expected Market Price: It represents the equilibrium point where demand and supply meet in the market place. New information such as product failure, widespread disease outbreak, and a major revision to previous production estimate may alter the expectation of the buyers and sellers in the market. (2)

Farmer's Expected Selling Price: It represents the maximum sales price objective on the anticipated total cost of farmer. (3)

Farmer's Effective Selling Price**:** Depending open the competition and price offered in the market, farmer's selling price. (4)

If expected market price is higher than grower's price, a farmer's effective selling price would be approximately close to the market price.

If the effective harvested quantity is almost reached to the expected maximum harvested quantity farmer's brut revenue will reach to the maximum level as on expected by the farmer.

Expected Brut Revenue = *Effective Selling Price per Unit* x Effective *Harvest Quantity* (5)

Net Revenue: *Expected Brut Revenue – (Farming Fixed Cost + Farming Variable Cost + Agricultural Credit Cost + Insurance Cost)* (6)

So, sales performances are essential for the sustainable revenues for farmers. First, sales revenues of the farmers should cover their agricultural credit debts. Second, because of unexpected weather events small farmers should purchase insurance contracts and could be able to pay their premium with their sales revenues.

Unexpected weather events are major threat to the resilience of farmers. In case of a catastrophic event, if farmers encountered total or partial losses of their products they may be covered financially if they had purchased insurance contracts before the event. On the whole, small farmers in developing countries are not able to purchase insurance contacts because of the revenue constraints. However, if there is no insurance they would not be financial resilient to continue farming in coming years. This may cause a permanent fall in supply and also unexpected increase in prices of related products. Therefore, government intervention to the national insurance system would be unavoidable because private sector insurance funds can not cover huge agricultural damages in a country. An optimal insurance plan should sufficiently cover farmers claimed injuries.

Crop–revenue insurance products entail the determination of loss on the basis of an area. For an accurate determination of product loss, governments should make use of some digital databases. For the correct calculation of the production and related revenue losses, it is important that the price element should have to be taken on the market-based price that is on future prices for the coming season.

The use of an alternative price, namely “a *target price*” by governments, could lead to a distortion of supply, if it is not reached to the market price of the coming season. In that case, it is unlikely that a crop revenue insurance based on a target price (i.e., non –market price) would find underwriting support. Target price model may be suitable if the development of local crop future markets is the case.

PROBLEMS AND CHARACTERISTICS OF FARMING IN DEVELOPING COUNTRIES

Problems and some characteristics of farming in developing countries may be summarized as follows:

1. In developing countries, farmers are processing with a low resources base and have small sales revenues because the grower’s price is less than the market price.
2. Developing countries have restricted financial resources for public expenditure as compared to developed countries.
3. The amount of fiscal resources remains insufficient for encouraging insurance market.
4. The size of agricultural enterprises is very small as compared to developed countries.
5. In developing countries due to the predominance of small size farming, risk bearing abilities and resource endowments remains insufficient.
6. Administrative costs for insurance products designed for smaller farms are significantly higher than that of the larger farms.
7. In developing countries livelihoods of population depends largely on agriculture and this generates insufficient income revenue and income transfer to public resources.

8. In developing countries, there is non–availability of a database to estimate the loss assessment on area or land basis.
9. In developing countries, there is significant weakness on necessary local expertise (on area base or land base).
10. Developing countries could not access to the satellite technologies for accurate risk assessment.

The risk-layering concept is useful for analyzing the optimal combination in an agricultural insurance product. Some less frequent losses are more manageable than the frequent and catastrophic losses. They cannot be managed through either on-farm risk management or mutual insurance scheme because they may cause huge financial losses. So these losses need to be transferred to commercial reinsurers.

7. CONCLUSION

In developing countries, farmers possess little resources and have small sales revenues as the grower's price is well below than that of market price. Sustainable farmer revenues are essential for maintenance of farming activity and of course food security policy in developing countries. Therefore, farmers need to be united under farmer's organizations to solve marketing problems of their products and improve their selling performances. Governments should work with farmer's organizations to make the insurance products sustainable in order to stabilize income. The role of governments is crucial for successful implementation of the crop insurance plans. On the other hand, private sector companies may also be encouraged, by the support of the governments, to take part in the insurance system. So that private sector may also provide various insurance products and contribute to the growth of agricultural insurance sector.

The risk-layering concept is useful for analyzing the optimal combination of an agricultural insurance product. Some less frequent losses are more manageable than the frequent and catastrophic losses. These cannot be managed through either on-farm risk management or mutual insurance scheme because they may cause huge financial losses. So these losses need to be transferred to commercial reinsurers. An optimal insurance plan should sufficiently cover farmers claimed injuries. Our finding is that the role of the government is vital for accurate risk assessment management in developing countries. Developing countries could not access to the satellite technologies for accurate risk assessment and could not collect strong database to estimate the loss assessment on area or land basis.

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PROTECTION OF NAMES OF AGRICULTURAL PRODUCTS AND FOODS - MARKINGS OF INDICATIONS OF GEOGRAPHIC ORIGIN AND GUARANTEED TRADITIONAL SPECIALTIES

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Abstract: *This paper analyzes the protection of names of agricultural products and food - with special reference to the Traditional specialities guaranteed. In the Republic of Serbia, there is no legal basis for registering products with a guaranteed traditional specialty. In the process of harmonization of legal regulations with EU regulations, the Republic of Serbia will also have to adopt this category of products. Although Traditional specialities guaranteed (TSG) did not fully justify expectations in the EU, we believe that their acceptance into our legal system would be positive. Their registration would standardize the process of production of such products and thereby stabilize their quality. These products will have to be subject to continuous quality control and certification of the production process, which unfortunately is not the case at the moment. Also, in this way, the production of agricultural and food products that do not meet the requirements for the protection of geographical indications of origin, whose reputation contributes significantly to the cultural and historical preservation of the identity of certain regions in Serbia, will be further preserved and raised to a higher level. The guaranteed traditional specialties will receive full material affirmation through a tourist offer where the price of these products is several times higher than the market value.*

Keywords: *agricultural products, traditional specialties, indications of geographical origin, protection, value-added products.*

1. INTRODUCTION

In order to differentiate from competition, manufacturers mark their products with different labels that provide consumers with relevant information: on the origin of goods, safety and product quality, the manufacturer, the impact on human health and the environment, and others [2], [8].

In a significant number of works and research, it has been shown that most consumers prefer a large number of nutritional information on the product packaging. However, most consumers do not have the time to concentrate on nutrition information about the product when purchasing consumer goods, making decisions semi-intuitive, guiding them with basic information provided by the product, which are different types of labels that can guide them about product quality. Consumers decide to buy with a lack of attention to the lack of spare time and in the conditions of great offer (usually in super or hypermarkets) that further blur the perception of

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products. In their choice they rely on the information offered on the products [3]. Although trademarks still have an absolute dominant role in deciding how to give confidence to a product, consumers are increasingly seeking quality assurance through information they receive through additional product labels (certificates, statements, geographical indication, etc.).

The average consumer is not sufficiently versed in the product names (he knows local or those coming from other countries, who have long been used in the market to become generic names for a particular type or type of product), so the EU has introduced PDO tags for its unique economic space for protected designation of origin, PGI for protected geographical indication and TSG for guaranteed traditional specialty.

Qualitative research on attitudes on labels on food, conducted in 2011 and 2013 [7], showed that consumers in Serbia see labels on food products as a form of advertising and advertising, and therefore do not have enough confidence. Insufficient compliance with EU legislation, as well as the lack of effective control over the use of producer statements on products, led to customer skepticism. Using without scientific and research evidence of these effects make this skepticism justified [7].

The demand for specific regional products with a special quality is constantly increasing. Modern forms of transport reduce distance, making these products more accessible. Consumers trust them, because the development of many geographical indications of origin has required a decade’s period, and some have passed centuries.

Consumer interests in terms of health and healthcare become an increasingly important factor in consumer decision-making when selecting a product, and the labels on them not only point to the existence of food-health and health links. Food labels, as part of the labeling of products, are increasingly used in the function of differentiating and positioning products [2], [4].

In order to protect and promote traditional and regional agricultural and food products, the European Commission has adopted a number of regulations [5].

Until the adoption of EU regulation no. 510/2006 on the protection of geographical indications and designations of origin for agricultural products and foodstuffs in force was Regulation no. 2081/92, as amended by Regulation no. 535/97.

In the international law only *The Lisbon Agreement for the Protection of Appellations of Origin and their International Registration* and Regulation no. 510/2006 contain the definition of the *Appellation of Origin*. *The Lisbon Agreement* conceptually relies on the traditional understanding of geographical indications in French law. International rules on geographical indications have in substance gone significantly beyond the basic intellectual property/consumer protection rationale [1].

2. GEOGRAPHICAL INDICATIONS OF ORIGIN

The roots of legal protection of geographical indications of origin are found in French law, where King Charles IV granted the royal privilege to producers of cheese *Roquefort* in 1407. Parliament in Toulouse in 1666 proclaimed an act on state rules for the protection of this cheese, which began the development of legal rules for the protection of geographical indications, which reached its peak with a ruling prohibiting the false use of *Champagne* or sparkling wines [11].

Geographical indications of origin for consumers represent a guarantee of constant quality and distinction of origin, or product manufacturer. They provide legal protection against misuse and infringement of the reputation of the original product.

The demand for specific regional products with a special quality is constantly increasing. Modern forms of transport facilitate the marketing of these products making them more accessible.

On the territory of the Republic of Serbia until 1981, the geographical indications enjoyed legal protection based on provisions on unfair competition. Although the law from 1981, the substance of geographical indications was not precisely defined in terms of terminology, it is particularly important because our legislation introduces the appellation of origin as a unique geographical indication for the first time.

The Paris Convention for the Protection of Industrial Property is considered to be the first multilateral agreement concerning the protection of the indications of geographical origin. Although it has the widest scope of application, this convention provides the lowest level of protection for geographical indications of origin, and this was the reason for the adoption of the *Madrid Agreement* and the *Lisbon Arrangement*. The *Madrid Agreement* provided only a higher degree of protection in certain segments, which is one of the main reasons for a small number of members joining it (to date it has been signed by 35 countries).

The *Lisbon Agreement for the Protection of Appellations of Origin and their International Registration* has enabled the establishment of a system of designations of geographical origin. The International System of Protection of Geographical Indications has been established by the *General Agreement on Tariffs and Trade* (GATT), which is regulated by the *World Trade Organizatio*n (WTO). Products protected by the name of origin through the *Lisbon Agreement* can be protected in 26 countries, of which eight are members of the European Union.

The regulation relating to products with protected geographical origin within the *General Agreement* is more closely described by the *Agreement on the Aspects of the Trade in Intellectual Property Rights* (TRIPS). In TRIPs Agreement, geographical indications of origin are explicitly protected in Articles 22 through 24, Section 3 [9].

Regulations No. 509/06 and 510/06, as well as Regulations No. 1898/06 and 1216/07, which set out the rules for the implementation of Regulations (EC) no. 509/06 and 510/06, the European Union also allowed farmers from countries outside the EU to initiate a procedure for the protection of their products with its authorities. This gives the opportunity to gain rights and label products with geographical origin, thus opening the door to the market with hundreds of millions of consumers. Regulation no. 510/2006 geographical designation is conceived in accordance with the *TRIPS agreement*, while the designations of the name of the origin are arranged in accordance with the *Lisbon agreement*. The *TRIPS agreement* introduced a new category of geographical indication for products where there is a link between products and sites on which it is produced, but this link is "weaker" and can be based on the subjective reputation of the product due to its geographical origin.

The terms "indication of source" and "indication of origin" in accordance with the *Madrid Agreement for the Repression of False or Deceptive Indications of Source on Goods* may be defined as a country code or place in it, as the country or place of origin of the product, and accordingly it is customary to translate those terms as "geographical indication", and this term is accepted in legislation and professional literature.

In the Republic of Serbia, the legislator has terminologically defined terms from the Lisbon and Madrid Agreement, and uses the term "geographical indication" as a collective term for the *appellations of origin* and *geographical indication*. All designations of origin are at the same time geographical designations of origin, but not all geographical indications of origin are simultaneously a designation of origin. The *Law on Indications of Geographical Origin* regulate that they are used for the labeling of natural, agricultural, food and industrial products, domestic products and services.

Council Regulation (EC) No 510/2006 of 20 March 2006 regulates the protection of geographical indications and designations of origin for agricultural products and foodstuffs (until the adoption of this Regulation, Regulation no. 2081/92, as amended by Regulation no. 535/97).

3. STANDARDS AND SPECIAL QUALITY LABELS FOR AGRICULTURAL PRODUCTS

In order to provide assistance to producers of traditional products in promoting specific (additional) value of their products, Regulation (EU) No. 1151/2012 of the European Parliament and of the Council on quality schemes for agricultural products and foodstuffs (OJ L 343, 14.12.2012) (hereinafter: Regulation (EU) No. 1151/2012), the conditions of use of the symbol of quality are prescribed Guaranteed traditional specialty - GTS (TSG - Traditional specialties guaranteed). The Regulation issue rules that the markings provided for in the schemes of quality of labels and signs do not call into question the rules of the European Union or the Member States that govern intellectual property, in particular those rules relating to geographical indications, appellation of origin and trademarks, and rights granted under those rules.

The indication "traditional" in the sense of "Regulation" means proven use on the domestic market over a period of time that allows transmission from one generation to the next for a period of at least 30 years. " While "marking" refers to "every word, detail, trademark, trade mark, image or sign referring to a foodstuff and which is contained on any package, documentation, notification and label in a relationship with to such food product". The name "registered", as a guaranteed traditional specialty, can be used by every undertaking that places a product on the market that complies with the relevant specification.

The regulation provides for the possibility of using the label "guaranteed traditional specialties" by all interested producers who comply with the appropriate production specification and provided the production is systematically controlled.

Product marked with a quality symbol GTS / TSG is an agricultural or food product manufactured in a traditional manner, that is, from traditional raw materials, which are recognized in accordance with the law, with special properties. This label is primarily protected by a recipe or a method of production; such products are made by those who hold prescribed prescriptions, procedures or methods. For the registration of a GTS / TSG product name, a name that is traditionally used to designate a specific product may be used or describes the traditional or specific properties of a product. Traditional use shall mean proven use for a period of at least 30 years [12].

According to Regulation (EU) no. 1151/2012 associations play a key role in the process of applying for registration of the name of the origin, geographical indications and guaranteed traditional specialties, as well as in the change of specifications or requests for cancellation. Associations may develop activities related to the supervision of the implementation of protection of registered names, product conformity with the product specification, information and advertising, or any activity aimed at improving the value of the registered name. The regulation also recommends monitoring the position of products on the market by the association.

Although the scope of protection guaranteed by traditional specialties is improved by this Regulation, it does not explicitly prohibit the use of a translation of the name protected as a traditional specialty guaranteed or its use with the terms "type, type, mode, procedure, imitation". This may result in a loss of consumer confidence in the original product, as unauthorized users using the expression e.g. "*Prašská šunka ham*" or "*Serrano Ham*" violet the idea of the quality guaranteed by the traditional specialty enjoyed by consumers (because such products are usually of lower quality than the original ones) [12].

4. REPUBLIC OF CROATIA

In the Republic of Croatia, the procedure for registering agricultural and food products begins to be carried out in the 1990s. Since 2003, the process of registration of indications of geographical origin and guaranteed traditional specialties has been transferred to the competence of the Ministry of Agriculture. At that time, a system of registration and protection of the name of agricultural and food products of geographical indications and guaranteed traditional specialties is established, and the harmonization of regulations with the regulations of the European Union begins [10].

The term *guaranteed traditional specialty* („*zajamčeno tradicionalni specijalitet*") is used - ZTS. The area of protection of traditional specialties guaranteed in Croatia is regulated by the Law on Agriculture (NN 30/15) together with indications of geographical origin. Previously, this area was similarly regulated by the Law on Protected Designation of Origin, Protected Geographical Indications and Guaranteed Traditional Specialties Agricultural and Food Products (N N 80/13, 14/14, 30/15), Regulations on Protected Designation of Origin, Protected Geographical Indications and Guaranteed Traditional Specialties Agricultural and Food Products (NN 80/13, 14/14, 30/15). In accordance with the Regulation (EU) no. 1151/2012 and Commission Implementing Regulation (EU) No 668/2014 of 13 June 2014 laying down rules for the application of Regulation (EU) No 1151/2012 of the European Parliament and of the Council on quality schemes for agricultural products and foodstuffs.
The national procedure for the protection of the name of agricultural and food products of indications of geographical origin and guaranteed traditional specialties is defined by the Regulation amending the Regulation on protected designations of origin, protected geographical indications and traditional specialties guaranteed for agricultural products and foodstuffs (NN 65/15). The Rules also prescribe the conditions for obtaining, appearance and use of registered marks.

5. REPUBLIC OF MONTENEGRO

As in Croatia, this area in Montenegro is regulated by a single law, by the Law on Designations of Origin, Geographical Indications and Designations of Guaranteed Traditional Specialty Agricultural Products and Foodstuffs (Official Gazette of Montenegro, No. 18/11). The law regulate the special features necessary to possess a product: a characteristic or a set of characteristics that clearly distinguish an agricultural or food product from similar agricultural or food products of the same category, which may relate to specific product characteristics such as physical, chemical, microbiological or organoleptic, the characteristics of the product or the production method used by the manufacturer or on special conditions during its production [6].

In Montenegro, the register of names of traditional specialties guaranteed is managed by a line ministry. The register contains two lists of guaranteed traditional specialties, depending on whether the use of the name of an agricultural or food product is reserved for producers who meet the requirements of the product specification. The term "guaranteed traditional specialties", which is registered without reservation of the name, can only be used to identify agricultural or food products produced in accordance with the specification, as a traditional specialty guaranteed.

For producers who use the label "guaranteed traditional specialty" for a product that does not meet the requirements of the specification guaranteed traditional specialties or are not registered in the Register of beneficiaries of this names, the Law issue misdemeanor fines for violation in the amount of 500 to 10.000 Euros.

The existing system gives the possibility to register a name for identification without retaining the names in the European Union. Since interested parties did not understand this possibility sufficiently well, and the role of identifying traditional products can be better achieved at the level of a Member State or region, applying the principle of subsidiarity, this option should be abolished. In terms of experience, the system should only be eligible for names across the European Union.

In order to preserve the link between the quality of products and the environment in which the originating products arise, greater investment and state support are needed. Higher investments will additionally contribute to the preservation of history, culture and respect for tradition in the production and processing of certain products, and therefore local communities involved in this production. Potential of originating products could also have a wider social significance, primarily in preserving autochthonous plant varieties and animal species, as well as in promoting the protection of local resources and preserving the environment [13].

6. CONCLUSION

Since the adoption of Regulation 2082/92 EEC, through Regulation 509/2016 to Regulation 1151/2012, which is now in force, 58 products have been registered as guaranteed traditional specialties (TSGs). In the same period, Regulations 2081/92, 510/2006 and 1151/2012 registered 635 names of origin (PDOs) and 739 geographical indications (PGIs). The total for all three categories of protected products is 1,432 products. In the total mass of protected products, guaranteed traditional specialties make up only 3.78% of registered products.

The above figures (indicators) speak for themselves. Producers of agricultural and food products, by rules, avoid to protect their products with guaranteed traditional specialties and in every possible way try to protect them with their geographical indications. *The Stresa Convention* (International Convention for the Use of Appellations of Origin and Denominations of Cheesesis) from 1951 is a classic example of this. Namely, only four cheeses: *Gorgonzola*, *Parmigiano Reggiano*, *Pecorino Romano* and *Roquefort* have fulfilled the conditions for production in a certain place of origin, what we would call today the name of origin, PDO.

Other cheeses could be subdued under what we now call guaranteed by a traditional specialty, TSG, because the process of production or recipes was important to them. On the list of these cheeses were found *Danish Danablu* and *Esrom*, *Italian Asiago*, *Fiore Sardo* and *Fontina* and *Swedish Svecia*. The Italians protected their cheeses *Asiago* and *Fontina* with the name of their origin through the Lisbon Treaty, in the first year of 2014 and the second in 1969, and the same year at the European Union level. The Danes protected their cheeses *Danubel* and *Esrom* as geographical indications, PGI, and at the level of the EU the same thing was done by Sweden with its cheese *Svecia*.

Producers protect products guaranteed by traditional specialties almost only in case the product name has become generic, for example, *Pražská ham* or *Mozzarella*, both in the domestic market (in the country of origin) and outside (common EU market), or when it cannot be protected with the geographical indication, because natural factors are lacking to give specific properties and quality to a product such as, for example, with *Pizza Napoletana*. Products that are guaranteed by traditional specialties, TSG, have their own logos under which they are placed on the market. These are usually collective trademarks, associations of producers and other entities that are linked by the process of production or distribution of these products. Unlike indications of geographical origin, guaranteed traditional specialties are not subject to strict restrictions such as the transfer of rights, licenses, pledges or franchises.

In the Republic of Serbia, there is no legal basis for registering products with a guaranteed traditional specialty. In the process of harmonization of legal regulations with EU regulations, the Republic of Serbia will have to introduce this category of products. Until it becomes a full member of the EU, Serbia will not be able to use the TSG mark on its products reserved for EU Member States. In the transitional period until full EU membership in the Republic of Serbia, a national mark for this type of product will be used.

The guaranteed traditional specialties (TSGs) did not fully meet the expectations in the EU, as can be seen from the number of registered products with this label. It is expected that a similar situation will be in the Republic of Serbia. However, we consider that their introduction into the legal system of the Republic of Serbia would be positive for several reasons. Their registration would standardize the process of production of such products and thereby stabilize their quality. These products will have to be subject to continuous quality control and certification of the production process, which unfortunately is not the case now. Also, in this way, the production of agricultural and food products that do not meet the requirements for the protection of indications of geographical origin, whose reputation contributes significantly to the cultural and historical preservation of the identity of certain regions in Serbia, will be further preserved and raised to a higher level.

The production of value-added products as guaranteed and guaranteed by traditional specialties in the Republic of Serbia is not large. The guaranteed traditional specialties will receive full material affirmation through a tourist offer where the price of these products is several times higher than the market value.

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IMPACT OF CANAL WATER QUALITY TO THE MORPHOLOGY AND PHYSIOLOGY OF CULTIVATED PLANTS

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Abstract: *Agriculture represents one of the main sources of water pollution, but it is also a significant user of canal water resources through irrigation. In order to prevent and reduce environmental pollution, it is essential to conduct the continuous monitoring of water quality using cultivated plants as phytoindicators. The assessment of possibly use of canal water for irrigation and determination of appropriate phytoindicator was conducted in bioassay using lettuce (Lactuca sativa L.) and radish (Raphanus sativus L.) as test plants. The analyzed (physico-chemical parameters) samples of canal waters was taken from two localities in Vojvodina Province, Serbia (Kovilj and Sirig). Physiological and morphological parameters of the test plants were used for evaluation of water quality by method ISTA (2013) and according to the Regulations on the seed quality for agricultural plants in Serbia. Results for physiological parameters are expressed in percentages. The values of morphological parameters are expressed as average values and are processed using the ANOVA and LSD test, with confidence interval of 95%. The obtained results indicate differences in tolerance of the test plants towards the quality of water. Physiological parameters (germination energy and germination) are not appropriate indicators of water quality. Morphological traits such as length of root can be considered more reliable, which reacted in inhibition, depending on water quality.*

Keywords: *water, pollutants, monitoring, phytoindicators, lettuce, radish*

1. INTRODUCTION

Water plays a significant role in the economic progress of any country and specifically the countries that depend on the agricultural production, which also represents one of the main sources of water pollution. Pesticidal residues carried by water from agricultural areas pose an environmental threat as a result of intensive agricultural production and irrigation. In order to prevent and reduce environmental pollution, it is essential to conduct the continuous monitoring of water quality using cultivated plants as phytoindicators. Organisms that are used to detect changes in the environment and demonstrate the presence of pollutants and their effects on the ecosystem in which the organism lives, are called bioindicators. The changes can be chemical, physical or behavioral changes, and are different from organism to organism. Every organism in the ecosystem can provide information about

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the health of their environment. The most used test organisms in bioassays for quality assessment and water pollution are aquatic invertebrates (lower plants) and also macrophytes (higher plants), especially cultivated plant species, in case of assessing the quality of water in the agricultural region. The aim of the study was to determine the degree of water pollution through physiological (germination energy, germination) and morphological parameters (length of roots and shoots, fresh and dry weight of roots and shoots) by using test plants radish (*Raphanus sativus* L.) and lettuce (*Lactuca sativa* L.). The results of bio-assays directly indicate water suitability for irrigation and cultivation of plants.

2. MATERIAL AND METHODS

Water sampling was conducted in 2018 on the territory of Vojvodina from two sites: Kovilj and Sirig. Chemical analyzes of water samples were carried out by an expert team from Department of Chemistry, Biochemistry and Environmental Protection, Faculty of Sciences Novi Sad (Novi Sad, Serbia). Chemical analysis included examination of general parameters: electroconductivity, pH, total nitrogen, total phosphorus, ammonia, nitrates and nitrites. In the interpretation of results are used the maximum allowable values of prescribed regulations (Official Gazette of RS, no. 50/2012, 35/2011, 50/2012). As test plants a representative of two dicots - radish (*R. sativus*) and lettuce (*L. sativa)* were chosen. The quality of water is evaluated using physiological (germination energy and germination /% /) and morphological parameters (length of roots and shoots / cm /, fresh and dry weight of roots and shoots / g /) of test plants. A filter-paper method by ISTA (International rules for seed testing) for 2013 and the Regulations of the seeds quality for agricultural plants („Sl. List SFRJ“, no. 47/87, 60/87, 55/88 and 81/89 and „Sl. List SRJ“, no. 16/92, 8/93, 21/93, 30/94, 43/96, 10/98, 15/2001 and 58/2002) was used. The Petri dishes were filled with two layers of cotton wool paper at the bottom, over which is placed filter paper. Paper was soaked with 25 ml of sampled water or with distilled water as control variant. Then, after each repetition 100 seeds were placed in Petri dishes (in the same manner and with the same quantity of sample water). Then the Petri dishes were stored in a thermostat at a temperature of 25 ± 2°C, in the dark. The experiment was set in four replications. Seed germination was determined after 10 days. Germination energy and germination were assessed by counting the germinated seeds, un-germinated and atypical seedlings compared to the total number and expressed in percentages. In order to assess the morphological parameters, from each repetition 10 plants were selected and placed on the three-layer paper strips dimensions 14x60 cm in size. The strips were pre-moistened with 30 ml of test water, then wrapped in rolls, placed in plastic bags and then stored in a thermostat. After 10 days, the length of root and shoot from the rolls were measured. Fresh root and shoot weight was measured on an analytical, digital balance. When the measurement of fresh weight is done, metal containers with samples were placed in the oven at 60°C for 24h and 1 hour at 130°C, and finally dry weight of root and shoot was measured. Results for germination energy and germination are expressed in percentages. The values of morphological parameters are shown as average values and are processed using the Analysis of Variance and Duncan's multiple comparison test, with confidence interval of 95%, in the statistical software R ver. 3.2.2.

3. RESULTS AND DISCUSSION

3.1 Physico-chemical analysis of water

According to the results of physico-chemical analysis, in water sample Sirig and Kovilj electrical conductivity did not exceeded maximum allowed values. Electrical conductivity, concentration of salt in the water, is an essential characteristic of water for irrigation and it significantly affects the crops productivity. The primary effect of high salt concentration is reflected in plant the inability to uptake water from the soil solution which leads to a physiological drought. The higher the conductivity, the less water is available to plants (Bauder et al., 2014). Also, pH results were below the maximum allowable values. However, in water samples Sirig and Kovilj a high concentration of ammonia was established (exceeding maximum allowable concentration for 3x), while the other test parameters were in allowable limits.

Table 1. Physico-chemical analysis of the general parameters in analyzed water samples

Location	Detected values of general parameters							
	pH	EC (mS/cm) at 20˚C	NO_3^- mgN/l	NO_2^- mgN/l	NH_3 mgN/l	Cl mgCl/l	Fe mgFe/l	Ca mgCa/l
Sirig	7.8	1189	1.1	<0.005	**0.29**	95.5	<0.1	46.9
Kovilj	7.9	1232	2.2	<0.005	**0.37**	67.7	<0.1	84.7
***MAC**	**6-9**	**2500**	**50.0**	**0.03**	**0.1**	**200**	**0.3**	**200**

**MAC - Maximum allowable concentration (Anonimus, 1998)*

3.2 Bioassay results – radish and lettuce

The obtained results indicate differences in tolerance of the test plants according to the parameters which have been detected in the water. Although the differences between control and water samples were significant, values for germination and germination energy were above the prescribed limits for those plant species.

Table 2. Water quality influence on physiological parameters

Parameters	Water sample	Radish	Lettuce
Germination energy (%)	Sirig	94.0±1.15 a	92.75±2.63 b
	Kovilj	95.5±1.29 b	93.75±2.06 ab
	Control	97.5±1.29 b	96.50±0.57 a
	F value	**7.93***	**3.93***
Germination (%)	Sirig	96.5±1.29 b	96.0±1.41 ab
	Kovilj	95.7±0.96 b	94.5±0.30 b
	Control	98.5±0.58 a	98.0±0.81 a
	F value	**8.31***	**3.00***

Based on this results it can be concluded that physiological parameters (germination energy and germination), in both cases, have not been proven to be good indicators of water quality, while some morphological parameters of radish and lettuce (length of root), that reacted by inhibition, may be considered more reliable. Other morphological parameters were not affected by water quality and all values are on the same level of significance, compared to the control. Root length of radish was significantly inhibited by water from Sirig (20.2%) and Kovilj (45.1%), compared to the control. Also, root length of lettuce was significantly inhibited by water from Sirig and Kovilj by 53.7 and 59.7 % respectively. Radish and lettuce proved that they could be used as good indicator of water quality, which is contaminated with specified pollutants.

Table 3. Impact of water quality on morphological parameter

Parameters	Water sample	Radish Values	Lettuce Values
Length of root (cm)	Sirig	4.51±0.77 a	0.93±0.19 b
	Kovilj	3.10±1.29 b	0.81±0.15 b
	Control	5.65±0.23 a	2.01±0.36 a
	F value	**8.43 ***	**27.61 ***
Fresh weight of root (g)	Sirig	0.17±0.07 a	0.01±0.01 a
	Kovilj	0.06±0.01 a	0.01±0.01 a
	Control	0.07±0.03 a	0.02±0.01 a
	F value	**2.80 ns**	**2.46 ns**
Dry weight of root (g)	Sirig	0.02±0.010 a	0.002±0.001 a
	Kovilj	0.01±0.007 a	0.001±0.001 a
	Control	0.01±0.003 a	0.001±0.001 a
	F value	**2.80 ns**	**2.03 ns**
Length of shoot (cm)	Sirig	2.37±0.56 a	4.16±0.87 a
	Kovilj	2.48±1.01 a	3.69±0.92 a
	Control	1.96±0.54 a	3.64±0.78 a
	F value	**0.56 ns**	**0.43 ns**
Fresh weight of shoot (g)	Sirig	0.23±0.23 a	0.25±0.06 a
	Kovilj	0.08±0.99 a	0.24±0.05 a
	Control	0.17±0.13 a	0.20±0.42 a
	F value	**0.83 ns**	**0.99 ns**
Dry weight of shoot (g)	Sirig	0.015±0.099 a	0.007±0.002 a
	Kovilj	0.013±0.008 a	0.008±0.002 a
	Control	0.009±0.005 a	0.007±0.001 a
	F value	**0.35 ns**	**0.21 ns**

4. CONCLUSION

Based on the conducted tests and the results achieved on the influence of water quality (Sirig, Kovilj) on the test plants (radish, lettuce) it can be concluded that:

- In water samples Sirig and Kovilj a high concentration of ammonia was established (exceeding maximum allowable concentration for 3x), while the other test parameters were in allowable limits,
- Physiological parameters (germination energy and germination), in both cases, have not been proven to be good indicators of water quality,

- More reliable may be considered some morphological parameters of radish and lettuce (length of root), that reacted by inhibition. Other morphological parameters were not affected by water quality and all values are on the same level of significance, compared to the control.

Bioassay test results indicate the different sensitivity of tested plant species and parameters as well as their validity in assessing water contamination. An expressed variability of parameters indicates their potential as possible bioindicators.

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A GIS BASED METHOD OF MODELING THE MAXIMAL RESISTANCE TEMPERATURES OF CORN IN THE TERRITORY OF EUROPE

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Abstract: *Climatic properties of the world have been changing through time. However, changed or unchanged, climatic properties influence the distribution of some plants. In this paper, we used three different prediction models of climate changes: global model (CMIP5 30-seconds), for the time period extending to 2100, in the territory of Europe. Furthermore, we embedded four possibilities of climate changes within this prediction model. Slight, when there are no climate change effects and temperatures increase for 0.5^{0}C. Moderate temperatures' increase would be up for 2.0^{0}C, whereas severe temperatures' increase would be up for 5.0^{0}C. Incredibly, temperatures will increase to the maximum resistance of predicted crops. With the help of GIS multi-criteria analysis and agroclimatological modeling, we showed models for corn in case of temperatures' increase in the territory of Europe. The mapping of this hazard could be very important for climatology, plants sciences, agronomy, geography and economy.*

Keywords: *GIS, corn, multi-criteria analysis, Europe, Mapping*

1. INTRODUCTION

Corn is a crop which is the most wide-spreaded in the world, as well as in Europe. Without corn, life and economy would be very difficult. Properties of corn show that this plant covers areas between 100 and 1200 m (Food and Agricultural Organization of the United Nations, 2016 [1]. In this research we were investigating the territory of Europe with area of 13,460.990 km^2. According to climate change influence in the territory of Europe Köpen's climate classification must be changed and refreshed. The data of Köpen's climate classification has been established since 1900, but some authors present refreshed and updated Köpen classification, with new data from 2000 [2]. In this research the hazardous predictions were established with the use of different softwares for climate analysis such as CLIMEX, DIVA-GIS, Climatology, Menex etc. [3]. With the use of CLIMEX software, some of the changes of climate properties were successfully applied in the territory of North America. This prediction included early growing corn properties along with hazardous effects in case of temperatures' increase between 2.7 and 4.0^{0}C until 2100 [4]. That prediction model includes the territories of Malaysia and Indonesia and approaches the production of palm oil. Other researchers tried to find patterns between corn growth and extreme weather conditions [5]. One of the predictions showed that crops would migrate to higher latitudes and to the higher altitudes [6]. Wheat and corn were growing in difficult conditions, but the necessity for food and crops doubled, especially in the regions of Southern Africa and South Asia [7]. The relationship

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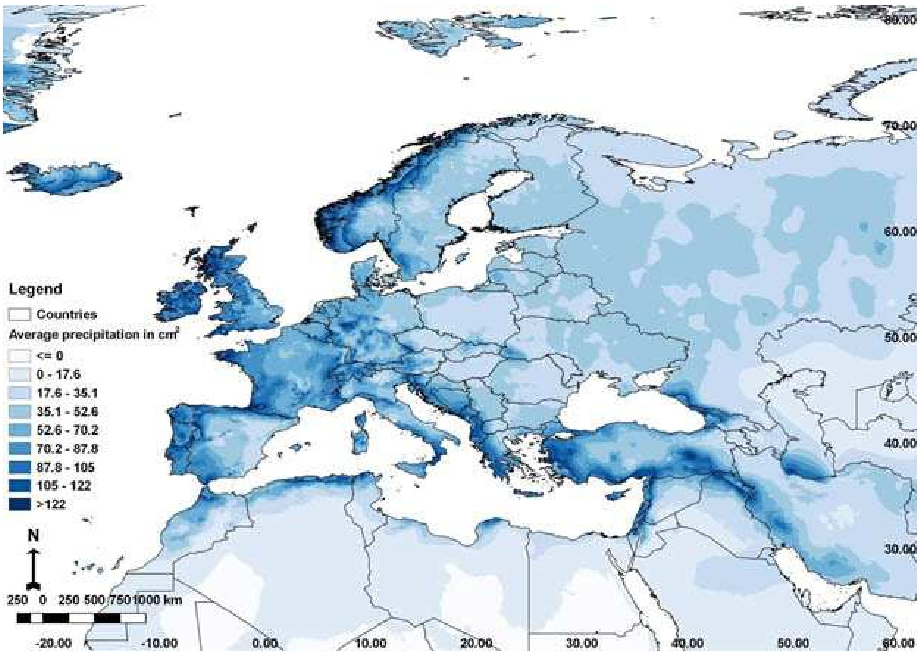
between edible plants i.e. corn and extreme climate has been successfully researched [8]. In this forecasting, the researcher established new species of corn which could be more resistant. For the following predictions, based on numerical simulations in the examination of the influence of hazardous weather on edible plants, the expected consequence is the movement of some plants to different longitude and latitude. Without some plants we can expect worse drought and floods everywhere [9]. According to the estimation of the influence of climate changes and with doubling of CO2 the food reserve may become minimal, especially in developed countries. In one study, the authors also explained the global situation for plants between periods of 1980 and 2008 in the United States. Factors like fertilization, enhancement of carbon dioxide emission and appliance of certain pesticides can alleviate the effects of climate changes on some plants [10]. Some studies in Europe show basic adaptation to climate changes with the help of agrotechnics. In this research, European continent has been divided into thirteen environmental zones, according to the questionnaire statistics. The first question would concern the main vulnerabilities of crops and cropping systems under present climate; (2) estimates of climate change impacts on the production of nine selected crops; (3) possible adaptation options as well as (4) adaptation observed so far. In addition, we focused on the overall awareness and presence of warning and decision support systems with relevance for adaptation to climate change [11]. One group of authors studied spring wheat and climate variability over 30 years in Canada [12]. In Slovenia [13], researchers adapted their research data for corn to the areas with predicted climate change. These authors used statistical emulator for the dynamic crop model of estimation for the areas in the inter-annual variability too. The potential impact of climate change on rice and corn in the Philippines was assessed by using the results from four general circulation models and the data of predicted temperatures. The effects of climate change influence the economy in the whole world. Also, this projection includes an adaptation of the economy with the use of new, adapted sorts of plants including corn and wheat, which must be more resistant [14]. Certain corn areas in Serbia are completely dependent on the effects of climate change. The economic price of corn in Serbia calculated with the help of irrigation systems, showed connection with the climate change effects [15]. Also, this projection includes an adaptation of the economy with the use of new, adapted sorts of plants. An experimental study was carried out in the most important agricultural regions of Serbia including the Province of Vojvodina. In this study, it was shown that if corn was growing in irrigated conditions for the period (2002-2010), yields would be increased for 40%. Corn areas and climate parameters were recorded in Serbia in the last forty years, and the results showed that each year, during the growing season, the crops were exposed to some degree of water deficit. In Serbia, the average water deficit is in June, July and August is 48 mm, whereas the required minimum for wheat is 98 mm and 88 mm for corn. During that period corn underwent phenological stages in which its sensitivity to drought was high. Rainfed corn grain yields varied considerably from year to year, ranging from 8.57 t ha^{-1} to 12.73 t ha^{-1} (average 10.46 t ha^{-1}). However, without GIS (Geographical Information System) we can't find real patterns between climate change and area under the influence of potential climate change. With the help of new advanced techniques such as remote sensing and GIS, prediction of climate change will be more precise. Some advanced GIS algorithms were successfully applied for reconstruction of forest properties in the Toplica region. These methods in this research were including remote data, analogue topographic maps, cadastre data, plans, etc. In addition to the changes in the forested areas, we had concurrent socio-economic changes which would be important for the distribution and density of the forest. The total number of trees in the Toplica region in 2013 was determined by applying numerical GIS methods and novel patent for determining the number of pixel in the field. These methods, called sub-pixel and pixel methods, are applied in determining the number of trees from the old analogue topographic maps. A very similar method may be applied to the research of corn in proposed areas. In analyzing the geospatial data we may include a few more methods. For geospatial analysis the priority is given to ordinary and global kriging method. These methods include autocorrelation and statistical relationship among the measured points [16, 17]. GIS numerical analysis may be applied also in calculating the renewability and dispersion of plants [18-21). In many ways we can use GIS analysis for geospatial calculation, as well as for climatology properties or predictions [22].

2. GEOGRAPHICAL FEATURES OF EUROPE

Europe covers an area of 13,460,990 km^2 or 2% of total land on the Earth. In this research we used border between Europe and Asia on Ural Mountain, on 67^{0}E. Europe extends to Cape Litinon on 34.55^0 S and this is the southern point. Northern point is Cape Nordkap in Norway on 71.21^0 N. For the western point of Europe, the point on the Cape Dunmore Head must be taken, with geographical longitude 10.30^0 W. The coastline of Europe is 41,000 km long, so it follows that Europe with the area of 1000 km^2 has 4.1 km of coastline. Europe is divided on three different coastline belts Atlantic, Arctic and Mediterranean (Figure 1). The borders of Europe include Caucasus Mountain, the Ural River, the Black and the Caspian Sea. Politically, Europe is divided into about fifty sovereign states.

Figure 1: Precipitation in Europe between 1950-2000. according to the open source DIVA/GIS and World Climatological Data. The map drawn by the author Aleksandar Valjarević



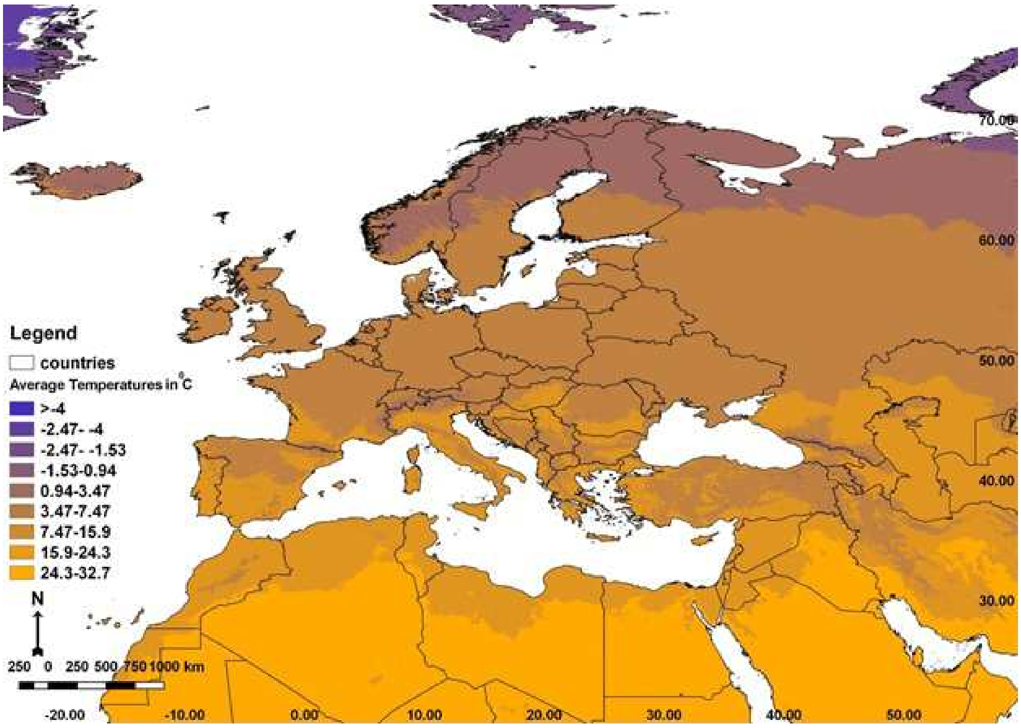
3. METHODS AND DATA

The CO_2 concentration is assumed following the estimate of the fifth Assessment Report AR5. The potential scenario is divided into four categories depending on the particle concentration (ppm) in the lower atmosphere. This information concerns the pre-industrial level which is calculated through the reference zero, the CO_2 quantities are between +2.6, +4.5, +6.0, and +8.5 W/m^2 [23]. We also used the special multi-criteria GIS analysis and climatological data, which are varied depending on the model and the examined plants. After geo-referencing of the European continent, we determined the boundary with Asia. The obtained results of the multi-criteria GIS analysis are divided into six classes: excellent, very suitable, suitable, marginal, very marginal, not situated. In the modeling of the whole European continent in connection with the resistance to climate (temperature) changes we used corn grown throughout Europe, latin *Zea Mays*, (abrev. Zea). This plant, except as food, can be also used in producing energy, edible oils, bio raw materials and others. Another reason why this plant is chosen is its importance for the survival of humankind, as well as the fraction in the export capacities of the European countries. Using the database of the World Meteorological Organization (WMO), from (DIVA GIS), as the basic grid we found the average quantities of precipitation and the average temperatures for the period of 1960-2000. The data for the prediction and temperature modeling were found in the grid of climatological data with 2100 as the final year [24]. The sets of the climatological data that are in the registered layers with a spatial resolution of 1 km^2 (30 arc-seconds) are used as the basis for obtaining geo-spatial dispersion models for the chosen plant. Long-term climatological data can be used in the mapping and spatial modeling of the bio-climatological data [25,26]. The other data are from the version of GIS DIVA 1.4 developments by the University of California Davis and the Stockholm Institute of Environment [27]. In obtaining the first grid the precipitations are divided into nine classes. These data are the basis for further and more complex modeling, since the same principle is applied to the grid that concerns the average temperatures. After inserting both 30 arc-sec TIFFA in GIS QGIS, which is open-source software, we can start agroclimatological modeling [28]. The basic agroclimatological parameters for corn, (Eco Crop), is supported and updated by the Food and Agriculture Organization of the United Nations.

4. GIS AND CLIMATOLOGICAL DATA

Geographic Information System (GIS) and modeling of agroclimatology properties or distribution of crops is a very powerful tool for describing the climate change in an area. GIS and climatological modeling are always successfully used for agroclimatology. All geospatial data can be used for mapping and modeling of the climatological data, as well as for precipitation and temperatures, moisture, wind properties etc. The ordinary kriging and global-kriging algorithms were employed through QGIS and DIVA (GIS) on the extension of the spatial analyst tool. Although there are a few other methods, the priority is given to ordinary kriging and global kriging because it includes autocorrelation or the statistical relationship among the measured points in the map. These points after finishing the operation in the GIS software will be exported on the map. This approach, the weights of points is based not only on the distance between the measured points and the predicted locations, but on the overall spatial arrangement of the measured points, too. These methods in combination with other advanced GIS numerical methods may be used in the presentation of climatological properties and data. The maps of the average temperatures and precipitations of Europe are given (see Figure 1; Figure 2). The distribution of corn areas in Europe was determined with the use of special extension on the bottom in the open source DIVA (GIS) software. DIVA (GIS) and QGIS have priority because they are robust and very precise software. The grid cell of climate properties is divided into six classes (Not Situated, Very Marginal, Marginal, Suitable, Very Suitable, and Excellent) whose resolution is 1km^2. After total GIS analysis, we got areas of Corn, in the whole territory of Europe excluding the Russian part of Asia. We not only got the data in vector and raster formats ,but also in formats such as CSV, Excel, ESRI shape file and KLM (Keyhole Merkup File), [29].

Figure 2: Precipitation in Europe between 1950-2000. according to the open source DIVIA/GIS and World Climatological Data. The map drawn by the author Aleksandar Valjarević



5. RESULTS AND DISCUSSIONS

The results given in this research represent the forecasting for corn areas in case of global temperature increase for 0.5^{0}C. All the predictions until 2100 were given. The first prediction concerns a temperature change until 2100 not exceeding 0.50C. The second prediction, which seems to be more realistic, admits a temperature change to 2.0^{0}C. The third one, which can be regarded as catastrophic, admits that the temperature will be changed for almost 5.0^{0}C. The last prediction indicates the resistance degree for Europe. All results are classified into six classes (Excellent, Very Suitable, Suitable, Marginal, and Very Marginal, Not situated). The first three classes correspond to excellent and optimal conditions for the plant growth; the fourth and fifth class corresponds to the minimum conditions for the growth, whereas the sixth one corresponds to non-existing conditions for growth even in the case of applying agrotechnical measures. After the GIS analysis of 1 km resolution grid, we got areas for the territory of Europe. The total area of Europe is 13,460,990 km^2. According to the data from 2014 the total number of inhabitants in Europe was 853,215,836. The detailed analysis and complete modeling for corn in the case of temperature increase for 0.5^{0}C, in the territory of Europe showed that yield would be in the class of Excellent (20.6 %), Very Suitable (6.4%), and Suitable (6.7%). These three classes belong to the optimal ones in which the given plant would be grown fully. For the other three classes the results are Marginal (8.9%), Very Marginal (14.7%), and Not Situated with no possibility of growing the plant, which covers the area of (42.7%). For the two last classes (Marginal and Very Marginal) the possibility of growth of the plants is minimal. If the temperature increased to 2.0^{0}C, the area distribution would be as following - Excellent (14.3%), Very Suitable (7.6%), Suitable (4.2%), Marginal (7.8%), Very Marginal (13.7%), Not Situated (52.4%). If the average annual temperatures increased to 5.0^{0}C, the distribution of class would be - Excellent (10.3 %), Very Suitable (2.8%,), Suitable (2.1%), Marginal (5.1%), Very Marginal (5.3 %), and Not Situated (74.4%). In the case of hazardous temperatures, the corn areas in the territory of Europe would be as following - Excellent may cover (0.3%) of the territory, Very Suitable (0.3%), Suitable (0.34%), Marginal (0.02%), Very Marginal (0.04%) and Not Situated (99%). However, the results of agroclimatological modeling differ from country to country. For the temperature change for 0.5^0C the distributions and the areas covered by corn would be as following - France has a potential area of 234,500 km^2 with Excellent class, Italy has 150,040 km^2, Spain 79,400 km2. For Not Situated class, the largest areas would be in Russia 2,718,450 km^2, Turkey 660,450 km^2 and Ukraine 400,661 km^2. In the case of temperatures' increase for 2.0^0C, the areas of the excellent class would be distributed in countries as follows - the largest area would be in France 198,600 km^2, and in Italy 116,630 km^2, Turkey 100,900 km^2. Within the Not Situated class, Russia would have 2,866,470 km^2, Kazakhstan 2,720,770 km2, and Ukraine 412,196 km^2. If the temperatures increased to 5.0^0C, the excellent areas would be in Italy 131,100 km^2, France 105,230 km^2, Turkey 52,700 km^2. The countries with largest areas in Not Situated class are Russia with an area of 3,732,190 km^2, Kazakhstan 2,726,060 km^2, and Turkey 697,760 km^2.

Figure 3: Areas in Europe with excellent condition for corn growth in (%) with included changes of temperature and precipitation until 2100.

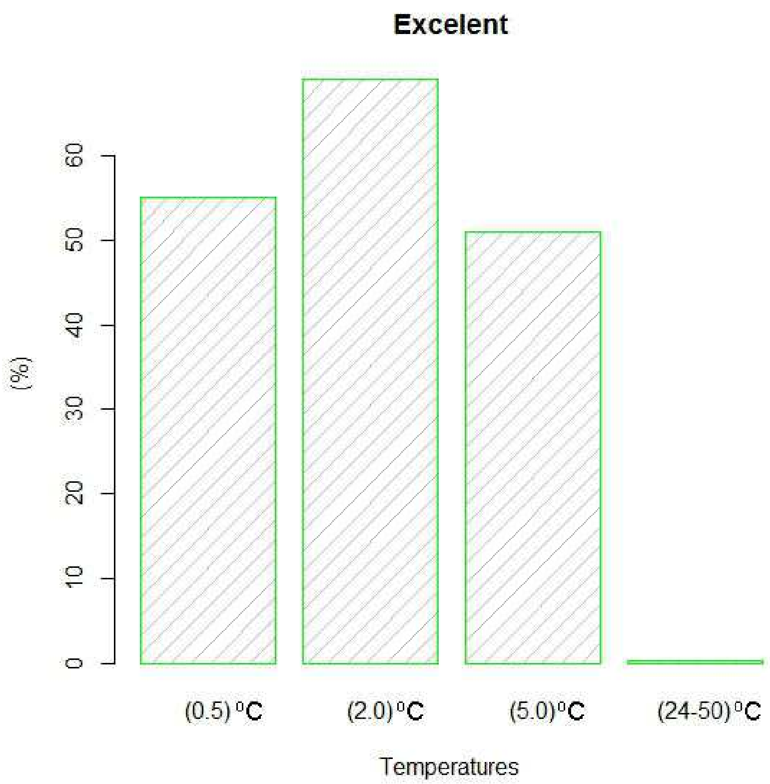
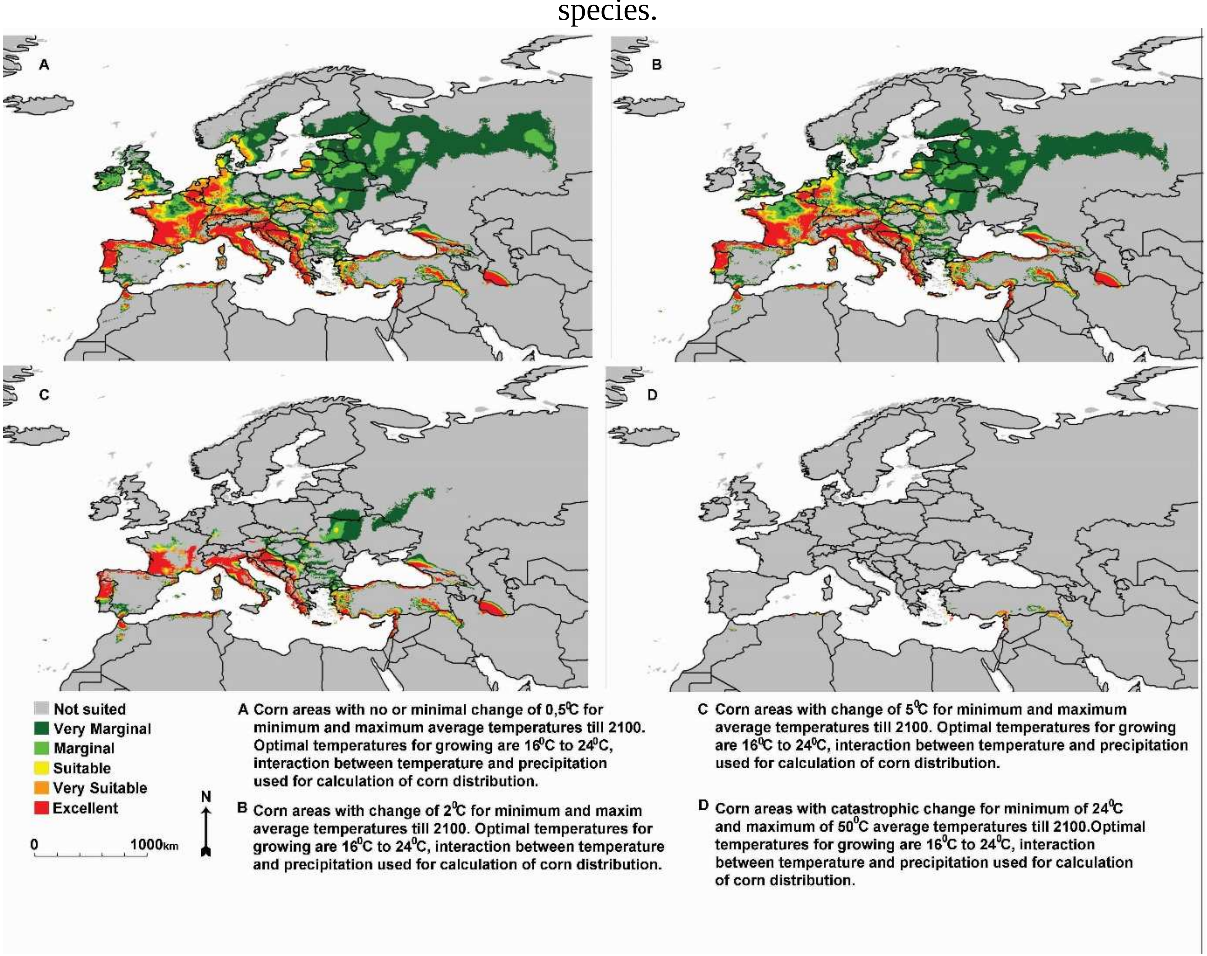


Figure 4: Distribution and forecasting for corn with different temperatures' increase. Temperature is low 0.5^0 C, moderate – to 2.0^0C, severe – temperature changes to 5.0^0C, and incredible – temperature changes to maximal or complete disappearance of certain plant species.



5. CONCLUSIONS AND POSSIBILITIES

Some scientists think that, as a consequence of temperature increase to 4.0^0C, a large part of Europe, also of the whole world, would become a desert. In such studies there is also the prediction concerning the increase of the level of the world seas. According to these models Siberia, the central and southern parts of the Scandinavian Peninsula, Greenland and Iceland would become new rich soils for cereals, whereas many European countries, such as Austria, Germany, Hungary, all Balkan countries, also Spain and Portugal, would become uninhabitable deserts. According to our results, in the case of a temperature increase to 5.0^0C potential areas of classes (Excellent, Very Suitable, Suitable) are expected to become smaller by 85%, but there will be islands (isolated areas) where with watering or sufficient precipitation, growing of corn will be also possible in the future. Our model includes precipitation and temperatures as hypsometry, normal lapse rate (the rate of temperature decrease with altitude for 0.65^0C per 100 m). Therefore, our prediction is somewhat more optimistic, though the food production in many European countries will become questionable. Russia, Scandinavia, also Iceland, will not be able to become rich soils with minerals for potential plants, because each study of their soils has to take into account large quantities of ice (permafrost) since very rapid melting can produce river streams that would wash out the fertile soil converting it into mud. What is probable is that all the three cultures could adapt to the newly formed conditions at high altitudes or under mountain ridges, also along the large water areas, where periods of sufficient precipitation could exist, taking into account artificial watering as well. European farmers would use new adapted plants sorts that could more easily endure the newly formed climate. Such sorts would need less water or they could be successfully grown at high altitudes, as well as on less inclined slopes. In our study the relationship between temperature and water is also taken into account: what would occur if the number of days with precipitation became significantly smaller or no watering was done is that the results would be surely even more worrying. Areas modeled in the present paper for every European country separately appear as a theoretically usable soil that can also be used for other purposes, inter alia for seeding other plants. As an optimistic result of our modeling we can mention that after the climate change, suitable zones will be located within urban and sub-urban zones. Therefore, a new urban policy will be required, which should be directed against inevitable conversion of agricultural land into urban one. Alternative solutions could be in forming ecological zones and vertical farms within urban settlements. On sub-urban and open areas in such situations new parcels would be formed to be near large accumulations, even at higher altitudes. Any model of future climate is an essential prerequisite in order to reach local, regional and global predictions as good as possible. Only sufficiently good predictions offer possibilities to be successfully prepared and adapted to what could come with climate change.

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ORGANOCHLORINE POLLUTANTS IN AGRICULTURAL SOIL SAMPLES FROM MYZEQEJA AREA, ALBANIA

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Abstract: *In this paper were presented concentration and distribution of organochlorine pesticides, their residues and polychlorinated biphenyls (PCB) in soil samples from Myzeqeja area. This area is located in South-West central Albania. Myzeqeja field is the main agricultural area in Albania. It is known for elevated agricultural activity after Second War until now. In the past the main parts of Myzeqeja field have been a wetland. Firstly, DDT and other organochlorine pesticides were used in this area against malaria vector and after that for agricultural purposes. In this area use of organochlorine pesticides continued until 90'. PCBs weren't in use in Albania but they were reported in many ecosystems because of atmospheric depositions. Organochlorine pollutants have high stability, high bioaccumulation capacity and the ability to spread out of the application site. Generally these compounds are difficult to degrade. In the soil or sediment the speed of their degradation is lower.*
Fourteen soil samples were selected in agricultural areas that are in use from local farmers. Sampling was realized in March 2018. In the analytical method were combined ultrasonic bath extractions, acid hydrolyze and a Florisil column for samples clean-up. The analysis of the organochlorine pesticides and PCB in soil samples was performed by gas chromatography technique using electron capture detector (GC/ECD). Rtx-5 (30m x 0.33mm x 0.25μm) capillary column was used for simultaneous determination of organochlorine pesticides and PCB. The highest levels of chlorinated pollutants in study areas were found for organochlorine pesticides because of their previous uses for agricultural purposes. Methoxychlor, Endrin Keton and Mirex were the most frequently detected pesticides for all samples. Volatile PCBs were found in higher concentrations because of their atmospheric origin. Found levels were higher / comparable with reported studies for other agricultural areas in Albania.

Keywords: *Myzeqeja, Organoclorined pesticides, PCBs, soil samples, GC/ECD*

Introduction

In this study one of the most important agricultural areas of Albania was considered and analyzed. Myzeqeja area is situated in the South-West of central Albania between Shkumbini and Vjosa rivers. It's the main agricultural area of Albania with 1350 km^2. Its large spaces were used and continue to be widely used for agricultural purposes (Nuro and Marku, 2012). The fields that lie in these areas are very fertile, especially for cereals and greens and the surrounding hills in the east of the area. The main parts of these fields are covered by the Shkumbini, Vjosa and Semani rivers and those branches. It is known for elevated agricultural activity after Second War until now. In the past the main parts of Myzeqeja field have been a wetland. Firstly, DDT and other organochlorine pesticides were used in this area against malaria vector and after that for agricultural purposes. In this area use of organochlorine pesticides continued until 90'. Pesticides, especially organochlorine pesticides, are kinds of

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chemical substances classified as Persistent Organic Pollutants (POP) substances because they are persistent for many years after their application (Shayler et al, 2009). Their degradation is difficult and continuous for many years after their application. Organochlorine pesticides were created mainly to harm the reproduction pathway of the pathogens to the plants. Pesticides were used widely for many years almost for all countries include Albania. Pesticides are very toxic substances and when they enter to the human body through foods then they can seriously damage human health. Many studies have shown that pesticides may be carcinogenic, cause genetic mutations, and impair reproductive abilities. Also, these substances affect the immune system (Hildebrandt et al, 2009; Fernandez et al, 2008). Polychlorinated biphenyls (PCB) are chlorinated compounds with 1-10 chlorine attached to the biphenyl structure. Polychlorinated biphenyls were widely used as dielectric and coolant fluids in electrical apparatus, carbonless copy paper and in heat transfer fluids (Erikson, 1986; Kim et al 2004). PCBs weren't in use in Albania but they were reported in many ecosystems because of atmospheric depositions. Also, PCBs are part of POP because of their persistence and toxicity. Polychlorinated biphenyls were not used in agriculture but they are often reported in soil samples due to their ability to spread far away from their applications places because of atmospheric factors (wind, rain, snow, etc) (Gaw et al, 2006; Muir and Sverko, 2006).

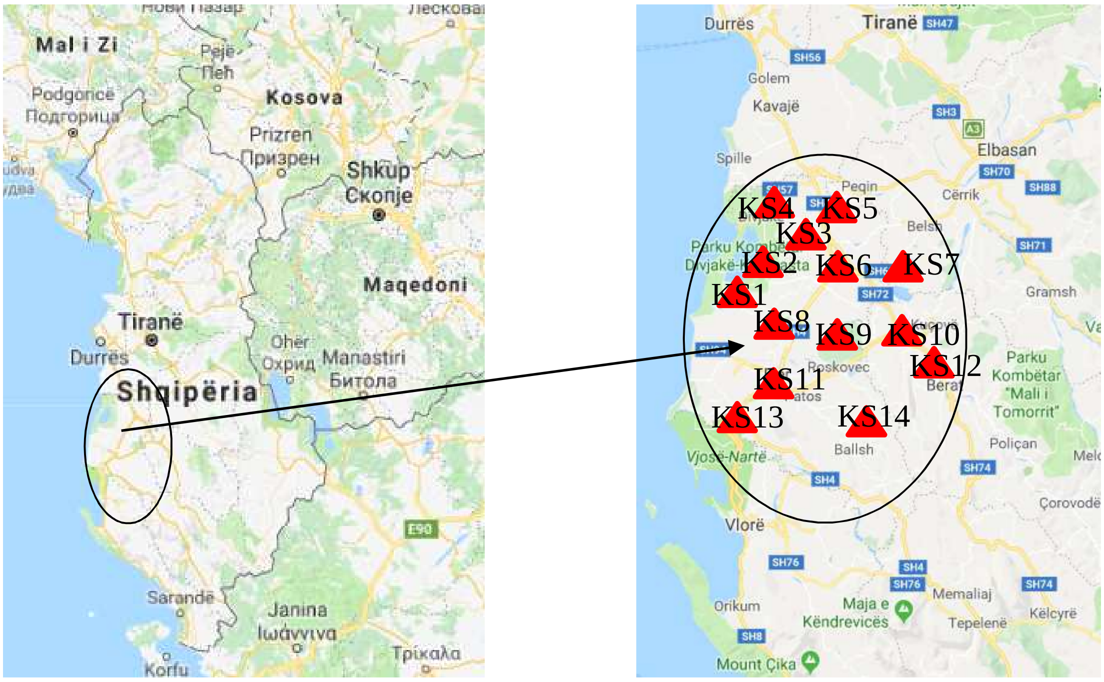
Organochlorine pollutants (organochlorine pesticides, PCB, Dioxin, etc.) have high stability, high bioaccumulation capacity and the ability to spread out of the application site. Generally these compounds are difficult to degrade. In the soil or sediment the speed of their degradation is lower. Soil contamination is one of most important factors influencing the quality of agricultural products. Usage of heavy farm equipment, the land drainage, an excessive application of agrochemicals, emissions originating from mining, metallurgical, and chemical and coal power plants and transport, all generate a number of undesired substances (nitric and sulphur oxides, PAHs, heavy metals, pesticides), which after deposition in soil may influence crop quality. Thus, input of these contaminants into the environment should be carefully monitored. Runoff could affect the movement of pesticides in water over a sloping surface. The amount of pesticide runoff depends on: the slope, the texture of the soil, the soil moisture content, rainfall, and the type of pesticide used. Leaching occurs downward, upward, or sideways. Many chromatographic methods were developed last years for detecting traces of organic pollutants in soil samples (Di Muccio, 1996; Erikson, 2001). Determination of halogenated pollutants is based mainly in capillary GC/ECD and GC/MS methods.

2. Materials and methods

2.1. Sampling of soil from Myzeqeja area

Soil sampling stations are given in Figure 1. Sampling was carried out in March 2018 in 14 different stations of Myzeqeja field. Soil samples were taken into agricultural parcels that were used and continue to be used by farmers. Samples were collected by dividing the sampling area in the form of a square with 25 x 25 x 25 cm. The soil samples were transported at + 4°C until analyzed. Soil samples were dry firstly in room temperature and after that for 4 hours in 105°C. This procedure was based on ISO 10382 Method, accepted as Albanian standard.

Figure 1. Map of soil sampling from the Myzeqeja area



2.2. Treatment of soil samples for analysis of pesticides and PCBs

An amount of 10 g dry soil samples was taken to determine the organochlorine pesticides and PCBs in the Myzeqeja areas. The sampled amount is placed in the erlermayer and a volume of 50 ml of Hekzan / Dichloromethane extract to the 3: 1 ratio in volume / volume mixture is added. Extraction of organochlorine compounds was performed in ultrasonic bath for 30 minutes at 30°C. By the filtration process, the extract is separated into a glass to which is added 5 g of silica gel with 45% sulfuric acid to enable the hydrolysis of the macromolecules. The final excretion was carried out by passing the respective extracts for the flourisil columns, which were activated in advance with a volume of 10 ml n-Hekzan. The 20 ml volume of n-hexane/dichloromethane in 4: 1 ratio was used as the eluent solvent to pass the chlorine-pollutants in a liquid phase suitable for further analysis. The eluate was evaporated to a final volume of 2 ml using Kuderna-Danish and then injected the respective eluate into the HP 6890 Series II gas chromatography apparatus equipped with ECD Detector (Nuro and Marku, 2012).

2.3. Apparatus and chromatography

Gas chromatographic analyses were performed with HP 6890 Series II gas chromatograph apparatus equipped with a ^{63}Ni electron-capture detector and PTV injector. The column used was Rtx-5[low/mid polarity, 5% (phenyl methyl siloxane)] (30 m x 33 mm I.D., x 25mm film). The split/splitless injector and detector temperatures were set at 280^{0}C and 300^{0}C, respectively. Carrier gas was He at 1 ml/min and make-up gas were nitrogen at 24ml/min. The initial oven temperature was kept at 60^{0}C for 4 min, which was increased, to 200^{0}C at 20^{0}C/min, held for 7 min, and then increased to 280^{0}C at 4^{0}C/min for 20 min. The temperature was finally increased to 300^{0}C, at 10^{0}C/min, held for 7 min. Injection volume was 2 µl, when splitless injections were made. Pesticide quantification was performed by internal standard method (Nuro and Marku 2012). The following organchlorine pesticides: hexachlorocyclohexane (HCH) isomers (alfa-, beta/, gamma-, delta- and epsilon-HCH), Aldrines (Aldrin, Dieldrine, Endrine, Isodin), Heptachlors (Heptachlor and cis-, trans-Heptachlorepoxides), Chlordanes (cis-, trans- and Oxychlordane), Endosulphanes (alfa, beta and Endosulphan sulphate), DDT-related chemicals (*o,p*-DDE, *p,p*-DDE, *p,p*-DDD, *p,p*-DDT) Methoxychlor and Mirex were detected. PCB markers (PCB 28, PCB 52, PCB 101, PCB 118, PCB 153, PCB 138 and PCB 180) were studied simultaneous with above pesticides in soil samples.

RESULTS AND DISCUSSIONS

The focus of this study has been one of the most important agricultural areas of Albania. Myzeqeja area is located in the South-West of central Albania. It consists of the large surfaces that were used and continue to be widely used for agricultural purposes. Total of organochlorine pesticides found in analyzed soil samples of Myzeqeja area was given in Figure 2. Organochlorine pesticides were found in all soil samples. The average level of detected pesticides was 143.2 ug/kg. Maximum level of organochlorine pesticides was for KS3 sample with 283.4 μg/kg, while the minimum level of pesticides was for KS10 with 11.2 ug/kg. Presence of chlororganic pesticides found in the soil samples was due to previous uses of the compounds in these areas for agricultural purposes. Their absorption process on lands is relatively strong and consequently they will continue to be there for a long time. It was noted that lands near Shkumbini rivermouth (KS3), Semani rivermouth (KS6) and Vjosa rivermouth (KS 13) were most polluted stations. Pesticide use in these areas has been more frequent. Water of these rivers was used random for water irrigation. This fact affect on new arrival of pesticides from other areas and their concentration on these lands. Figure 2 shows the distribution of organochlorine pesticides, which is the same distribution of pesticides for all sampling stations, due to the same origin of pesticides in these samples. Distribution of organochlorine pesticides was built by higher levels of some individual pesticides. Higher levels were found for Methoxcychlor and Endrin keton because of previous uses for these pesticides in agricultural areas (Figure 3). For some soil samples were detected DDTs, Endosulphan alfa, Mirex and Dieldrin. Total of Lindane and its isomers were higher in the KS12 and KS13 soil samples with 1.9 μg/kg. In all the analyzed samples there is a similar distribution of HCHs. This was related to the same origin of Lindane in this area, due to its uses as insecticide in agricultural processes. The profile of HCHs for all analyzed samples was: alpha-HCH > Lindan > beta-HCH > delta-HCH, which is mainly related to the physico-chemical properties of HCH isomers. HCH levels for all samples were lower than the allowed values in the soil based on Albanian and EU norms (Anonymous 1994, 1998, 2009; ISO 2002). Maximum of Heptachlors were found in KS13 soil sample with 6.0 ug/kg. Heptachlors were not detected or were detected in LOD levels for 65% of soil samples. Heptachlor could be used earlier in these areas. Heptachlors were below than permitted levels in all analyzed soil samples. Aldrines were found in 83% of soil samples taken from Myzeqeja area. Total of Aldrines in the soil samples was displayed at maximum value for KS6 area with 139.5 μg/kg. Aldrines distribution was the same for all samples due to their same origin. Endrin keton was found at the highest level for all samples followed by Dieldrin and Endrin. They are degradation product of Aldrine. Aldrine was not detected in all samples. Aldine could be used earlier in these areas. Aldrines were lower than permitted levels in soil samples for all studied areas except KS3, KS6 and KS7. DDTs were detected in 40% of soil samples taken in analysis. Total of DDTs was higher for KS6 sample with 113.2 ug/kg. DDT was the main compound followed by DDD and DDE. This profile could be connected with new arrivals of DDT for KS5, KS6 and KS7 stations. DDT's found concentrations were lower than permitted level for all analyzed soil samples except KS6 station. Endosulfanes were detected for 50% of soil samples. The higher concentrations of Endosulfanes were for KS13 soil sample with 129.6 ug/kg. Higher levels belong to the endosulfan alpha. Their levels were below permitted level for all samples. Methoxcychlor was found in higher concentrations for KS1

(183.4 ug/kg), KS2 (174.3 ug/kg), KS3 (158.4 ug/kg), KS5 (107.4 ug/kg) and KS4 (71.2 ug/kg). It wasn't detected for 40% of analyzed soil samples. Methoxcychlor may be still in use in these areas under a falsificated trade-mark. Its level was below permitted level for all samples except KS1, KS2, KS3 and KS5 samples. Mirex was detected for 60% of soil samples from Myzeqeja area. Its average was 9.7 ug/kg, the maximum was for KS3 sample with 25.1 ug/kg and the minimum for KS9, KS14, KS10 where Mirex wasn't detected. Its level was below permitted level for all samples.

Figure 2. Average for the total of chlorinated pesticides (ug/kg) in soil samples

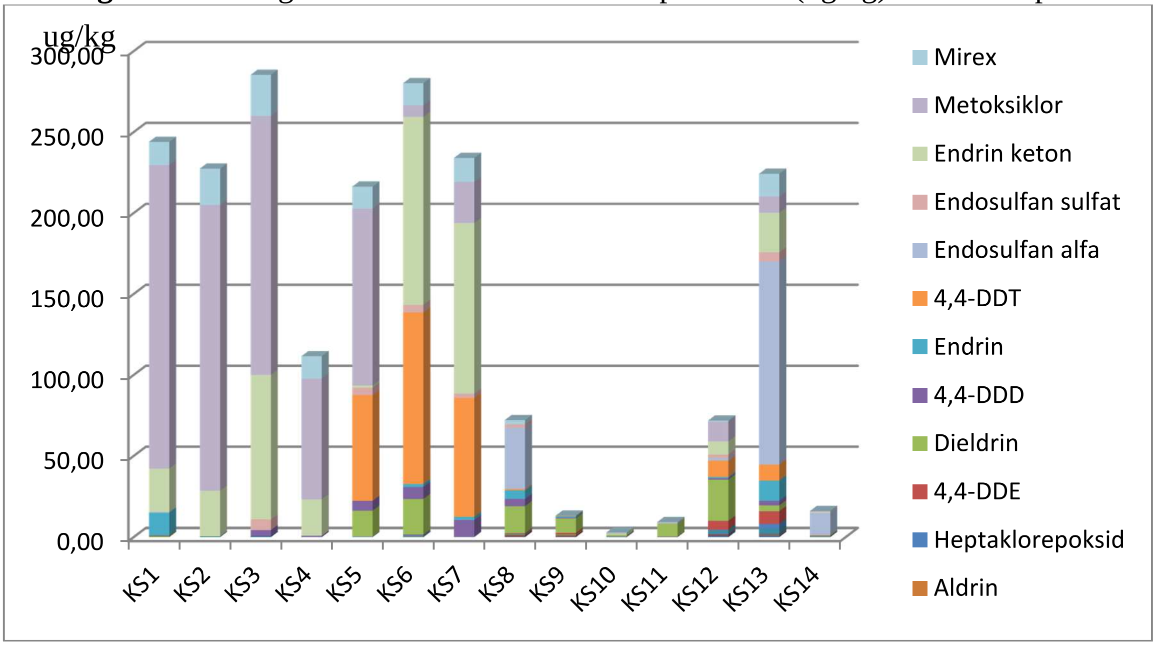


Figure 3. Distribution of chlorinated pesticides (ug/kg) in soil samples

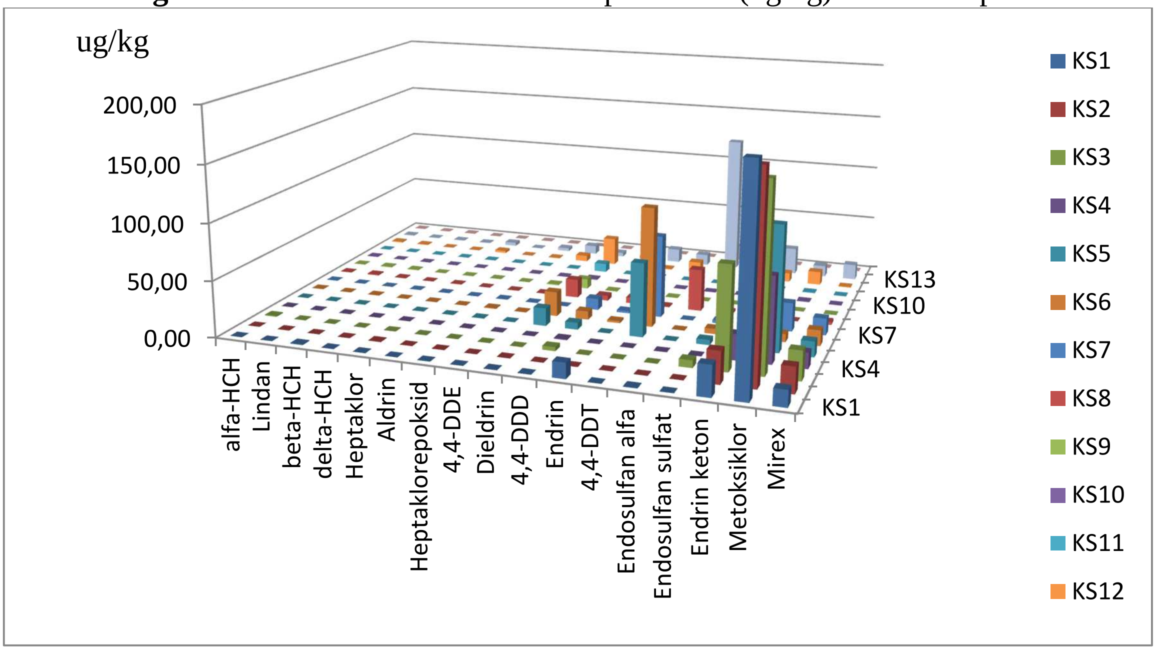
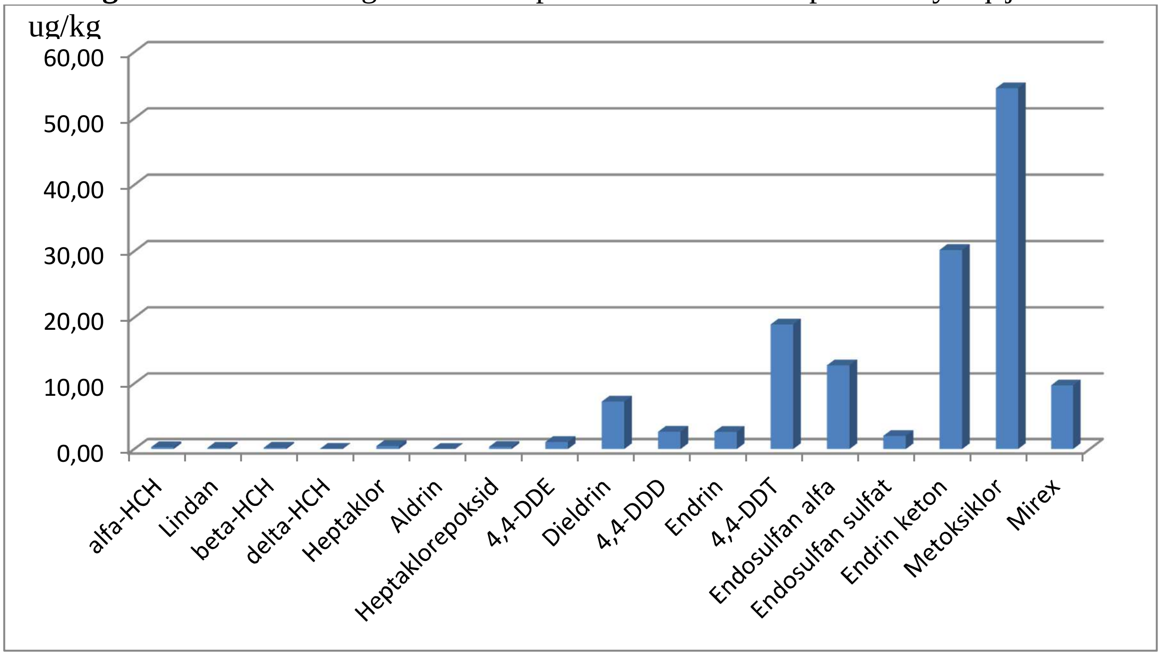


Figure 4. Profile of organochlorine pesticides in soil samples of Myzeqeja area



PCB markers in soil samples

Total of PCBmarkers on soil samples from the Myzeqeja area was given in Figure 5. PCBs were detected for all analyzed samples. Average of PCBs for all analyzed samples was 33.1 ug/kg. PCBs were found in higher level for soil samples taken in KS6 station with 84.7 µg/kg. Distribution of PCBs markers in soil samples from Myzeqeja field was the same because of their same origin (Figure 6). For around 50% of samples were detected presence of volatile PCBs and for other 50% of samples presence of heavy PCBs. Presence of heavy PCBs on these areas could be as result of accidental spillage from electrical transformer or others equipment, agricultural mechanic, mechanical businesses, etc. Volatile PCBs presence could be because of atmospheric deposition. Profile of PCB markers (Figure 7) was: PCB 138 > PCB 28 > PCB 153 > PCB 180 > PCB 118. PCB markers levels were below permitted level for all studied soil samples.

Figure 5. Total concentrations of PCBs in Myzeqeja soil samples

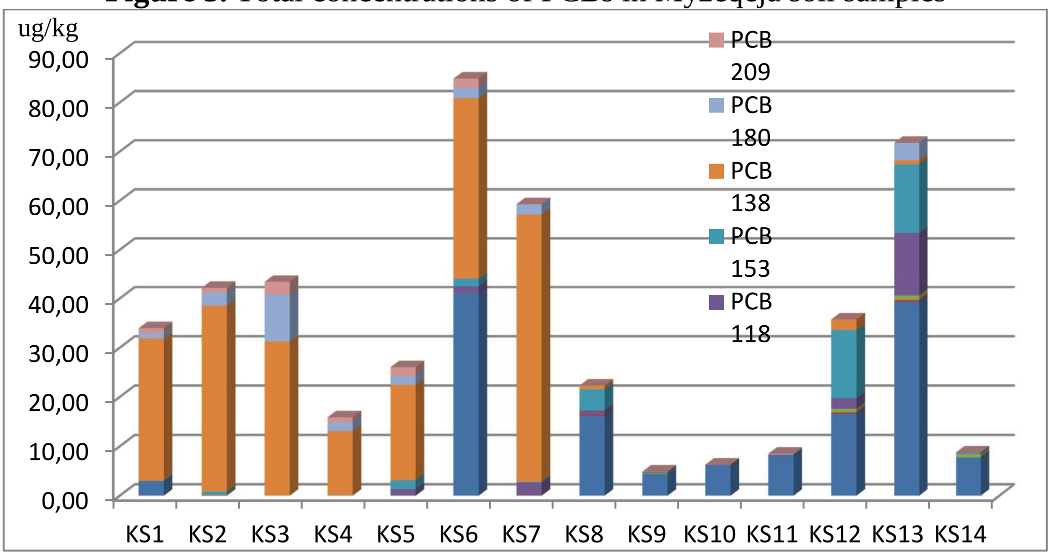


Figure 6. Distribution of PCBs in soil samples of Myzeqeja area

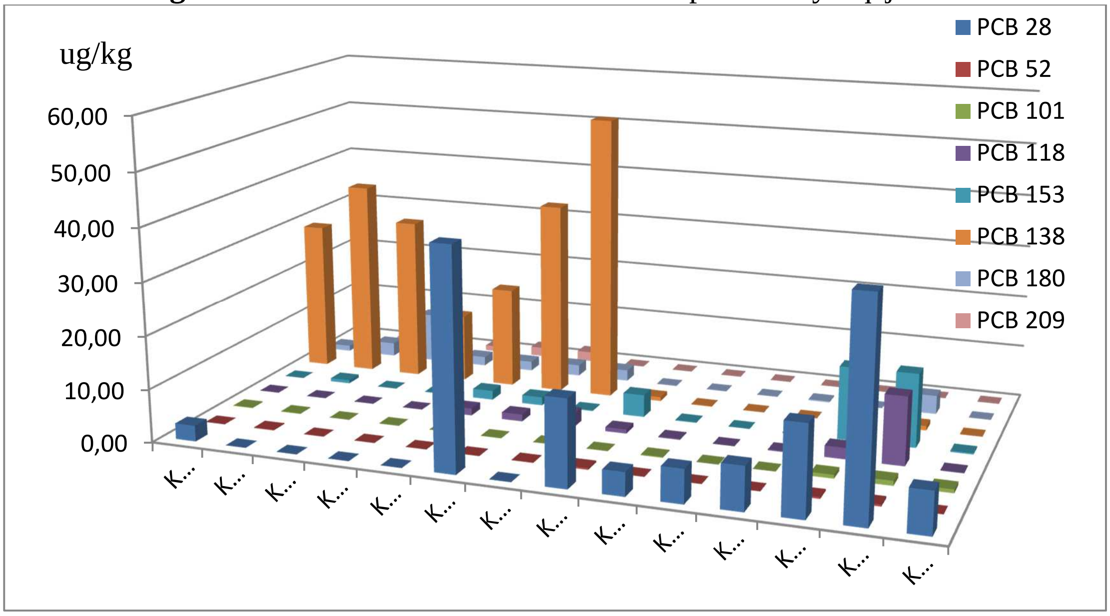
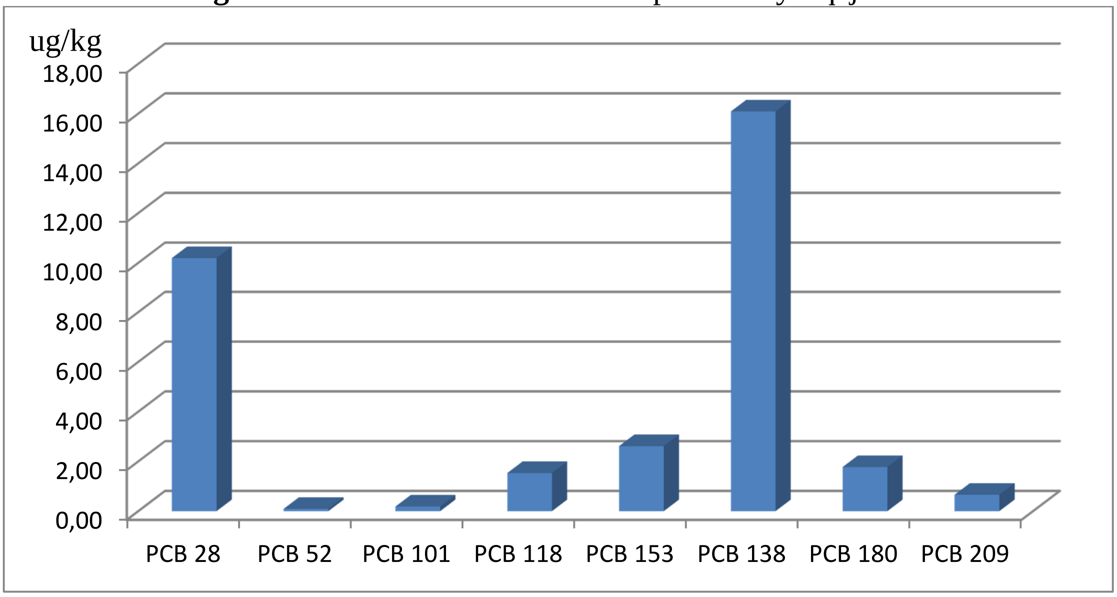


Figure 7. Profile of PCB in soil samples of Myzeqeja area



CONCLUSION

The objective of this study was evidence of organochlorine pesticides, their residues and PCB markers on soil samples from the Myzeqeja area. It is the large surface used and continues to be widely used for agricultural purposes. For extraction of organochlorine pesticides and PCBs in soil samples were used ultrasonic extraction technique assisted by n-hexane/dichloromethane as extracting solvents. The extracts were further purified by passing through a florisil column. Qualitative and quantitative determination was accomplished by the GC/ECD technique. This technique was suggested by literature. Organochlorine pesticides and their residues were found in all soil samples taken from Myzeqeja area. Their total was higher for the soil samples taken in Shkumbini, Semani and Vjosa rivermouths. Presence of chlororganic pesticides found in the soil samples was due to previous uses of the compounds in these areas for agricultural purposes. Their absorption process on lands is relatively strong and consequently they will continue to be there for a long time. Higher levels were found for Endrin keton and Methoxychlor because of previous uses for these pesticides in agricultural areas. Individual levels of pesticides for all samples were lower than the allowed values in the soil based on Albanian and EU norms. Exception was for Methoxcychlor in some soil samples. It may be still in use in these areas under a falsificated trade-mark. PCB markers were found for all analyzed soil samples. Distribution of PCBs markers was built by volatile PCBs and heavy PCBs. PCB 138 was found in higher level in all analyzed soil samples. Presence of heavy PCBs on these areas could be a result of accidental spillage from electrical transformer or others equipment, agricultural mechanic, mechanical businesses, etc. Volatile PCBs presence could be because of atmospheric deposition. PCB markers levels were below permitted level for all soil samples.

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PHYTOREMEDIATION POTENTIAL OF ENHANCED TOBACCO IN SOIL CONTAMINATED WITH HEAVY METALS

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Abstract: *A comparative research on the impact of organic meliorants on the uptake of heavy metals, micro and macroelements and phytoremediation potential of enhanced tobacco NBCu 10-8F3 has been carried out. The soil used in this experiment was sampled from the vicinity of the Non-Ferrous-Metal Works near Plovdiv, Bulgaria. The pot experiment was a randomized complete block design containing nine treatments and three replications (27 pots). The treatments consisted of a control (no organic meliorants) and compost and vermicompost meliorants (added at 5%, 10%, 15% and 30%, recalculated based on dry soil weight). Upon reaching commercial ripeness, the tobacco plants were gathered. Heavy metals, micro and macroelement contents in roots, stems and leaves of tobacco were analyzed by the method of the microwave mineralization. To determine the elements in the samples, inductively coupled emission spectrometry (Jobin Yvon Emission - JY 38 S, France) was used. The distribution of the heavy metals, micro and macroelements in the organs of the enhanced tobacco has a selective character and depended above all on the parts of the plants and the element that was examined. Pb, Zn, Cu, Fe, Mn, P and Mg distribution in tobacco decreases in the following order: roots > leaves> stems, and for Cd, K, and Ca - leaves >roots> stems. The high concentration of Cd in the leaves and the high translocation factor indicate the possibility of enhanced tobacco to be used in phytoextraction.*

Tested organic amendments significantly influenced the uptake of heavy metals, micro and macroelements by the roots, stems and leaves of tobacco. A correlation was found between the quantity of the mobile forms and the uptake of Pb, Zn and Cd by the enhanced tobacco. The compost and vermicompost treatments significantly reduced heavy metals concentration in leaves and increased uptake of K, Ca and Mg. The 30% compost and 30% vermicompost treatments led to the maximal reduction of heavy metals in enhanced tobacco NBCu 10-8F3. The addition of compost and vermicompost further reduces the ability to digest the heavy metals in the leaves, and phytoremediation potential of enhanced tobacco NBCu 10-8F3.

Keywords: *heavy metals, micro and macroelements, organic meliorants, enhanced tobacco NBCu 10-8F3, phytoremediation*

1. INTRODUCTION

Phytoremediation can be defined as the combined use of plants, soil amendments and agronomic practices to remove pollutants from the environment or to decrease their toxicity [1]. This technique has many advantages compared with other remediation procedures – low economic costs and the possibility of being applied to soils, causing a minimum environmental impact. As a technology based on the use of plants, the success of phytoremediation will mainly depend on the proper selection of plants. Many researchers

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examine the rapidly growing, high biomass plants, including agronomic crops for their ability to tolerate and accumulate metals in their shoots.
Tobacco is a crop that has an exceptional ability to accumulate more Cd in its leaves than any other crop [2-3] and is an efficient cadmium accumulator [4]. Guadagnini et al. [4] developed by means of conventional *in vitro*-breeding and selection techniques, 106 somaclonal variants of tobacco *(Nicotiana tabacum* ssp.) with increased metal tolerance, accumulation and extraction properties. The authors found that 17 of these somaclonal tobacco variants showed an improved heavy metal shoot uptake and phytoextracted 1.2–2.0 times more Cd and Zn than non-modified mother-plants. Herzig et al. [5] confirmed enhanced shoot metal removals up to a factor 1.8 for Cd, 3.2 for Zn and 2.0 for Pb in soil contaminated by industrial sewage sludge and up to a factor 12.4 for Cd, 13.7 for Zn and 13.5 for Pb in acid sandy soil contaminated by deposits from a zinc smelter for best tobacco variants NBCu 10-8F1 and NBCu 10-4F1 [6].

The addition of organic matter amendments, such as compost, fertilizers, and wastes, is a common practice for soil amelioration of contaminated soils [7]. The effect of organic matter amendments on heavy metal bioavailability depends on the nature of the organic matter, their microbial degradability, salt content and effects on soil pH and redox potential, as well as on the particular soil type and metals concerned [8].

The use of organic fertilizers influences the physicochemical properties of soils and improves the conditions for the development of crops. Organic fertilizers can neutralize or reduce the acidity of the soil and increase the content of certain microelements, such as Zn and Cu. The efficiency of organic fertilization is manifested in rapid growth, earlier maturation, improvement in the flammability of leaves, their mass and yield [9]. There is evidence that the use of combined inorganic and organic fertilizers can improve the growth and quality of tobacco [10].

The increasing application of organic fertilizers improves the soil's ability to supply nutrients, thus providing sufficient amounts of N, P, and K for the development of tobacco [11]. On the other hand, organic fertilizers can improve the resistance of the tobacco plant to diseases [12].

The main objective of this paper is to conduct a systematic study, which will help to determine the impact of organic soil amendments on the uptake of the heavy metals, micro and macroelements by enhanced tobacco NBCu 10-8F3, as well as the potential of the plant for phytoremediation of heavy metal contaminated soils.

2. MATERIAL AND METHODS

The soil used in this experiment was collected from the surface soil horizon (0-20 cm) from sites situated at a distance of 0.5 km from the vicinity of the area contaminated by the Non-Ferrous-Metal Works (MFMW) near Plovdiv, Bulgaria. The pot experimental was a randomized complete block design containing nine treatments and three replications (27 pots): 1 – addition of 5% of vermicompost to the soil, 2 - addition of 10% of vermicompost to the soil, 3 - addition of 15% of vermicompost to the soil, 4 - addition of 30% of vermicompost to the soil, 5 – addition of 5% of compost to the soil, 6 - addition of 10% of compost to the soil, 7 - addition of 15% of compost to the soil, 8 - addition of 30% of compost to the soil, 9- control variant.

Soils were passed through a 2-cm sieve. Amendments were added and thoroughly mixed by hand. The pots were filled with 3 kg soil. Three control pots were also set up without

amendment. Pots were watered and stored in a greenhouse, where they were left to settle a minimum of 6 weeks at room temperature before planting the enhanced tobacco.
Characteristics of soils and organic amendments are shown in Table 1. The soil used in this experiment was slightly alkalic, with moderate content of organic matter and essential nutrients (N, P and K). The psedo-total content of Zn, Pb and Cd is extremely high (2544.8 mg/kg Zn, 2429.3 mg/kg Pb and 51.5 mg/kg Cd, respectively) and exceeds the maximum permissible concentrations (320 mg/kg Zn, 100 mg/kg Pb and 2.0 mg/kg Cd). Soil properties are a prerequisite for low to moderate metal mobility, as confirmed by the results of DTPA-extracted Pb, Cd and Zn (mean for Pb and Zn, and high for Cd).

Table 1: Characterization of the soil and the organic amendments used in the experiment

Parameter	Soil	Compost	Vermicompost
pH	7.6	6.9	7.5
Organic matter, %	3.99	72.10	38.58
N Kjeldal, %	0.24	2.22	1.57
Pseudo-total P, mg/kg	731	12654	10211
Pseudo-total K,nmg/kg	4675	6082	10495
Pseudo-total Ca, mg/kg	10607.5	32158.7	31848
Pseudo-total Mg, mg/kg	9577.5	2086.5	7754.9
Pseudo-total Cu, mg/kg	124.8	43.23	53.33
Pseudo-total Fe, mg/kg	41650.9	3177.31	11813.7
Pseudo-total Mn, mg/kg	1244.5	360.48	423.3
Pseudo-total Pb, mg/kg	2429.3	12.0	32.3
Pseudo-total Zn, mg/kg	1430.7	170.8	270.3
Pseudo-total Cd, mg/kg	31.4	0.19	0.69
DTPA –extractable Pb, mg/kg	849.1		
DTPA –extractable Zn, mg/kg	236.8		
DTPA –extractable Cd, mg/kg	36.8		

The test plant was enhanced tobacco NBCu 10-8F3. The enhanced tobacco plants were grown in a climate chamber with regular watering and random rotation of the position of the pots. After 90 days, all plants were harvested.

The content of heavy metals, micro and macroelements was determined in the different parts of enhanced tobacco - roots, stems and leaves. The plant samples were treated by the method of microwave mineralization.

The pseudo-total content of metals in soils was determined in accordance with ISO 11466[13]. The available (mobile) heavy metals contents were extracted in accordance with ISO 14870 by a solution of DTPA [14].

To determine the heavy metal content in the plant and soil samples, inductively coupled emission spectrometer (Jobin Yvon Horiba "ULTIMA 2", France) was used.

3. RESULTS AND DISCUSSION

Table 2 presents the results obtained for the content of heavy metals, micro and macroelements in the vegetative organs of enhanced tobacco without amendments. The root system is a major route for the absorption of heavy metals into plants. Once they have entered the roots, they can be stored or moved to the stems. The results obtained show that a significant portion of Pb, Zn and Cd is accumulated at the roots of the enhanced tobacco NBCu 10-8F3. These results are confirming the results obtained by [15], who found that Pb accumulated mainly in the roots of tobacco.

The content of Cd is higher in the tobacco leaves than in the root system and stems, which is in line with the results of other authors [16-17]. The greater accumulation of Cd in tobacco leaves is probably due to Cd absorption from the soil through the root system of the plant and their movement through the conductive system. It has been found that cadmium can be accumulated in tobacco leaves in an amount 10 times higher than that in the soil [18]. This is consistent with what was found by [19], who found that tobacco had an extraordinary ability to digest Cd as compared to other plants when grown on Cd contaminated soils.

Table 2: Content of heavy metals, micro and macroelements (mg/kg) in enhanced tobacco NBCu 10-8F3 (without amendments)

	Pb	Zn	Cd	Cu	Fe	Mn	K	Ca	Mg	P
Roots	152.0	405.9	50.5	72.2	629.7	28.4	12365	12341	2598.3	1132,3
Stems	24.4	86.9	20.1	6.0	12.6	1.6	10003	3994	366.1	419.6
Leaves	75.5	119.6	125.4	20.4	211.7	53.0	18569	14541	2280.0	778.8

The results for the influence of organic meliorants on the accumulation and distribution of heavy metals, micro and macroelements in the enhanced tobacco NBCu 10-8F3 are shown in Figure 1. The addition of compost and vermicompost results in a decrease in Pb, Zn and Cd content in the roots, stems and leaves of tobacco, as this decrease is more pronounced when 30% of compost and 30% vermicompost is imported. The results obtained may be explained by the amount of heavy metal mobile forms. The addition of compost and vermicompost to the soil leads to the decrease of mobile forms, resulting in lower accumulation of these elements in the leaves of the plants.

The distribution of heavy metals, micro and macroelements in the organs of enhanced tobacco has selective character specific for individual elements. The main part of heavy metals (except Cd), microelements and macroelements (P and Mg) are accumulated in roots. The distribution of heavy metals, micro and macroelements in the organs of the enhanced tobacco with the addition of compost and vermicompost follows the same relation observed in the control sample (Fig. 1).

The Pb content in tobacco leaves reached to 75.5 mg/kg in the control, and from 13.1 to 67.1 mg/kg in variants with incorporation of compost and from 17.4 to 42.0 mg/kg in variants with incorporation of vermicompost. According to Tso [20], the content of Pb in tobacco leaves varies widely - from 0 to 200 mg/kg, and depends largely on the soil characteristics, the type and variety of tobacco, as well as the place of cultivation [21]. The incorporation of compost and vermicompost leads to a decrease of the Pb content in tobacco leaves (Fig.1).

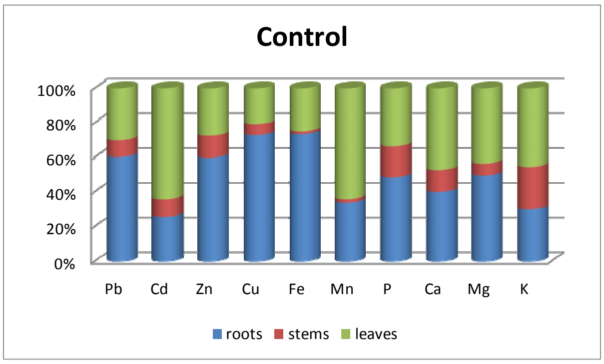
The Cd content in tobacco leaves reached to 125.4 mg/kg in the control, and from 40.7 to 94.1 mg/kg in variants with incorporation of compost and from 54.4 to 99.6 mg/kg in variants with incorporation of vermicompost. According to Golia et al. [22] the content of Cd in tobacco ranges from 0.5 to 3.5 mg/kg, while Tso [20] reports values reaching up to 11.6 mg/kg. According to Mench et al. [23] and Sappin-Didier et al. [24], Cd content in tobacco leaves varies from 40 to 120 mg/kg depending on the soil characteristics. The results obtained are consistent with the values reported in other literature sources [25-26] and higher than the concentrations considered critical in plants (5-30 mg/kg) [27]. Incorporation of compost and vermicompost leads to a reduction of Cd in tobacco leaves.

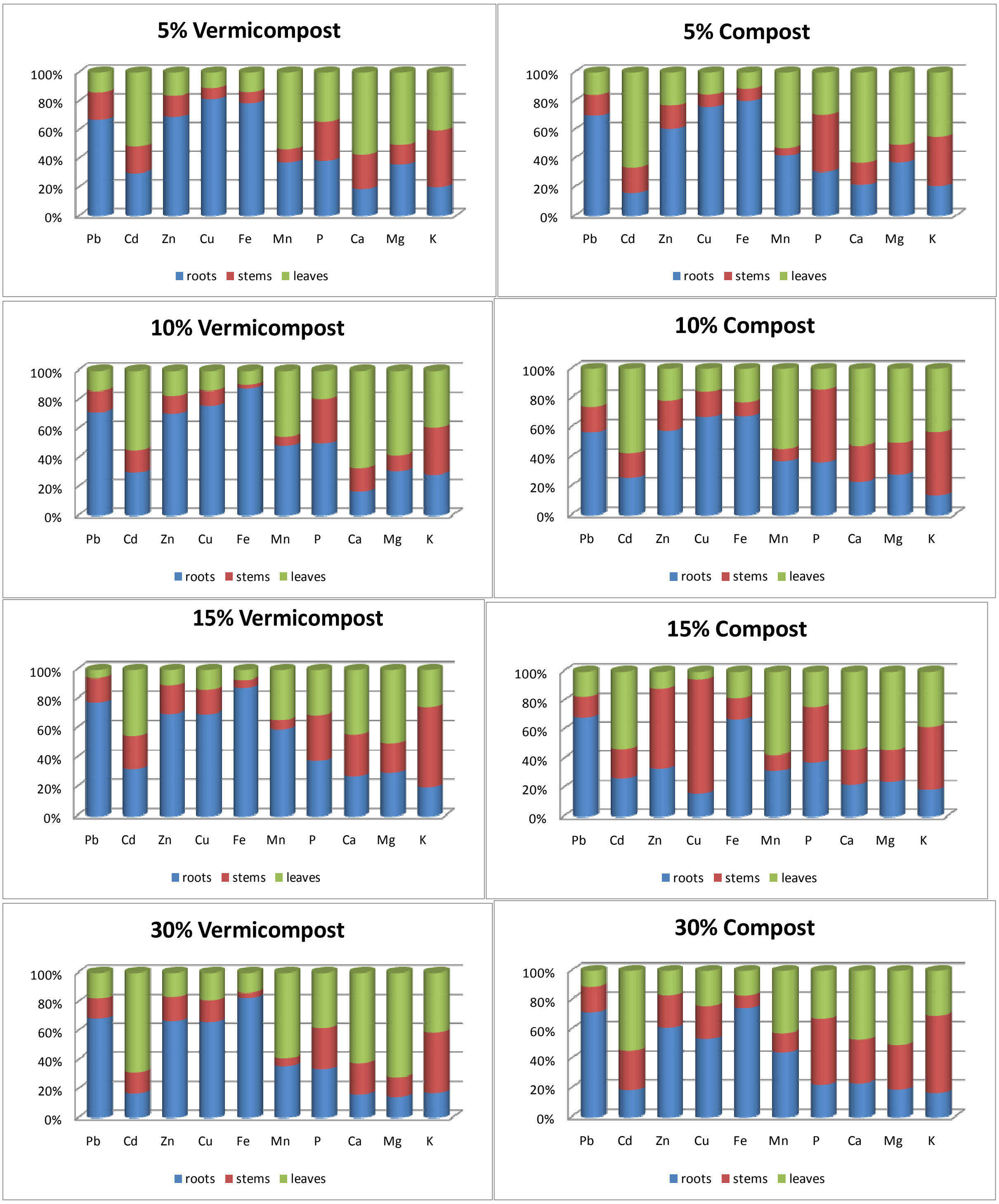
The Zn content in tobacco leaves reached to 183.6 mg/kg in the control, and from 105.0 to 197.8 mg/kg in variants with incorporation of compost and from 77.4 to 138.9 mg/kg in variants with incorporation of vermicompost. According to Jones et al.[28] and Campbell [29] the optimum amount of Zn in the tobacco is in the range from 20 to 60 (80) mg/kg, and excess were observed in values above 80 to 100 mg/kg.

According to Campbell [29] the optimum values of Cu for tobacco are 5-10 mg/kg, whereas Yancheva [30] found that level of Cu in tobacco is in the range 11.9-13.3 mg/kg. The values identified by us for Cu in the leaves from untreated tobacco plants reached to 20.4 mg/kg. The incorporation of compost decreases the content of Zn and Cu in tobacco leaves (Fig. 1).

The Fe content in tobacco leaves reached to 211.7 mg/kg in the control, and from 70.2 to 221.1 mg/kg in variants with incorporation of compost and from 69.9 to 108.4 mg/kg in variants with incorporation of vermicompost. In scientific literature the optimal Fe content in tobacco leaves is 50 to 300 mg/kg [28], whereas 40-50 mg/kg is considered low concentration depending on the stage of plant development [30].

Figure 1: Effect of organic amendments on distribution of heavy metals in vegetative organs of enhanced tobacco NBCu 10-8F3





The incorporation of compost leads to decrease of the Fe content in the tobacco leaves.

The Mn content in tobacco leaves reached to 53.0 mg/kg in the control, and from 37.6 to 66.5 mg/kg in variants with incorporation of compost and from 29.6 to 46.5 mg/kg in variants with incorporation of vermicompost. The incorporation of 15% and 30% compost results in increased Mn content in leaves (Figure 1).

The content of P in the leaves of tobacco plants reached to 778.8 mg/kg in the control, and from 793.1 to 1953.7 mg/kg in variants with incorporation of compost and from 652.6 to 1689.6 mg/kg in variants with incorporation of vermicompost. Phosphorus content in tobacco leaves, depending on the stage of development, ranges from 0.1 to 1% [28]. The incorporation of compost and vermicompost results in increased P content in leaves.

The content of K in the leaves of tobacco plants reached to 1.85% in the control, and from 2.5 to 6.2% mg/kg in variants with incorporation of compost and from 2.4 to 3.6 mg/kg in variants with incorporation of vermicompost. The incorporation of compost and vermicompost results in increased K content in leaves.

The Ca content in tobacco leaves reached to 1.5% in the control, and from 0.9 to 1.8% in variants with incorporation of compost and from 1.3 to 2.0% in variants with incorporation of vermicompost. The incorporation of 30% compost in soil results in a decrease of the Ca content in tobacco leaves (up to 0.9% in the leaves).

The minimum Mg content in tobacco leaves, where symptoms of insufficiency do not appear, is about 0.25% [20]. According to McCants and Woltz [31] the content of Mg in technically senescence leaves of oriental tobacco is changed in a narrow range - from 0.33 to 0.69% and depends mainly on the location of the leaves to the stem. The organic additives lead to increase in the Mg content in tobacco leaves (Fig. 1).
The Translocation Factor (TF=[Metal] shoots/[Metal] roots) provides information on the ability of plants to digest heavy metals through the roots and to move them to the above-ground mass (leaves). The results we obtained show that, with respect to Pb, the translocation factor for plants without the importation of additives reaches up to 0.50, for Cd up to 2.48 and for Zn up to 0.45. Higher values for Cd are probably a consequence of the greater ability of this element to accumulate in the above-ground mass than in the roots, which is consistent with the results of Wagner and Yergan [16] and Fässler et al. [17]. The results of the study show that enhanced tobacco accumulates significant amount of Cd in the leaves and has a relatively higher potential for phytoextraction. The high concentration of Cd in the leaves and the high translocation factor indicate the possibility of enhanced tobacco to be used in phytoextraction. However, the addition of compost and vermicompost reduces the ability to digest the heavy metals in the leaves, and phytoremediation potential of enhanced tobacco NBCu 10-8F3.

CONCLUSIONS

Based on the results obtained regarding the impact of organic soil amendments on the uptake of the heavy metals by enhanced tobacco, as well as the potential of the plant for phytoremediation of heavy metal contaminated soils, the following conclusions can be made:

1. The distribution of the heavy metals, micro and macroelements in the organs of the enhanced tobacco NBCu 10-8F3 has a selective character and depended above all on the parts of the plants and the element that was examined. Pb, Zn, Cu, Fe, Mn, P and Mg distribution in tobacco decreases in the following order: roots > leaves> stems, and for Cd, K, and Ca - leaves >roots> stems.
2. The incorporation of compost and vermicompost leads to decrease in the content of heavy metals in the tobacco leaves and increase uptake of K, Ca and Mg.
3. The high concentration of Cd in the leaves and the high translocation factor indicate the possibility of enhanced tobacco to be used in phytoextraction. However, the addition of compost and vermicompost further reduces the ability to digest the heavy metals in the leaves, and phytoremediation potential of enhanced tobacco NBCu 10-8F3.

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HISTORICAL IMPORTANCE AND DOCUMENTARY ATTESTATION OF THE *SALVIA* SPECIES

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Abstract: *The knowledge of medicinal plants and honey plants has been one of the most important concerns of people since the beginning of their existence. The use of plants for therapeutic purposes has been transmitted over the millennia from generation to generation, and today we are witnessing a reconsideration of the traditional medicine, in the sense that research show that herbal medicines are products more biologically accessible to human metabolism than synthetic drugs which sometimes produce side effects. The lack of scientific knowledge to explain the therapeutic qualities of these plants has long made their healing power a "mystery." Due to the progress of science, the extraction of medicinal principles from the herbs and the synthesis of new drugs have emerged.*
Around the world there is a wide variety of Salvia spp. spontaneously growing plants; many of them have valuable medicinal properties while others are used for decorative purposes.
The aim of the paper is to show how this ancient plant has conquered the world with its qualities.

Keywords: *Ancient times, Salvia, importance, medical principles*

1. INTRODUCTION

Salvia has been known since ancient times. The first attestation of its name (Salvia) dates back to 1400 BC, in the form of a graphic representation of the species subsequently identified as *Salvia fruticosa* (Greek Salvia) in a fresco from Knossos on the island of Crete. Also in the period before our era, Salvia appears in the writings of Teofrast (2nd century BC), where it is stated that its leaves were used as compresses and cataplasms for the healing of open wounds and snakes bite. [4] (Figure 1)

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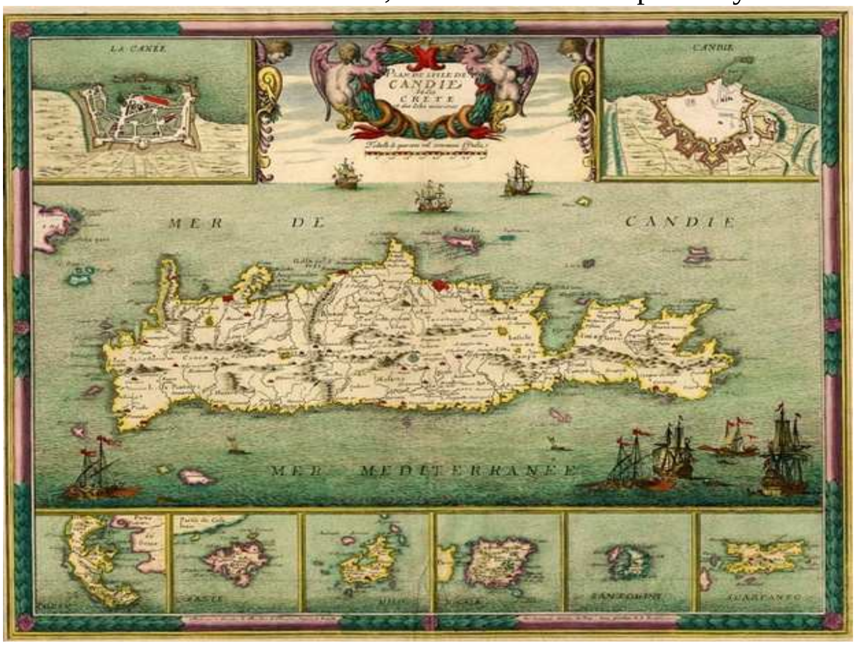
Figure 1. Crete with the isles of Corfu, Santorini and Scarpanto by G.Mercator [5]



In ancient times, the name of Salvia appears in the writings of the well-known physicians of the time, Dioscorides, Galen and Pliny the Old (Naturalis Historia, 1st century AD) and it is mainly recognized for its diuretic, anesthetic and astringent properties. When Pliny the Elder speaks for the first time about the use of the plant called Salvia by the Romans, he most probably refers to the species of the genus, Salvia officinalis. (Figure 2)

Figure 2. *Salvia officinalis*

The etymology of this plant's name, originates from the Latin *salvere* (feeling good and healthy, health, healing), provides information about the use and recognition of the plant as a medicinal plant even before our era.

The first to make a complete monograph of the **genus** was George Bentham in 1832-1836, who justified his classification on starch morphology. Bentham's work focuses on the classification of the Lamiaceae family and this is the most detailed and comprehensive classification so far.

Considered the "holy grass" by the Greeks and the "symbol of health" by the Romans, Salvia was treated with a special respect, stemming from the belief that it is a gift of Gods for men. Thus, the Romans harvested it using a special ritual: dressed in "white tunic, barefoot, and well-washed feet" without using iron objects. At the same time, the Roman soldiers were forced to carry salvia leaves both as a medicine and for its magical protection in their food bag.

In the Middle Ages, Salvia appears in the nineteenth-century Edict, which was given by the Emperor Charles the Great, inspired by the healing monks, the most grateful herbariums, gardeners, and alchemists of the time, registering it in the list of compulsory aromatic plants to be cultivated in the imperial fields. Medieval monks used to say about *salvia* that it wakes up the senses, the spirit and the mind, as it "cures" it from fatigue, calms it, and illuminates it. Moreover, it heals headaches, anxiety and fear. Because it "gives the voice to the person who lost it" and has septic properties on the oral mucosa, with all of it, ulcers or infections, and all the sore throats.

Salvia was attested early in Europe due to the Benedictine monks, especially those from the Monastery of St. Gallen – Constance. (Figure 3)

Figure 3 The city of Constance [6]

This bird's-eye view shows the city from an ideal viewpoint looking out across Lake Constance. In the 16th century it had a population of about 5,000. In the middle of the harbor is the 14th-century building in which the conclave for the election of Pope Martin V took place during the Council of Constance in 1414-1418. On the right can be seen the originally Romanesque minster dedicated to Our Lady, which was altered in the Gothic style up to the 15th century. For over 1,000 years the show of the former bishopric of Constance was here. The second tall church tower is that of the late Gothic church of St Stephen, which the town’s Parish church was. The present-day town hall is in the former guild house of the linen weavers dating from the 16th century, which does not stand out from the mass houses but which is close to the St Stephen's church. This view is made after a single – state woodcut in àœberlingen City Archives, printed by Hamma in Constance, 1544.

In the 9th century AD, Walahfried Strabo, the Benedictine abbot of the Reichen monastery, situated on the shores of Lake Constance, praised the salvia in his poem "Hortulus" and considered it superior to all herbs:

“There, in front of everyone, the salvia shines with its sweet fragrance,
It deserves to be always green, enjoying eternal youth;
For it is full of virtues and good to mix in a cure drink
Which heals many human sufferings / diseases…!”

It is unlikely that the delicate *Salvia fruticosa* species could have grown in the garden of the monk Walahfried, at the foothills of the Alps, which makes us believe that the author actually referred to *Salvia officinalis*, which subsequently was prevalent in Germany, France, the coast of Dalmatia almost as much as in the Mediterranean: Greece, Spain, Italy and Turkey where it originates.

Also, we found out another reference to Salvia later, during the Middle Ages, also in the form of a small poem, in the **Sanitary Salernitanum Regime** or **Regola Sanitaria Salernitana** - the Latin-written treaty (XII-XIII century) in the School of Medicine of Salerno (Scuola Medica Salernitana), the first Faculty of Medicine in the Middle Ages. [4]

MATERIALS AND METHODS

1. Systematic classification

The Salvia genus, ranked 20th in a ranking of genus with the most floral species, belongs to the family of Lamiaceae, and comprises about 1000 species of annual and perennial plants, including bushes. Within the Lamiaceae family, Salvia is part of the Mentheae tribe of the Nepetoideae subfamily. [1]

This very prolific genus is dispersed on a very wide area, its members being lovers of sunny areas such as meadows, rocky slopes, meadows and bushes. The 1,000 species are predominantly spread in the Mediterranean and the subtropical areas (Central America, South America, and Southeastern Africa).

The ecological requirements of salvia are dictated by its Mediterranean origin; the dominant ecological factor is temperature because the plant raises when the temperature is + 10 ° C.
Subsequently, the plant needs hot summer heat and mild, short winters, where the soil is covered with snow or the temperature variations are very small. For many species, late frosts, after periods of non-existent springs, can seriously destroy crops, especially if they are on bare

ground. The land on which the salvia is planted must be protected from cold currents and dry winds, which bring dust because the dust once deposited on the irregular surface of the leaves cannot be removed. [2]

Research has shown that the way in which salvia crops are placed in the direction of cardinal points plays a very important role in plant development. Thus, according to a study conducted at the University of Agricultural Sciences and Veterinary Medicine in Banat, the quantity of salvia obtained from Eastern and Western-oriented crops was 110 kg /per hectare higher than in the case of Northern and Southern-oriented crops.

The species of the Salvia genus have a moderate drought tolerance, with no particular preference for humidity, but are fond of light, preferring sunny or semi-dark places (can be grown in orchards among rows). [2]

Generally, it requires fertile, deep, permeable and well-drained soils, which are slightly heated, and are rich in limestone (preferably clay-sandy chernozems). Because the Salvia species have a strong root system, they can be placed on coasts, thus having an anti-erosion role, but also on the mobile sands, thus helping to fix them. There are very few species that prefer wet and cold soils (e.g. *Salvia aurita, Salvia involucrata*).

2. CULTIVATION AREAS

In Romania, the most favorable areas for the *Salvia* culture are found in the southeast part of the country - In the counties of Constanta, Galati (southern), Braila, Ialomita, Ilfov, as well as in the Timis Plain and in the lower western part of the Caraş-Severin County (Craciun et ali,, 1977). In the western parts of the country, the salvia crops are welcome, as they can harness the saline soils which are unsuitable for other types of crops. [3]

Culture technology

Most Salvia species are multiplied by seeds and by cuttings. One exception is the *Salvia divinorum species*, which is partially sterile, in the sense that it rarely produces seeds, which are often infertile. For this species, the most viable plant breeding method is the vegetative propagation through young sprigs.

CONCLUSIONS

Since ancient times, plants have played a particularly important role in people's lives, helping to meet their basic needs.

As a partner of the human habitat, besides their biological valences, the plants possess aesthetic and spiritual valences, as they embellish not only the living environment but also the way of coexistence and expression, being the source of inspiration and artistic expression, the material of philosophical contemplations and theological.

Even if we are moving fast towards an era of technology, being assaulted every day by the spectacular achievements of technology, increasingly advanced devices, nanotechnologies that predict a lasting breakthrough in medical science or global communication, plants and flowers, remain indispensable to people's lives, as in the past undeniably important in our lives.

The biodiversity of the Salvia genus is directly proportional to the ability to adapt the species of this genus to the most diverse environmental conditions. Having a very good environmental plasticity, the members of the genus have a vast diversity of stamen structure, vegetative port and of flower morphology.

Showing not only many similarities between species but also many varieties with specific characteristics, the number of species and subspecies of *Salvia* that are named and described exceeded 2000 (2559 plant names are listed in Plant List.org), of which 1045 names are synonyms of the 1037 species accepted. A modern comprehensive study reduced the actual *Salvia* genus count to 700 distinct species belonging to both the Old World (Europe and Asia) and the New World (North and South America).

Being cultivated since ancient times all over the world for medicinal, culinary and ornamental purposes, Salvia species still enjoy special attention today thanks to its many curative properties (*Salvia officinalis*, *Salvia nemorosa*) and to its the special flavor (*Salvia elegans, Salvia sclarea, Salvia dorisiana*).

These properties consist of volatile oils contained in the leaves, due to the special nutritive content of the seeds (*Salvia hispanica*). Also, its huge aesthetic and decorative potential is considered by landscapers who impose trends in ornamental plants.

Thus, whether they are in the form of grassy, annual or perennial plants, or in the form of bush, sometimes tall, richly grown from the base, and sometimes small and compact in appearance, the Salvia plants give the space in which they are placed a plus of variety and color through the palette of flower tones and the foliage coloring.

The specific epiteth, *officinalis*, attests the medicinal use of the plant, since in Latin the *officina* refers to the monasteries in which the medicinal plants and the medicines obtained from them were kept.

Due to the complex chemical composition of its volatile oil and other active principles, the leaves have carminative, antiseptic, bacteriostatic properties and pronounced antisudoric action. Salvia is a light hypothermic agent.

The incredible diversity of the genus and its great ability to adapt to drought conditions of the species recommend Salvia for successful use in rustic gardens, natural and wild landscapes as well as in aromatic ornamental gardens.

Through all its qualities, sometimes reunited under the umbrella of a single species, sometimes representing the defining characteristic of certain species, the Salvia genus is a true treasure of nature, generously made available to people, which should enjoy their special attention and appreciation.

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DETERMINATION OF FACTORS AFFECTING THE PRODUCTION DECISION ON BEEF CATTLE FARMS: THE CASE STUDY OF TURKEY

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Abstract: *Beef is the main red meat source in Turkey. However, beef production and consumption has not reached to the desired level. To provide the increase of red meat supply and to ensure sustainability in production, it is crucial to determine the factors affecting production decision in Turkey. Along with measures to be taken in this respect, consumers' access to the food needed and manufacturers' access to sufficient raw materials at affordable price is critical. Main purpose of this study is to determine the factors affecting production decision of the farmers via the data obtained from the farms. This study was carried out in Izmir and Afyonkarahisar, which are the most important provinces in red meat production in Aegean Region. In the study, face-to-face surveys were carried out with 206 owners of the beef cattle farms in Izmir and Afyonkarahisar provinces. Factor Analysis was applied for determination of underlying factors taken into consideration by the farmers to make a decision about production and Cluster Analysis helped to obtain a general profile of the farmers. Factor analysis identified nine dimensions that affect farmers' decision on production. Subsequent cluster analysis isolated three different farmer segments: marketing, infrastructure and technical knowledge and subsidy policies oriented.*

Keywords: *Beef cattle farming, red meat, production decision, Turkey*

1. INTRODUCTION

The demand to food products is increasing by the growth of world population over time [1], [2]. In this context, the demand to red meat that have an importance in human health and nutrition is also increasing [3], [4], [5]. In order to ensure a healthy and balanced diet in Turkey, where the population growth rate is high, consumption of red meat is crucial. Although total protein consumption per capita is sufficient, most of the protein consumption is plant-based protein and consumption of animal protein is not adequate in Turkey [6], [7]. Turkey was ranked 85th in terms of animal protein consumption among 174 countries in the world as of 2013 [7].

Although Turkey has favorable ecological conditions in terms of animal husbandry, there is not adequate red meat supply [8], [9]. This is mainly because of lack of production at desired levels in the livestock sector. The number of cattle was increased by 46.8% between 2008-2017. Depending on the growth in the number of cattle, the quantity of cattle meat production was increased from 370.6 thousand tons to 987.5 thousand tons. One of the reasons of this is the cattle meat imports in recent years. Retail beef prices was increased by 35.7 % between 2008-

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2017. As a result of the increase in red meat prices in Turkey, cattle and beef imports started in 2010 and continued at irregular intervals [10]. The cattle import value was approximately 73 million Euro and beef import value was one billion euro for the year 2017 [11].

Desirable level of production and self-sufficiency in the red meat sector could not be achieved in Turkey. It is required to increase the production of beef which is important to ensure balanced and adequate nutrition of current population and health of future generations and to supply adequate beef per capita. In order to raise the production, it is important to determine the factors affecting production decision.

2. MATERIALS AND METHODS

This study was carried out in Izmir and Afyonkarahisar, which are the most important provinces in red meat production in Aegean Region. According to 2012 Food Industry inventory, Aegean Region has 14.66% of total amount of red meat production in Turkey and 60.62% of the total red meat produced in Aegean Region was produced in Izmir (37.49%) and Afyonkarahisar (23.13%) provinces [12].

The main material of this study consists of data obtained from surveys conducted with farmers. Surveys were carried out in 9 districts and 23 villages of Izmir and Afyonkarahisar provinces. For selection of districts, proportional contribution of districts to beef cattle population of provinces was taken into consideration. Likewise, for determination of villages proportional contribution of villages to beef cattle population was considered. In order to determine the number of farmers to be interviewed, sample size was determined by proportional sampling method [13]. The estimated sample size was calculated to be 203 for 99% confidence interval and 9% error margin. A minimum of five surveys were conducted in each village in order to show a heterogeneous structure of the farms and to represent the village. A total of 206 face-to-face surveys were carried out with owners of the beef cattle farms in Izmir and Afyonkarahisar provinces and surveys were distributed proportionally according to beef cattle population.

A Five-Point Likert Scale was used to measure the factors taken into consideration by the farmers to make decision [14]. Factor Analysis was applied to determine the underlying factors taken into consideration by the farmers to make decision about production and Cluster Analysis helped to obtain a general profile of the farmers [15]. Reliability analysis was applied to assess the internal consistency among items used in the factor analysis and Kruskal-Wallis test to compare different groups of clusters [14].

3. RESULTS

General characteristics of farmers and beef cattle farms

The farmers were on average 46.4 years old. Average education period of the farmers was 6.9 years and occupational experience period of farmer in the beef cattle farming was 21.4 years.

Approximately in 74% of the studied farms, beef cattle and dairy farming was carried out together. Only 26% of farms engaged in beef cattle farming. In Turkey 67.2% of the holdings has less than 10 bovine animals. Holdings which have 50 or more bovine animals are only 4.5% of the total holdings [11]. In the studied area, 35.9% of the farms have less than 10 beef cattle. Only 10.2% have 51 and more beef cattle.

Factors affecting the production decision of beef cattle farmers

Principal component factor analysis was applied for determination of underlying factors taken into consideration by the farmers to make decision about production. Factor analysis was performed using 27 items. The communality values for the items less than 0.50 were removed [15]. Reliability analysis was applied to measure of internal consistency among the 23 items [14], [16]. As a result of the analysis, the value of Cronbach's Alpha is 0.815. This value indicates that items used in the analysis were reliable. The number of retained factors was nine and all factors had eigenvalues greater than one. The Kaiser-Meyer-Olkin (KMO) value is expected to be greater than 0.5. In the study the KMO value was 0.672 which was satisfactory for factor analysis. The Bartlett's test of sphericity was significant ($\chi 2$: *3366,146,* $p<0.001$) [15], as a result of factor analysis nine dimensions - valid and reliable for defining farmers' decision in the studied area. The dimensions entitled farm features, subsidy, extension, farm features, appropriate loans, medicine, vaccine and veterinary costs, distance to market, marketing and feed and fattening material costs. Total variance explained was 81.43% (Table 1).

Table 1: The underlying factors affecting the production decision of beef cattle farmers

Factors (α=0.815)	**Mean***	**Standard Deviation**	**Factor Loading**
1-SUBSIDY			
Increasing or decreasing the amount of subsidy given per beef cattle	3.46	1.64	.831
Increasing or decreasing the amount of forages crops subsidy	3.21	1.71	.830
Increasing or decreasing the amount of calf subsidy born as a result of artificial insemination	2.95	1.69	.825
Giving vaccine subsidy by the Ministry of Agriculture and Forestry	2.70	1.61	.816
Giving premium subsidy to beef	3.84	1.48	.686
2. EXTENSION			
Providing technical knowledge and support by universities	2.42	1.58	.955
Providing technical knowledge and support by cooperatives	2.28	1.50	.948
Providing technical knowledge and support by Directorate of Provincial/District Agriculture and Forestry	2.37	1.55	.937
3. FARM FEATURES			
Farm area	3.15	1.69	.931
Barn capacity	3.21	1.70	.918
Forage crops production area	3.54	1.64	.488
4. APPROPRIATE LOANS			
Giving appropriate business loans by banks	3.13	1.70	.930
Giving appropriate investment loans by banks	3.14	1.70	.926
5. IMPORT			
Continue/restrict the cattle import	4.53	1.02	.958
Continue/restrict the red meat import	4.59	0.95	.955
6. MEDICINE, VACCINE and VETERINARY COSTS			

Medicine and vaccine costs	3.06	1.54	.943
Veterinary costs	3.09	1.56	.927
7. DISTANCE to MARKET			
Distance of farms to animal market	1.31	0.89	.931
Distance of farms to slaughterhouse	1.27	0.84	.928
8. MARKETING			
Contract farming	2.17	1.62	.866
Selling carcass meat through the cooperative	2.70	1.67	.791
9. FEED and FATTENING MATERIAL COSTS			
Feed costs	4.86	0.57	.797
Fattening material costs	3.75	1.57	.684
The total variance explained (81.436%)			

*1: Not important, 2: Slightly Important, 3: Moderately Important, 4: Important, 5: Very Important

General profile of the farmers

A cluster analysis was performed to obtain a general profile of the farmers. In the study, items with the highest factor loadings on each dimension were used as clustering items [17]. According to this analysis, it was seen that the farmers were divided into three segments on the factors affecting their production decisions. In order to identify the profiles of the segments Kruskal Wallis test was applied among the segments based on the nine factors [14]. As a result, the cost of feed, medicine-vaccination and veterinary costs of the segments and imports has no significant statistically difference in the determination of production decisions. Thus, these factors are important for all segments (Table 2).

Table 2: Farmers segments by factors affecting the production decision

	Segment I	**Segment II**	**Segment III**	**Chi-Square**	**Asymp. Sig.**
Farm features	2.83	**4.06**	2.10	43.397	.000
Distance to market	1.17	**1.60**	1.02	16.686	.000
Feed and fattening material costs	4.88	4.79	4.96	5.927	.052
Medicine, vaccine and veterinary costs	3.15	2.84	3.31	3.130	.209
Subsidy	2.37	4.00	**4.20**	47.443	.000
Appropriate loans	1.53	3.70	**4.63**	108.383	.000
Import	4.59	4.46	4.55	.114	.931
Marketing	**2.40**	2.34	1.55	9.719	.008
Extension	1.59	**3.49**	1.90	59.755	.000

1: Not important, 2: Slightly Important, 3: Moderately Important, 4: Important, 5: Very Important
* Null hypothesis was rejected under Kruskal Wallis test for $p<0.01$

According to the statistically significant differences among the segments, farmers' profiles in each segment were defined and named marketing, infrastructure and technical knowledge and subsidy policies oriented. According to this, 36.4% of the farmers were take place in the first segment, 39.8% were in the second segment and 23.8% were in the third segment (Table 3).

Table 3: Farmers profiles by segments

Farmers Segments	Significant Factors	Profile	% of Farmers
Segment I Marketing oriented	-Marketing	Feed, medicine, vaccination and veterinary costs and imports are important in making decisions as in the other two segments. In addition, the marketing guarantee is more important for them than those in the other segments.	36.4
Segment II Physical infrastructure and technical knowledge oriented	-Farm features -Distance to market -Extension	The current physical structure and facilities of the farms are important for the farmers in the second segment. Barn capacity or total land hold are decisive for the farmers in making production decision. Besides, providing technical information support to the farmers about production will enhance production in these farms.	39.8
Segment III Livestock policies oriented	-Subsidy -Appropriate loans	The subsidies to be granted to livestock and allocation of appropriate business or investment credits is important in enhancing production for the farmers in the third segments.	23.8

4. CONCLUSION

In the study, it was observed that beef cattle farmers were divided into three segments on the factors affecting their decisions about production. On the other hand, it has been determined that feed and fattening material costs and cattle and carcass meat imports have affected all three segments.

Main requirement for increasing beef production is to reduce the production costs primarily for feed. Despite the increase in the subsidies in recent years, adequate forage production has not been achieved yet. Small-scale farms need to be informed about technical issues related to production of forage crops. Also, it can be recommended to establish a common market for roughage in order to prevent price fluctuations in the market and take it under control. In addition, the integration of animal husbandry farms with forage crops producing enterprises could be another solution to reduce feed prices. Besides this, continuation of beef cattle subsidies is important to farmers as forage crops subsidies.

With the commencement of imports, meat process firms stopped domestic purchases and inclined towards imports. Selling products at a low-price result reduction in farmers income. At the same time, there was no significant decline in the price paid by the consumer as expected. It is evident that ongoing cattle and beef imports is not effective in solving the problems. Current problems can be solved not by casual practices, but by a sustainable animal husbandry policy.

Farms are small-scaled and specialization rate is low. In countries like Turkey, where husbandry is mostly carried out by small and medium-sized farms, unions and cooperatives have indispensable importance in order to ensure competitiveness. In developed countries, livestock sector is largely organized by cooperatives and unions, from the supply of genetic materials to the marketing of products. For the problems experienced in red meat sector, it is of great importance to increase the effectiveness of other associations and cooperatives, especially the red meat producers' union, which aims to solve the problems related to marketing and production planning in red meat.

Long-term policies are needed to encourage small producers to enlarge their size. Especially in countries like Turkey where the agricultural population is high, withdrawal of farms from production is not considered a rational solution. Small-scale farms should be supported more than mid- and large-sized enterprises so that they can grow their scale and improve their infrastructures. However, no such distinction was made in the livestock subsidies that are currently applied.

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THE POSITION OF ENERGY SECURITY IN THE FOREIGN POLICY OF THE SLOVAK REPUBLIC[360]

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Abstract: *The paper deals with the position of energy security in the foreign policy of the Slovak Republic. Its aim is to analyze the extent to which the need to ensure energy security is influencing the foreign policy orientation of the country. Energy is a key factor that affects all sectors of the economy and is one of the cornerstones of the economy. Energy security is part of national security and is one of the instruments to ensure sovereignty, political independence and economic security. For a small country like Slovakia, it is strategically important for its foreign policy to lead to energy security. From the point of view of Slovakia, the most important energy commodity is natural gas, so the paper is mainly focused on the issue of its safe supplies. Slovak diplomacy must negotiate with many parties, such as Ukraine, Russia or the European Union, to ensure them. The paper therefore explores its actions towards these partners to ensure energy security. It also compares the coherence of Slovak energy security objectives with the objectives of the European Union. The issue of the reaction of Slovak diplomacy to projects threatening the security of gas supply, such as Nord Stream 2, has also been taken up. This work therefore offers a comprehensive overview and analysis of the steps taken in Slovakia's foreign policy in order to ensure energy security.*

Keywords: *energy security, foreign policy, Slovakia, natural gas*

1. INTRODUCTION

Energy is a key factor that affects all sectors of the economy and is one of the cornerstones of the economy. Energy security is part of national security and is one of the instruments to ensure sovereignty, political independence and economic security. For a small country like Slovakia, it is strategically important for its foreign policy to lead to energy security. The IEA defines energy security as "*the uninterrupted availability of energy sources at an affordable price*" [1]. Energy security has many dimensions: long-term energy security mainly deals with timely investments to supply energy in line with economic developments and sustainable environmental needs. Short-term energy security focuses on the ability of the energy system to react promptly to sudden changes within the supply-demand balance. Lack of energy security is thus linked to the negative economic and social impacts of either physical unavailability of energy, or prices that are not competitive or are overly volatile.

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2. THE EU ENERGY STRATEGY

The EU imports more than half of all the energy it consumes. Its import dependency is particularly high for crude oil (90%) and natural gas (69%). The total import bill is more than €1 billion per day.

Many countries are also heavily reliant on a single supplier, including some that rely entirely on Russia for their natural gas. This dependence leaves them vulnerable to supply disruptions, whether caused by political or commercial disputes, or infrastructure failure. For instance, a 2009 gas dispute between Russia and transit country Ukraine left many EU countries with severe shortages.

Short-term measures

As part of the Strategy, 38 European countries, including all EU countries, carried out energy security stress tests in 2014. They simulated two energy supply disruption scenarios for a period of one or six months:

- A complete halt of Russian gas imports to the EU
- A disruption of Russian gas imports through the Ukrainian transit route.

The tests showed that a prolonged supply disruption would have a substantial impact on the EU. Eastern EU countries and Energy Community countries would be particularly affected. The report also confirmed that if all countries cooperate with each other, consumers would remain supplied even in the event of a six month gas disruption.

Based on the analysis of the stress tests, a number of short-term measures were carried out in preparation for the winter of 2014-2015. Furthermore, the EU's Gas Coordination Group continues to monitor developments in the gas supply throughout the year. The Commission also asked EU and Energy Community countries to prepare regional energy security preparedness plans, which were reviewed and adopted in 2015.

Long-term measures

The Strategy also addresses long-term security of supply challenges. It proposes actions in five key areas:

- Increasing energy efficiency and reaching the proposed 2030 energy and climate goals. Priorities in this area should focus on buildings and industry, which use 40% and 25% of total energy respectively in the EU. It is also important to help consumers lower their energy consumption, for example with clear billing information and smart energy meters
- Increasing energy production in the EU and diversifying supplier countries and routes. This includes further deployment of renewables, sustainable production of fossil fuels, and safe nuclear energy where this option is chosen. It also entails negotiating effectively with current major energy partners such as Russia, Norway, and Saudi Arabia, as well as new partners like countries in the Caspian Basin region

- Completing the internal energy market and building missing infrastructure links to respond quickly to supply disruptions and redirect energy across the EU to where it is needed
- Speaking with one voice in external energy policy, including ensuring that EU countries inform the European Commission early on about planned agreements with non-EU countries that may affect the EU's security of supply
- Strengthening and protecting critical infrastructure. This includes more coordination between EU countries to use existing storage facilities, develop reverse flows, conduct risk assessments, and put in place security of supply plans at regional and EU level.

In response to these concerns, the European Commission released its Energy Security Strategy in May 2014. The Strategy aims to ensure a stable and abundant supply of energy for European citizens and the economy.

The question of Europe's energy security has risen in importance in recent years, especially following the major disruption of gas supplies caused by the January 2009 Ukraine-Russia dispute, and even more so given the political and security tensions that followed Russia's annexation of Crimea. Indeed, Russia remains the EU's main supplier of oil, gas, coal and nuclear fuel – even if its energy sector has been affected by the EU-imposed sanctions regime. In this context, Gazprom's 'Nord Stream 2' pipeline project, aims to expand gas supplies from Russia to Germany, largely following the route of the Nord Stream 1 pipeline on the bed of the Baltic Sea, and bypassing transit countries, such as Poland, Slovakia and Ukraine [2].

3. ENERGY SECURITY OF SLOVAKIA

The issue of energy security is particularly important for the Slovak Republic due to its high dependence on the import of primary energy raw materials from third countries. The SR therefore supports the processes of diversification of resources and routes.

The Energy Security Strategy of the Slovak Republic with a view to 2030 has to ensure self-sufficiency in electricity production, optimal pricing policy, pro-export the capacity of the Slovak Republic and the strengthening of the position of the transit country in the electricity, gas and oil markets; reliable heat supply and other energy carriers.

Diversification of sources and transport routes for oil and natural gas should be encouraged, and to create the conditions for the construction of connecting lines with the systems of the neighboring states, to create the conditions for increased use of renewable energy sources in electricity generation and heat, as well as the use of biofuels in transport, and to promote efficient and rational use of domestic energy raw materials to reduce import dependency.

Reliable power supply can only be guaranteed by a sufficient number of diversified sources located on the territory of the Slovak Republic, diversified supplies of primary energy sources and building sufficient capacity for cross-border transmission networks [3].

4. ENERGY SECURITY IN FOREIGN POLICY OF SLOVAKIA

A very important contribution of the Slovak Republic to the regional stability and energy security of Ukraine was the operation of the Vojany-Uzhgorod gas pipeline, which allowed reverse supply of gas to Ukraine. This solution is optimal in terms of security of gas supply for the SR as well as for other EU CBCs and also in terms of technical, legal, time and full compatibility with the EU legislative framework. It is our strategic interest to maintain transport capacity through Slovakia. The signing of the Memorandum of Cooperation between the Slovak company Eustream, the Italian company SNAM and the Ukrainian companies UKRTRANSGAZ and NAFTOGAZ in April 2017 is an important step in the future possible cooperation in the operation and development of the Ukrainian gas network in order to preserve the gas transport through this route.

In 2018, concerning Nord Stream 2 project Slovakia will continue to demand compliance with the European acquits in line with the conclusions of the European Council of December 2015 and argue in favor of diversifying not only the routes but, above all, the supply of gas to Europe. In order to increase the security of gas and oil supplies, the Slovak Republic will continue to develop regional cooperation aimed at supporting infrastructure projects enabling the diversification of energy sources and routes. Priorities for the SR remain the completion of the North - South gas corridor through the interconnection of the Slovak and Polish gas pipeline systems and the implementation of the Eastring project, which aims to connect the European gas markets using existing infrastructure. The SR strongly supports the right of member states to national sovereignty in deciding on an optimal energy mix, including the use of nuclear energy as a carbon free resource [4].

5. CONCLUSION

Energy security is an important part of foreign policy. It influences the attitudes of the country to its partners, as well as the steps the country is taking towards other entities. The basis of energy security is to ensure uninterrupted energy supplies at reasonable prices. It is therefore important to build infrastructure and maintain stable prices. In order to achieve these goals, it is also important to diversify suppliers to prevent energy security being disturbed in several countries due to a conflict with one supplier. These are, in particular, the objectives of the European Union, but Slovakia agrees with them. However, there is no consensus on the Nord Stream 2 project, which is against the economic interests of Slovakia. However, Slovakia supports the implementation of other international projects such as the North - South gas corridor or the Eastring project. Energy security plays an important role in Slovakia's foreign policy and, given the current geopolitical situation, it is more than likely that its importance will continue to increase for Slovakia.

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PROPOSALS FOR TECHNICAL DEVELOPMENT OF HAMMER CRUSHERS APPLIED IN BIOGAS PLANTS

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Abstract: *Feeding of the reactors becomes one of the most important part in managing a Biogas plant, because it is a critical factor for the stable biogas production.*
This article overviews all the experiences we could gain from a research work performed in a biogas plant, aiming the improvement of the applied technology, focusing on the solid input material crushing process.
The intensive abrasion causes serious problem in the hammer crusher, and because of this, breakdowns, operational failure, and economic damage can appear in the biogas plants quite often. Hammers wore rapidly causing inappropriate chopping. If the crushing is not effective, the fibrous material reduces the mixing efficiency that causes less gas production.
Within the frame of the research, we worked out the applicable technology for improving the abrasion resistance of the hummers of the crusher that caused improved reliability for not only the equipment, but the whole biogas plant as well.

Keywords: *renewable energy production, biogas technology, circular economy, adequate repairing technology, plant management*

REALISED TECHNICAL PROBLEM

The NHSZ Biogas Tatabanya Ltd biogas plant use mixed materials to generate biogas. The most important part of the technology is the preparation of the fiber (mainly corn) for shredding. In our tests BHS Biogrinder RBG 08 type solid material mincing machine was applied. The machine shredding properties wasn't compliance at case of different input solid material. The fermentors vane usually was covered with long fiber materials. Those events make bad effect for mixing and fermentation process. On other hand the parts of the machine had intense changing period, because of the intensive wearing effect.

The technical suggestions were at the following areas:

- hard metal technology to avoid the intensive wearing
- the mentioned wearing parts hardened by hard metal technology
- operational test for long distance application ability
- economical analysis for return of investment (*Bártfai et al, Mezőgazdasági technika, 2015*).

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INTRODUCTION OF BHS BIOGRINDER RBG 08 MACHINE

Next figure shows the BHS Biogrinder RBG 08.

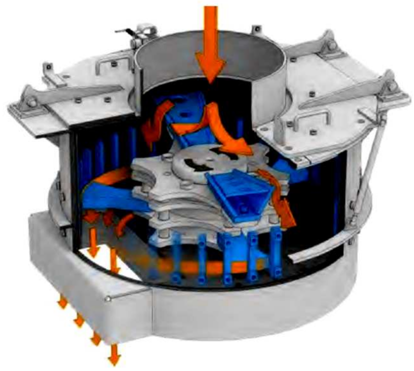

Fig. 1. The BHS Biogrinder RBG 08 parts

The structure of grinding unit

In the investigated biogas technology the biomass grinding is made by turning hammers. One machine is able to get 12 hammers. The material flow is supported by standing part; it is working like a standing knife. The turning parts are demonstrated at next figures.

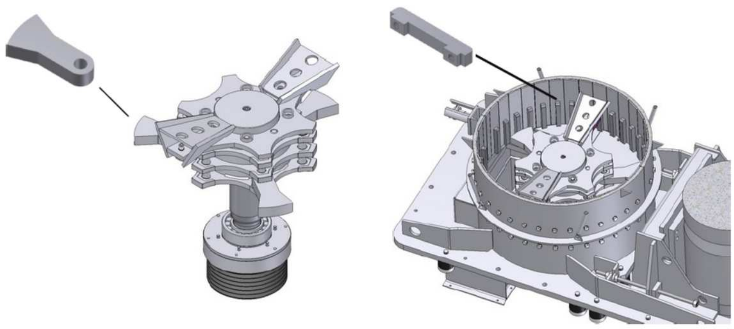

Fig 2. The BHS Biogrinder RBG 08 machine turning and fix parts

Fig 3. The turning and fix parts view from top

CAUSE OF THE PROBLEM: WEARING

The parts of the machine touched by moving materials are wearing during the process caused by the friction. The input materials used for biogas generating are creating wearing, and the hammers form is changing continuously. Different input materials have different effect on the hammers in the case of wearing. The most intensive wearing are made by sand dust from manure (the dust content derives from the soil from the animals' leg).

This effect is typical on animal farms. The tested plant is a real source of danger, because the sand rate of the manure is high. Because of the wearing fix part and moving hammer have bigger distance, the shredding efficiency get worse.

Figure 4 and 5 show the difference between the original and used hammer.

Fig 4. Distance between fix part and hammer, original (operational photo)

Fig 5. Distance with used hammer (operational photo)

Based on institute (Institut für Landtechnik und Tierhaltung, Weihenstephan, Freising) measurement we mentioned that the structure of manure from straw did not change using hammered shredding. This type of machine is not applicable for this type of materials.

Fig 6. Manure from straw, before and after crushing

Fig 7. New and worn hammer

Fig. 8 and 9 shows the implemented and the stand-alone hammer. The form changing is too big for normal usage.

Fig 8. Used hammer

Fig 9. Unmounted used hammer

HAMMER IMPROVEMENT BY HARD METAL WELDING

Technologies for improving wear resistance:

- hard metal scattering is electric scattering
- hot metal spraying
- pottery reading
- application of porous ceramic
- abrasion resistant plastic spray
- manufacture of abrasion-resistant inserts, lining and parts
- spark welding
- heat treatment
- surface treatment

At Mechanical Engineering Faculty of Szent István University we created a technology plan and performed hard metal welding in order to improve the quality of the hammers.

For the testing process 3 hammers were prepared through 3 different welding processes:

1) **The (-) signed hammer,** the suture was parallel with the axle.
2) **The (/) signed hammer** the suture was at 45° by the axle, at the same distance
3) **The (X) signed hammer** the suture was at 45° by the axle but the opposite direction as / signed hammers. Sutures are at the same distance.

Scattering is good for improve working period, and the optimal material usage is also important.

Fig 10. shows the hammers.

Fig 10. Hard metal welded hammers

WELDING TECHNOLOGY

Technical parameters:

Sign	Standard	Chemical (%)	Current
502	DIN 8555: E 10-GF-60 GR	C: 5,50 Mn: 1,50 Cr: 40,0 Other: 2	= +160 A

WEARING TEST

The shredder was used at normal working conditions in the investigated biogas plant. After 600 working hours the wearing was estimated so extreme comparing normal conditions. At the first investigating phase the hammers were checked by a simple visual survey. We diagnosed there were no dangerous anomaly (broken parts, deformation, other structural injury).

Fig 11. After 600 working hours, with hard metal welding

Next figures show the worn hammers. As the pictures show there is no injury on the hammers.

Fig 12. Hammers, side view

Fig 13. Hammers, top view

Fig 14. Hammers, button view

METHOD

For the further step of the scientific investigation we applied 3D scanning technology to measure the wearing size. The 3D scanner is a ZScanner 700 machine.

The 3D scanning method:

- define joints, surface net
- elementary body unit calculation
- surface units summary

The results are shown is the next figure and tables.

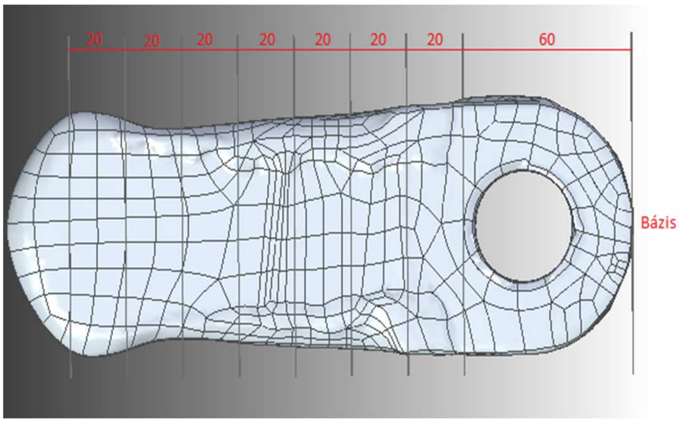

Fig 15. Scanned worn hammer

RESULTS

Table 1 shows the results for (/) signed hammer. This has the minimal size changing: 83,5% of the original size remained. The most intensive worn was realized on the hammer signed (-).

Table 1. Size changing

Size (long)		
[mm]		
(x) worn	**(-) worn**	**(/) worn**
219	218	222
(x) new	**(-) new**	**(/) new**
267	266	266
rate		
(x)	**(-)**	**(/)**
0,820	0,820	0,835

Table 2 shows the width size changing on the different parts.

Table 2. Width changing

	Biggest width [mm]		
From base [mm]	**(X)**	**(-)**	**(/)**
60	44,6	42,47	44,48
80	32,66	30,26	32,54
100	25,17	23,61	25,37
120	22,07	20,2	22,37
140	18,14	15,75	18,56
160	15,4	13,26	15,8
180	16,33	14,24	16,74
200	17,12	14,75	17,82
Original width [mm]	45	45	45
Worn width [mm]	44,93	44,78	44,79

We calculated the wear by the weight of the hammers. Weight can be calculated from the volume of the original and worn hammers. (Table 3.)

Table 3. Volume and weight changing

	Volume [mm^3] new		
	(X)	**(-)**	**(/)**
	1056435	1066941	1047621
	Volume [mm^3] worn		
	(X) worn	**(-) worn**	**(/) worn**
	357603	333335	358062
Volume rate:	0,338	0,312	0,342

	Weight [g] worn		
	(x) worn	**(-) worn**	**(/)worn**
	2750	2550	2760
	Weight [g] new		
	(x)	**(-)**	**(/)**
	8124,08	8162,06	8075,23
Weight rate:	0,338	0,312	0,342

SUMMARY

Based on real factory operational tests we diagnosed that the hard metal welded hammers perform more effective and economic operating.
Based on the measurement results optimal solution based on welding suture seems to be the (/) signed hammer. So our recommend is applying this suture to improve the wearing resistance.

Our test shows that the button part wears more. Because of this we recommend to cover the whole button part of the hammers by hard metal.

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CLIMATE CHANGE AND MORAL RESPECT FOR THE NATURE – AN ANTROPOCENTRIC PERSPECTIVE

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Abstract: *The purpose of the paper is to present the need of ethical concern in the context of climate change as one of the main environmental problems. The attention was focused on moral responsibility for the nature from anthropocentric perspective.*

Keywords: *climate change, ethics, anthropocentrism, biocentrism, ecocentrism.*

1. INTRODUCTION

During the period of two last decades, climate change have become one of the most pressing issue facing different circles of policymakers, scientists, philosophers and even theologians. However, it is still not an easy problem to deal with. The production of greenhouse gases (GHGs) is deeply rooted in the economy that the modern society has developed since the industrial revolution.

However, climate change cannot be properly understood and fully comprehended without taking into account its axiological approach. Especially it is important in the situation where the serious threats and irreversible harms occur to the Earth's ecosystems. In fact, every aspect of climate change should be shaped by the ethical debate from scientific research, political decisions through the individual choices [1].

The main purpose of the research is to find out the answer to some of the uprising questions around the idea of our moral obligations towards natural environment in the context of climate change. It should be beyond any discussion even if global climate change is not the result of human made carbon dioxide concentration in the atmosphere. The probability it might cause such a change should encourage people to limit greenhouse gas emissions.[366]

In this context, some important questions should be answered in the area of our moral obligations towards contemporary global warming, such as: Has climate change already happened? If so, to what extend are we morally responsible for it? What principles and standards should be chosen to stop or at least minimize human actions causing climate change? What criteria of justice should be taken to preserve future generations against the results of climate change?

It is widely accepted in climate change discussions that only human interests should be considered in formulating moral obligations and duties towards natural resources. Though, there are ethicists who argue that also nonhuman benefits should be respected when dealing

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[366] For further reading: [2], [3], [4].

with the threats of climate change. In this research focus is on the issue of moral **responsibility for the nature from anthropocentric perspective**. The paper has a descriptive character. Its method is strictly submitted to the literature used in the text.

2. GLOBAL CLIMATE CHANGE IN HISTORICAL DATA

The emission of green house gases is probably one of the biggest reasons of the environmental damage which globally have ever happened. There are generally the following problems created by concentration of green house gases in the atmosphere: (1) Global climate warming (or global overheating); (2) Decrease of the ozone layer; (3) Growing concentration of acid in water and (4) Atrophy of natural resources caused by acid rains and dioxide sulphur [5].

The scientific research of climate change began already in 19th century when some natural phenomena, such as the ice ages, started to be considered as a potential result of green house effect. **Joseph Fourier** (1768 – 1830) was one of the earliest forerunners in the history who took the advantage to investigate the causes of climate change on the Earth. Living some years later **John Tyndall** (1820 – 1893) [6], the Irish physicist from the Royal Institute of London discovered which exact components had been absorbing the infra-red radiation. The phenomenal analyses in the area of carbon dioxide (CO2) impact on climate change were also made by the Swedish physical chemist **Svante Arthur Arrhenius** (1859 – 1927) [7]. His estimations led him to conclude that present human-produced carbon dioxide emissions, from fossil fuel burning and other combustion processes, were large enough to create global warming. At the same time another scientist **– Thomas Chrowder Chamberlin** (1843 – 1928) [8] – was one of the first climatologists who developed a theory which improved that progressive decrease of carbon dioxide in the atmosphere had been the main reason of the glacial era on the Earth in the past. However, a decisive moment for the international comprehension of hazardous climate change should actually be dated at the beginning of the sixties in the last century, especially after publishing **Charles David Keeling's** [9] investigations on carbon dioxide in the Earth's atmosphere above Hawaii and Antarctica.

In 1988 **The Intergovernmental Panel on Climate Change**, as one of the first scientific intergovernmental authorities, was established under the auspicious of **The United Nations and The World Meteorological Organization** (WMO). In 1992 during The World Submit in Rio de Janeiro, **The United Nation Framework Convention on Climate Change** was signed up by the members of the Conference. Implementation of the UNFCCC led finally to **The Kyoto Report** in 1997.[367]

Talking about the threats of climate change as one of the main environmental problems, there are two crucial questions. The first one belongs to the empirical or scientific order. In this case we ask, whether climate change is a natural phenomena or to what extent it is a result of human activity. The other question is focused rather more on our moral obligations towards natural environment. We are expected to give answers about what we regard as our obligations and duties towards the nature, or how we understand human – nature relationship. When it comes

[367] Right now, it is well documented that the energy balance in the atmosphere has been distorted by two components. First, there are greenhouse gasses such as: carbon dioxide (CO2), methane (CH4), nitrous oxides (N2O), sulphur hexafluoride (SF6), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs). Those gasses capture a vast amount of energy emitted from the surface of the Earth, at the same time keeping it in our atmosphere and warming the Planet. Second, there are aerosols, playing the role of miniscule particles being accumulated in the air. At first, they cause a cooling effect on the Earth – because they mirror solar rays back into the cosmic space. But also, they are sort of like black carbon that causes warming effect. The issue is well documented in: [10].

to solve those dilemmas of what is or how we should treat the nature, we deal with moral questions. And this perspective is the base of the following research.

3. CLIMATE CHANGE AND THE ANTHROPOCENTRIC DISTRIBUTION OF RESOURCES

At the beginning we shall consider the anthropocentric orientation in regard to environmental problems. In a philosophical discourse anthropocentrists usually postulate humans to be the most important entities in the universe. They argue that all other natural beings are only means to human ends. According to anthropocentric worldview: (1) environment is a source for humans, used as needed; (2) human health and well-being plays a central role in decision making; (3) people are environmental managers of natural resources; (4) human-nature stability depends on governmental regulations, taxes, legislations and political procedures.[368]

In regard to the problems of climate change anthropocentric environmental ethicists try to answer two main questions. These are: (1) How to ensure that people who suffer most from the consequences of climate change are protected to survive such consequences? (2) How to guarantee that our posterities would not suffer terrible results of climate change created by present generations? In other words, environmental ethics with its anthropocentric concern is focused on contemporary people as rational entities who are responsible for the fate of future generations. Such ethics ought to provide principles and standards which would strengthen moral behave to stop or at least minimize human actions resulting in unpredictable consequences of climate change and global warming [14].

In this case, any environmental studies from anthropocentric point of view should basically be focused on just distribution of goods, access to natural resources and economic security. In this context John Rawls writes: *Justice is the first virtue of social institutions, as truth is of systems of thought. A theory however elegant and economical must be rejected or revised if it is untrue; likewise laws and institutions no matter how efficient and well-arranged must be reformed or abolished if they are unjust.(…) The truth and justice are uncompromising* [15]. At the same time he puts the question: *On what grounds <…> do we distinguish between mankind and other living things and regard the constraints of justice as holding only in our relation to human beings*? [16] And then he suggests: *The natural answer seems to be that it is precisely that moral persons who are entitled to equal justice. Moral persons are distinguished by two features: first, they are capable of having <…> a conception of their good <…>; and second, they are capable of having a sense of justice* [17]. In his argumentation it has been drawn a straight line leading to the conclusion that only humankind can posses a conception of good and a sense of justice. In a similar way – his opponent – Michael Walzer – sees the problem, when he writes: *One characteristic above all is central to my argument. We are (all of us) culture-producing creatures. We make and inhabit meaningful worlds* [18].

In some ways, the authors of the Brundtland Report when constructing a definition of sustainable development choose a sort of anthropocentric view of sustainability. They write sustainable development is *a development that meets the needs of the present without compromising the ability of future generations to meet their own needs* [19]. Regarding a question of distributive justice, the Brundtland Commission pointed on an "inequality" as the main *Planet's* "environmental" problem. The document states: *A growing number of the urban*

[368] In contrast to anthropocentrism, the biocentric and ecocenric orientations consider humans to be a particular species of animal, yet without greater intrinsic value than any of other species or organisms. For further reading, see: [11], [12], [13].

poor suffer a high frequency of diseases; most are environmentally based and could be prevented or dramatically reduced through relatively small investments [20]. This account proves that poor people basically live in poor environments. The environmental threats which occur in different parts of the world touch everyone equally, but usually the poorest are the most distressed. They are the weakest to afford protecting themselves against it. In a similar way Laura Pulido describes this with the words: *It <…> is the poor and marginalized of the world who often bear the brunt of pollution and resource degradation – whether a toxic dump, a lack of arable land, or global climate change – simply because they are more vulnerable and lack alternatives* [21]. This may suggest that the environment, we are part of, is an exact type of goods that society must justly distribute among its members. This is also proved by Andrew Dobson, when he writes: *<…> "environmental justice" does not <…> mean "justice to the environment", but refers rather to a just distribution of environmental goods and beds among human populations* [22]. It seems that public policy should play a fundamental role in promoting the idea of environmental justice based on mutual respect and fairness for all human races, free from prejudice and discrimination. This type of ethics finds a satisfaction with a liberty system and human rights.

Yet, the problem appears when we want to choose the criteria of distributive justice. Obviously, it is impossible to distinguish a concrete – all equally satisfying – principle of distribution. Furthermore, the anthropocentric orientation provides additional problems, especially in relation to just distribution of goods to future generations [23]. Nevertheless, the principle of justice can be defended when we consider biological human needs such as breathing, oxygen, health, water, cultivable soil – those goods can be anticipated in a long period of time ahead. So it seems reasonable to pave way between anthropocentric and ecocentric/biocentric orientation concerning moral obligations towards the nature.[369]

5. CONCLUSIONS

The process of green house gas emissions has started at least 650 000 years ago, but the levels of carbon dioxide have risen almost 200 times faster over the past 50 years than at any other time during this period. If such a course of climate warming goes on in the nearest future, we might expect unpredictable consequences of natural disasters like droughts, floods, famines, increasingly destructive hurricanes etc. The results of sea level rise will strike people globally; some of them are already affected by it. The presence of moral discourse within climate change policy should be unquestionable because it always leads us to answer three main questions: (1) What is our responsibility to the non-human world? (2) What is our responsibility to the human order? (3) How should we care for the future? In this case it is necessary to consider much wider than the anthropocentric orientation.

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[369] Robyn Eckersley in her environmental philosophy suggests **emancipatory solution**. She writes: *ecological emancipatory theory must accommodate all human emancipatory struggles within a broader, ecological framework* <…> and <…> *all differently situated others (human and nonhuman) ought to be free to unfold in their distinctive ways and therefore should not to be subjected to unjustified policies and decisions that impede such unfolding* [24]. For more reading see: [25], [26].

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THE ENVIRONMENTAL IMPACT OF POWER PLANTS IN SLOVAKIA

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Abstract: *The aim of this paper is to evaluate the impact of different types of power plants on the environmental indicators in Slovak Republic. We begin with overview of some of the previous studies of power plants types and their impact on environmental indicators, including water use and withdrawal and CO_2 emissions. The second part of the paper analyses the data from the reports of The Ministry of the Environment of the Slovak Republic on the environmental impact of different types of power plants in Slovakia. The paper compares the current research with the data from Slovakia and compares the environmental impact of different types of power plants in regard to different environmental goals.*[371]

Keywords: *power plants, environmental indicators, Slovakia*

1. INTRODUCTION

The environmental impact of human activities is gaining growing attention in recent years, especially in connection to climate change and extreme weather events. As the scientific community agrees that human activities, especially emissions, are an important contributor to these events, international organizations are calling for coordinated international effort in climate change mitigation.

Slovak Republic, as one of the member states of the European Union, is also part of this effort. In addition, the global trend of more sustainable economic growth is influencing not only emissions, but also other activities that may have harmful effects on the environment or human health.

In this paper we focus on the shift towards more environmentally sustainable practices in energy sector in Slovak Republic and the accordance of Slovak energy sector with the objectives set by the European Union and other international organizations relevant for the country. The objective of the paper is to evaluate the impact of different types of power plants on the environmental indicators in Slovak Republic. The paper first describes the state of research in environmental impact of different types of power plants, with special focus on water resources. The second part of the paper is based on the data from the Ministry of Environment of the Slovak Republic. We analyze the changes in energy sector related environmental indicators.

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2. ENVIRONMENTAL IMPACT OF POWER PLANTS

Electricity is regarded as relatively clean source of energy, which is not necessarily true when we take into account the whole process of electricity generation. Different power plant types have different adverse impact on environment, but no type of power plant is harmless during the whole process. Power plants represent physical footprint, require considerable amount of fossil fuels, biomass or waste to burn, produce greenhouse gases and other waste and have other disruptive effects on environment. [1] Public Service Commission of Wisconsin [2] lists these areas that can be adversely affected by power plants: air, global climate, water quality and quantity, wetlands, soil and land, vegetation, wildlife, protected species and historical and archaeological sites.

Environmental protection consists of many different fields, but the most vocal public debate is held in the field of greenhouse gases emissions and their impact on climate change. This topic is closely linked to energy sector as electricity and heat production is the largest single source of global greenhouse gas emissions with 25% share. [3] The emissions of CO_2 and greenhouse gases emissions are one of the main differentiating factors of the evaluation of environmental impact of each power plant type. Meta-analysis published by World Nuclear Association [4] compares 21 scientific studies on the emissions of greenhouse gases by different power plant types. On average, lignite power plants emit the highest amount of CO_2 per 1 GWh of electricity produced (1069 t), followed by coal (888 t), oil (735 t) and natural gas (500 t) power plants. Other types of power plants emit significantly lower amounts of CO_2. The highest average amount of CO_2 emitted was recorded by solar photovoltaic power plants (85 t); however the range recorded by studies is great, reaching as high as 750 t. Other power plants recorded even lower average values: 45 t for biomass, 28 t for nuclear, 26 t for hydroelectric and 26 t for wind power plants.

The emissions of CO_2 are not exclusively connected to the electricity generation, as the emissions are also a result of electricity transmission and use. Center for Climate and Energy Solutions [5] suggests these opportunities to reduce carbon emissions: shifting from coal to natural gas, improving plant efficiency, using biomass as fuel, adding renewables, increasing transmission and distribution efficiency and reducing industrial, commercial and residential energy demands. Additionally, IPCC report [6] suggests the implementation of CO_2 capture and storage facilities and wider use of nuclear power as ways of reducing emissions.

Power plants do not only emit CO_2, but also other gaseous emissions (CO, SO_x, and NO_2), particulate emissions and trace elements (e.g. mercury, lead or cadmium). These other emissions can be successfully managed and avoided by available technology. [7] The main contributors to other emissions are coal power plants. Zhao et al. [8] studied the emissions of coal-fired power plants in China, focusing on SO_2, NO_x and particulate matter. They conclude that although emissions are growing, there are initiatives to mitigate the problem in China by employing new technologies. However, the authors claim that the emissions of NO_x will continually present a problem in for Chinese air quality.

Water resources and water in general are important elements in the production of electricity, not only for hydroelectric power plants. Almost all other types of power plants, including some types of power plants using renewable sources, contribute to water withdrawal and water use in the electricity production process. The basic process that that causes water withdrawal and water use in the power generation is the production of steam. Most power plants produce steam to power turbines that produce electricity. After steam passes through the turbine it is cooled, condensed and reused. The water used by the power plant is often drawn from rivers, lakes or hydrological collectors. The amount of water the power plant uses depends on the cooling technology it uses. Once-through cooling systems take significant amount of water, but most of it returns to the source. Recirculation cooling systems take much less water but can consume more than twice compared to once-through cooling systems, because a large portion of the water evaporates. [9]

According to the Union of Concerned Scientists [10], different types of power plants have different contribution to water withdrawal and water use, depending on the cooling system. The amount of withdrawn water per 1 MWh of electricity generated is the highest in case of the plants are powered by once-through cooling systems, but the amounts still differ. The withdrawal is the highest in case of nuclear power plants, followed by coal-fired power plants, biomass-fired power plants, and natural gas-fired power plants. However, the water consumption of these plants is much lower than in the case of power plants using recirculation cooling systems. Most of the water in this type of cooling per 1 MWh is used in solar thermal power plants, followed by coal-fired power plants, nuclear power plants, and biomass-fired plants. Hydroelectric technology does not require cooling, and therefore does not use water for electricity production, and usually the water flow through the hydroelectric power plant does not count as water withdrawal. [11]

However, the amounts of water withdrawn and used in the acquisition of fuel for these power plants or their construction are not included in the above mentioned calculations. These amounts have been calculated by Fthenakis and Kim [12], on the example of power plants in the United States. Water withdrawal and water consumption were measured in five stages of electricity generation: fuel extraction, fuel preparation, power plant construction, power generation and fuel disposal. Their results show that biomass-burning power plants in the south-west of the USA (Arizona, Colorado, Idaho, California, Nevada, New Mexico, Oregon, Utah, Texas and Wyoming) [13] withdraw the highest amount of water per unit of electricity generated as in this dry area, agricultural production requires irrigation. Next, there are power plants with a once-through cooling system, namely nuclear, coal and oil and gas-fired power plants. With the exception of biomass, renewable energy sources have relatively low amounts of withdrawn water. Most water is withdrawn by solar power plants, followed by wind power plants and hydroelectric power plants.

The energy mix of Spain and its planned future direction have been evaluated in the paper by Carrillo and Frei [14] on the basis of water use. They conclude that the current plans for higher biomass share in Spain's energy mix will lead to a high increase in water withdrawal. The authors therefore recommend reviewing current plans and increasing the share of wind power in the energy mix in the future as it requires much less water than biomass.

Recent studies, however, also begin to address the issue of water use in the operation of hydroelectric power plants. Although the electricity production itself does not use water, large water reservoirs cause increased evaporation of water. Hydroelectric power plants are rated based on the amount of evaporated water use per unit of energy produced. However, this approach presents several methodological problems described by Bakken, Killingtveit and Alfredsen. [15] The basic indicator, the amount of evaporated water, has two versions, gross and net. The gross indicator reports the real evaporated volume. The net volume represents the real evaporated volume minus the volume, which would evaporate if the reservoir was not built, that is, the evaporated volume before construction. The reporting is not unified, which of these indicators should be reported. Large differences are also caused by different climatic conditions. The highest use as a result of evaporation is reported in China, the lowest in Russia. The authors therefore propose to incorporate these variables into the reporting as well as the fact that some water reservoirs serve multiple purposes. [16]

3. POWER PLANTS IMPACT IN SLOVAKIA

In this part of the paper we evaluate the data on environmental impact of power plants in Slovakia and the recent development in this area. We evaluate the environmental impact of power plants in Slovakia based on indicators that are reported in accordance with the European Union standards. The majority of data we use is from the Ministry of Environment of the Slovak Republic. We also use data from international organizations, namely International Energy Agency (IEA) and Organization for Economic Cooperation and Development (OECD). The rest of the data were obtained from the private companies operating in Slovak energy sector.

Based on OECD data, the total electricity generation in Slovak Republic is 26.4 TWh. Electricity generation in Slovak Republic is heavily dependent on nuclear power plants that generate 57.4% of energy produced in the country. Second most important electricity source is hydropower with 17% share. Coal power plants have been an important source of electricity before the nuclear power and now they account for 11.4% of electricity generation. Other sources of electricity are biofuels and waste (5.8%), natural gas (4.3%), solar energy (2.5%), oil (1.6%) and wind power (0.02%). [17]

Slovak energy market is dominated by one company, Slovenské elektrárne a.s., which produces 81% of electricity in the country. The company owns two nuclear power plants, majority of hydropower sources and thermal power plants. Other 34 companies are usually small companies operating small hydropower plants or producing electricity from renewable sources. [18] Slovak electricity generating capacities are not operating on full installed capacity. While nuclear power plants achieve a capacity factor of 87%, gas-fired power plants have capacity factor of 20% and hydropower is achieving capacity factor of only 17%. [19]

Energy sector in Slovakia generates more than 50% of total CO_2 emissions in the country. The main fuels contributing to this are coal, natural gas and oil. However, the situation in energy sector is improving. The amount of CO_2 emissions is declining compared to previous year, and also compared to the year 2000. Since 1990, the emissions of CO_2 from energy sector in Slovakia declined by 58.8%. This is the result of growing energy effectiveness of Slovak industries, growing share of gas in energy mix and legally binding legislature for environmental protection. [20]

Less positive results are observable in case of other pollutants emitted by companies operating in energy sector. While the emissions of some potentially harmful substances are declining, the others are still growing. The emissions of polychlorinated dibenzo-p-dioxins (PCDD) and almost all heavy metals are declining, together with particulate matter emissions (both PM_{10} and $PM_{2.5}$). On the other hand, emissions of one heavy metal, cadmium, are increasing. Other substances whose emissions are on the rise in energy sector are polychlorinated biphenyls (PCB), polycyclic aromatic hydrocarbon (PAH) and non-methane volatile organic compounds (NMVOC). [21]

The indicator of waste water from energy sector in Slovakia clearly shows the difference between two main types of cooling in electricity generation systems. Since 2006 when the monitoring started, the amount of waste water (water used that changed quality, e.g. composition or temperature after use) was declining until 2011. In 2012 thermal power plant Vojany changed the cooling system from recirculation to once-through cooling system. This brought the change of waste water production from 17498.79 thousand m^3 in 2011 to 91408.25 thousand m^3 in 2012. After the cooling system changed back in 2014, the amount of waste water from energy sector dropped to 17643.778 thousand m^3 and continues to decline since. [22]

Fluctuation can be seen also in terms of waste production in energy sector and in nuclear waste production. Waste produced by energy sector is almost exclusively non-hazardous waste, with hazardous waste accounting for only 1.1%. Although the waste production declined compared to the amount in 2000, the comparison with last year shows slight increase in waste production from energy sector. [23] The same development can be seen in case of radioactive waste from two nuclear power plants. [24]

4. CONCLUSION

In this paper we evaluate the current state of environmental impact of power plants on environmental indicators and their development in general and in the Slovak Republic.

The electricity production causes several environmental problems, most importantly emissions of CO_2 and other substances, water use and water withdrawal and waste production. As we document in the first part of the paper, different power plant types have vastly different impact on these indicators.

The current energy mix of Slovakia follows the trend of decreasing CO_2 emissions and other indicators are also significantly improving. However, there are still indicators that are changing in unfavorable directions and not in accordance with world trends towards cleaner energy. These indicators pose a challenge for future decisions in Slovak republic energy sector.

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THE INFLUENCE OF LIMING THE RANKER SOIL TYPE WITH FLY-ASH OF KOSOVO POWERPLANTS, ON CHEMICAL AND PHYSICAL PROPERTIES

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Abstract: *Increased acidity is very often a limiting factor for decreased soil fertility and unfavorable chemical and physical soil properties. Various materials can be used for liming the acidic soils such as natural ones (ground limestone or slag lime) as well as industrial waste (i.e. saturation silt). Fly-ash from Kosovo power-plants appears as a waste material after burning in the reactors. The material itself causes serious environmental consequences, especially because it is hardly remediated, due to its chemical and physical properties. Since 1963, Kosovo power plants have formed huge fly-ash dumps of very poor remediation ability, with over than 200.000mt of fly-ash. But, despite of its low remediation ability, the material has properties to be used in liming of acidic soils. The fact that fly-ash from Kosovo power-plants is alkaline, with a relatively high content of CaO and CaCO3, it is recommended as a material which can be successfully used in melioration of acidic soils. In our experiment we used the soil type Ranker, as a typical acidic soil from the mountain regions of Kosovo. Quantities of applied material for liming were 1, 3, and 5 mtha-1, calculated on volume of experimental pots of 4 liters. The obtained results recommend the applied liming material as the proper material for use in liming the Ranker soil type. Significant improvements of pH and other chemical properties have been reached, after the experiment, as well as better stability of soil structure.*

Keywords: *Fly-ash, Ranker, liming, acid soil*

Introduction

Fly-ash (Electrofilters ash, EF ash) occurs as a result of coal combustion in power-plants poses a serious environmental problem. On the one hand, the ash landfill is deposited on agricultural land, which excludes them from agricultural production, and on the other hand EF ash is subject to eolation, which affects the quality of the environment kilometers around (Resulović, 1988.).

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Coal burning in Kosovo's power plants has been carried out since 1963 with the opening of the thermal power plant, Kosovo „A“ power 449 MW, which was particularly intensified by the opening of another power plant Kosovo „B“ power 580 MW in 1980. During all the operations of Kosovo's thermal power-plants, ash dumps have been formed, which involve 2,000 hectares of arable land. Moreover, in EF ash the dust fraction prevails, which allows its eolation, thus adversely affecting the environment and agricultural crops. According to the recurrability of ash deposits, they are hardly recurrable (Cairney, 1987.), and therefore pose an additional problem in the living environment of the area. (Šmit, 1988). The cause of poor recurrence lies also in the chemical properties of EF ash, both in terms of high alkalinity and in terms of cementation of the surface layer of landfills (Đikić et al., 1995.).

However, the fact that EF is an alkaline reaction with a very high content of CaO, it is recommended to research its application in alkaline acid calcification.

The calculation is a pedomeliorative measure of repair of acidic soils and the materials to which it is made may be different: CaO, CaCO3, dolomit, saturation sludge and others. This study recommends EF ash as a calibration material, given its chemical and physical properties.

The available amount of ash is quite sufficient to consider its commercial use in the future.

Materials and Methods

The research used the pedological map of the AP of Kosovo and Metohija (Institut „Jaroslav Černi“, 1974.), as well as the soil type Ranker from Lesak county on the Kopaonik mountain - Serbia. The chemical properties of ash were analyzed by standard methods (Black et al. 1965.). The experiment was carried out as an indoor one, in experimental pots of volume of 4 dm^3. Soil moisture was maintained on the level of retention capacity (33kPa).

The characteristics of the EF ash are presented in table 2, as well as the properties of the soil used in the experiment (table 1). The use of EF ash was 10 $mtha^{-1}$ (dosage 1), 30 $mtha^{-1}$ (dosage 2) and 50 $mtha^{-1}$ (dosage 3), with control without the use of calcification agent. Compost is used as an additional fertilizer, for the purpose of achieving better solubility of the calcification agent (Banasova, 1989, Flaig, 1981). The culture of cultivation in this regard was grass mixture. Grass mixture was chosen as the typical culture of a given area.

The results were presented in Table 3. Statistic analyze was done accordingly, and presented as well.

Results of research and discussion

The soil used in the survey was taken in Lesak k.r. on the Kopaonik mountain in Serbia and by type belongs to humic-silicate soil type -Ranker. The chemical properties of the soil treated in the sample are shown in the table 1.

Table 1. Chemical properties of soil in the experiment

Depth	pH_{H2O}	pH_{KCl}	Humus (%)	N (%)	P2O5 (mg/100g)	K2O (mg/100g)	CaCO3	T-S (meq/100g)
0-10	4,7	4,1	8,2	0,41	5,5	27	0,7	32,5
10-22	5,0	4,3	6,5	0,35	2,4	25	1,0	40,2
23-56	5,2	4,2	4,0	0,21	2,0	28	1,0	38,4

As seen from the table shown, the soil in the experiment is very acidic with high humus content, with a somewhat higher amount of phosphorus than expected because it was agricultural land. The content of potassium is moderate. Hydrolytic acidity, shows levels of necessity of liming the soil.

The characteristics of EF ash are shown in the table 2.

Table 2. Chemical properties of fly-ash from Kosovo powerplants

Depth	pH_{H2O}	pH_{KCl}	CaO (%)	Na (%)	P2O5 (mg/100g)	K2O (mg/100g)	CaCO3
0-10	10,52	10,0	47,5	1,22	8,5	>40	15,2
11-20	9,11	8,85	41,5	1,14	5,4	>40	18,4
20-30	10,00	9,21	37,2	0,90	3,0	>40	9,2
30-40	9,85	9,45	45,0	1,10	2,0	>40	8,5

The influence of liming material on amelioration of Ranker with fly-ash is statistically analyzed, and the results are presented in Table 3.

Table 3. ANOVA of the obtained results

		Sum of Squares	df	Mean Square	F	Sig.
pH (H2O)	Between Groups	,996	2	,498	32,000	,001
	Within Groups	,093	6	,016		
	Total	1,089	8			
pH (KCl)	Between Groups	,667	2	,333	27,273	,001
	Within Groups	,073	6	,012		
	Total	,740	8			
Humus (%)	Between Groups	,336	2	,168	5,393	,046
	Within Groups	,187	6	,031		
	Total	,522	8			
N (%)	Between Groups	,002	2	,001	3,207	,113
	Within Groups	,002	6	,000		
	Total	,004	8			
P2O5 (mg/100g)	Between Groups	,016	2	,008	,084	,920
	Within Groups	,553	6	,092		
	Total	,569	8			
K2O (mg/100g)	Between Groups	27,556	2	13,778	3,351	,105
	Within Groups	24,667	6	4,111		
	Total	52,222	8			
CaCO3	Between Groups	1,313	2	,657	72,148	,000
	Within Groups	,055	6	,009		

	Total	1,368	8			
T- S (meq /100g)	Between Groups	27,042	2	13,521	52,453	,000
	Within Groups	1,547	6	,258		
	Total	28,589	8			

In the ANOVA analysis (table 3), the significance of the F-test show that there is a statistically significant difference at parameters pH_{H2O}, pH_{KCl}, humus, $CaCO_3$ and T-S depending on dosages. In order to determine among which dosages there exist significant differences of these parameters, a LSD test was done.

Table 4. Multiple Comparisons – LSD test

Dependent Variable	(I) Dosage	(J) Dosage	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
pH (H2O)	dosage 1	dosage 2	-,53333*	,10184	,002	-,7825	-,2842
		dosage 3	-,80000*	,10184	,000	-1,0492	-,5508
	dosage 2	dosage 1	,53333*	,10184	,002	,2842	,7825
		dosage 3	-,26667*	,10184	,040	-,5158	-,0175
	dosage 3	dosage 1	,80000*	,10184	,000	,5508	1,0492
		dosage 2	,26667*	,10184	,040	,0175	,5158
pH (KCl)	dosage 1	dosage 2	-,33333*	,09027	,010	-,5542	-,1125
		dosage 3	-,66667*	,09027	,000	-,8875	-,4458
	dosage 2	dosage 1	,33333*	,09027	,010	,1125	,5542
		dosage 3	-,33333*	,09027	,010	-,5542	-,1125
	dosage 3	dosage 1	,66667*	,09027	,000	,4458	,8875
		dosage 2	,33333*	,09027	,010	,1125	,5542
Humus (%)	dosage 1	dosage 2	-,30000	,14402	,082	-,6524	,0524
		dosage 3	-,46667*	,14402	,018	-,8191	-,1143
	dosage 2	dosage 1	,30000	,14402	,082	-,0524	,6524
		dosage 3	-,16667	,14402	,291	-,5191	,1857
	dosage 3	dosage 1	,46667*	,14402	,018	,1143	,8191
		dosage 2	,16667	,14402	,291	-,1857	,5191
CaCO3	dosage 1	dosage 2	-,64333*	,07789	,000	-,8339	-,4527
		dosage 3	-,91000*	,07789	,000	-1,1006	-,7194
	dosage 2	dosage 1	,64333*	,07789	,000	,4527	,8339
		dosage 3	-,26667*	,07789	,014	-,4573	-,0761
	dosage 3	dosage 1	,91000*	,07789	,000	,7194	1,1006
		dosage 2	,26667*	,07789	,014	,0761	,4573
T- S (meq /100g)	dosage 1	dosage 2	1,83333*	,41455	,004	,8190	2,8477
		dosage 3	4,23333*	,41455	,000	3,2190	5,2477
	dosage 2	dosage 1	-1,83333*	,41455	,004	-2,8477	-,8190
		dosage 3	2,40000*	,41455	,001	1,3856	3,4144
		dosage 1	-4,23333*	,41455	,000	-5,2477	-3,2190

dosage 3	dosage 2	-2,40000*	,41455	,001	-3,4144	-1,3856

*. The mean difference is significant at the 0.05 level.

Based on this test it can be clearly concluded that the mean values of pH_{H2O}, as well as the values of pH_{KCL} are significantly different within all the dosages, while mean values of humus are significantly different only between the first and third dosage. But this fact does not influence the main goal of the research. Mean values of T-S are also statistically significant among all the applied dosages. This fact is important to the goal of this research.

Based on these results the melioration of Ranker soil type with EF ash from Kosovo's thermal power plants is obvious, and there has been a significant increase in pH. Changing the chemical properties of Ranker enabled better nutritional utilization, better cultivation of the culture (grass mixtures), better quality of the product as well as higher yields.

Conclusion

The results of the study of the impact of EF ashes on the repair of Ranker soil type indicate that EF ash, from the point of view of its chemical properties, is a suitable material for the calcification of acidic soils of the ranker (humic-silicate) type. This is particularly conditioned by the high content of CaO in ash, as well as by absence Na^+ ions.

The performance of the EF ash provided better feedability of the nutrients, which significantly influenced the yield of cultivated culture.

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RETHINKING THE SUSTAINABLE PLASTIC PACKAGING FOR FOODSTUFFS

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Abstract: *The milestone of this year's European legislative process is the adoption of the so - called Single Use Plastic Directive, a piece whose impact on the industry, retail and consumers is still a matter of debate. For the food supply chain this might result in disruptive innovation of the way that food and beverages are packed, with particular regard to the plastic packaging. Originating from the principles of circular economy, the enactment aims that all plastic packaging on the EU market to be recyclable or reusable by 2030, resulting into a new system of relationships and flows amid food supply chain operators, that has to be promptly and properly communicated to the consumers. The scope of this contribution is to prospect how the industry could take advantage on the new opportunities of placing sustainable food packaging on the markets and how this transformation will be perceived by the customers. Its benefit is to share a preliminary out – of – the box examination of the way that business organizations, governments and public will accommodate the opposite options of immediate profits, from one side, and a cleaner environment, from the other. We hereby consider examining the trend of sustainable technologies for plastic packaging, to explore form a high level perspective the appetite of the foodstuffs producers to adopt these innovations and, respectively, to scrutinize the opinion of the consumers in social media and other assimilated public subjects. Being a matter of communication between stakeholders, the ante mentioned findings could result into a draft proposal of modelling the way industry, retail, consumers and governments speak together for new investment opportunities in the food packaging thus sustainably creating new jobs, reducing the food waste and protecting the environment.*

Keywords: *single use plastic, tethered caps, recycled content, attached closures, extended producers responsibility, plastic strategy, littering, food packaging, beverages packaging, circular economy, sustainable innovation, food waste, technology adoption, consumers rights, public communication, environment protection, SUP Directive*

1. PLASTIC FACTS

Plastic is generated out of crude oil. In fact, only 4% of the extracted oil worldwide is used to produce plastics. Only a small part of this 4% is used to manufacture plastic packaging material (1.5%), and even less oil is needed to produce plastic bottles [1]. All packaging materials (domestic and commercial) account only for 1.7% of the total average consumer carbon footprint in Europe. All packaging materials (domestic and commercial) account only

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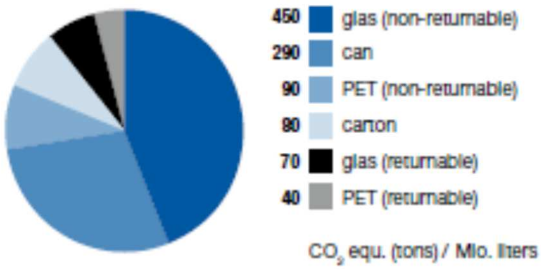
for 1.7% of the total average consumer carbon footprint in Europe. Plastic packaging is related to 0.6% of the average consumer carbon footprint [2].
Plastic is recyclable, which means that plastic products can be collected, reheated and reprocessed several times without remarkably losing material integrity. The biggest challenge today is that materials coming out of one application field (e.g. bottles soft drinks) can be re-used in the same field. Very often, plastic products find new application fields (e.g. textile fibers) after being recycled without going through the additional processing steps required to re-enter in the product's original stream.

Of a particular matter of interest for the bottling industry are the so – called 'returnable' PET bottles, which have the lowest carbon footprint compared to other beverage packaging materials, [3]. It is possible to reuse returnable PET bottles around 10-15 times before the quality is degrading. Then the bottles have to be recycled in order to keep the material in a circular economy.

Figure 1: Greenhouse gas emissions of different beverage packaging materials



Constant optimization, design adjustments and improvements in the production process allow, amid others, to significantly reduce the weight of packaging products. For example, as a result of the application of the innovative technologies on the soft drinks packaging systems, the average bottle weight was reduced with 48% within 8 years:

Table 1: Soft drinks packaging light weighting dynamic, 2008 - 2016

Year	**Bottle size**	**500 ml**
2008	Average bottle weigh	21.0 g
2016	Average bottle weight	11.0 g
	Reduction by	*48 %*

The development of new packaging materials is a big opportunity to effectively reduce negative environmental impacts. It the packaging market there are already available bio-based plastics made of plants, such as sugar cane (PlantBottle™) and the recent developments using Polyethylene Furanoate (PEF), a plant-based material. In the future, PEF might be gained from food waste or other second generation feedstock gained from food waste.

Current global economic conditions, depending on the fluctuating price of raw oil and the related price of new (virgin) PET, do not favor the recycling of plastics. For example, the recycled PET (rPET) produced in Austria – country with a strong legacy of environment related enactments after having chaired the rotating Presidency of the Council of the EU - has a carbon footprint of 0.45 kg CO2 - equivalent per kilogram. That results in approximately 80% less greenhouse gas emissions compared to virgin PET (2.15 kg CO2-eq./kg).

2. IS PLASTIC PACKAGING FANTASTIC, OR NOT?

“We all know that plastic is a success story. And yet we have to face the task - how can we make plastics more circular?” – was reasonably wondering Mr. Daniel Calleja Crespo, director - general of the European Commission’s Environment Department, [4]. In order to establish the right reference to its circularity, we will help addressing the above mentioned question by reviewing the five most debated issues on plastic packaging:

Issue no. 1: is plastic packaging really needed? We all agree that plastic is the champion of all materials and part of our daily lives, providing a lot of services to consumers. Plastic packaging protects our food and beverage products, making fresh meat, vegetables, fruits, and dairy products last up to 10 days longer [5]. One third of the globally produced food is lost or wasted each year. If only one fourth of the currently lost and wasted food would be saved, 870 million people could be saved from hunger [6]. Since global food waste accounts for 8% of total anthropogenic greenhouse gas emissions [7], the usage of plastic packaging is not only helping to reduce energy and water consumption needed for food production, but also tackles climate change by reducing food waste.

Issue no. 2: is plastic packaging really exhausting the natural resources? Fractioning crude oil by the size of its molecules, gas, gasoline and petroleum are generated. For the production of plastics, the raw gasoline (Naphtha) is the most important fraction. Within a thermal cracking process the hydrocarbon compounds are rebuilt to arrive at materials with different characteristics. In fact, only 1.5% of the extracted oil worldwide is used to produce plastic packaging. While 90% is used for fuel (for energy, heating and transport). [8]

Issue no. 3: is plastic packaging more harmful to the environment than the glass? The carbon footprint of PET bottles is lower than the one of some other packaging materials used for beverages. In fact, the carbon footprint of non-returnable glass bottles is 10 times higher than the one of returnable PET bottles. [9] This is caused by the high energy input required to manufacture glass. Constant optimization allows to significantly reducing the weight of packaging products. The weight of PET bottles could be reduced by almost 50% during the last decade. For example, 91% of packaging weight can be reduced by using 1.0 liter PET bottles instead of 0.7 liter glass bottles. Due to the light weight of plastics, up to 40% less fuel is used to transport drinks in plastic bottles compared to glass bottles. [10]

Issue no.4: is plastic packaging responsible for littering? Being recyclable, plastic can be reprocessed several times without remarkably losing material integrity. In countries with a well-functioning waste management system, a high percentage of plastic packaging is collected for recycling - PET collection rate 2016 of Germany: 91.8%, Switzerland: 85.2%, Austria: 73.2% [11]. PET collection rate 2015 of the US: 30.1% [12]. If the material is too contaminated for mechanical recycling, it is used for energy recovery through thermal recycling.

Issue no 5: is plastic packaging affecting marine life? It is true that marine litter is one of the biggest environmental concerns of our time. 80% of marine litter originates on land due to poor or insufficient waste management and the lack of sufficient recycling and recovery systems, especially in developing countries. It is also unclear what effects micro plastics may have on the food chain and if they cause a potential risk to human health, while it is clear that they have a negative impact on the environment particularly the marine eco and wildlife system. [13]

From a very high level perspective, we maintain that the solution to boost the circularity of plastic packaging, hence making it really "fantastic", is investing in technology and innovation, along with improved infrastructures to increase collection rates and recycling, We perceive littering rather as a societal problem than a logistic one, that needs multi-faceted and multi-stakeholder approaches and solutions. All actors in society that contribute to the problem of litter have to share the responsibility for its prevention through proper disposal.

2. IN QUESTION – THE EU STANDARDS ON BIODEGRADABLE PACKAGING

Bio-based plastics made of plants or PEF are generally perceived as a great opportunity to effectively reduce negative environmental impacts. But beforehand it should be clarified what does biodegradable plastics means.

Biodegradability is a characteristic given by the inherent molecular structure of the product. The compostability of a plastic product refers to its end of life and it is given by the biodegradability of the products, does not have negative effects on the compost, quickly disintegrates in a composting cycle and does not release dangerous or heavy metals in the compost. Therefore, compostability is established by applying the existing standards, which, for plastic packaging is EN 13432. [14]

Biodegradable and compostable plastics are considered an alternative to non-biodegradable plastics in specific applications were the mechanical recycling is not technically, environmentally o**r** economically not viable. The industry sector for biodegradable plastics exists since the late 1980s and during the last 30 years dozens of standards – amongst which are several harmonized European norms – have been established. Biodegradable and compostable plastics, in order to be considered as such, have to respect certain harmonized standards set up by the European Standardization Committee (CEN) on the basis of clear mandate of the European Commission.

In 1996, the European Commission published "Mandate to CEN for standardization and a study related to packaging and packaging waste" asking, among the other things, to develop a standard on the organic recovery of biodegradable & compostable packaging in a composting facility. The CEN delivered the standard EN 13432 "Packaging - Requirements for packaging recoverable through composting and biodegradation - Test scheme and evaluation criteria for the final acceptance of packaging" in the year 2000 which was then considered as a harmonized standard. [15]

Biodegradable and compostable plates and cutlery are often used in closed systems with integrated waste management schemes, such as air travel, sport arenas, or open-air events, where it is ensured that the waste is collected and then recycled. Besides the material itself, there are cases in which reusable plastic is the single solution to comply with hygiene reasons, as required by specific EU Regulation, such as Regulation 852/2004 on the hygiene of foodstuffs, Regulation No 178/2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety or Regulation 1935/2004 on materials and articles intended to come into contact with food. In these cases, reusable plates, cutlery and glasses are allowed only if compliant to hygiene rules set by the above mentioned EU Regulation.

A distinction needs to be made between take-out/away food containers and packaging used by the food and drink industry. Food containers, such as those used for fast food, are in most cases filled at the point where they are sold and consumed. The circumstances for use also exhibit different potential for substitution. In contrast, for the food and drink industry's products, the time and distance between packaging and consumption is greater, often even cross-border.

Having no harmonized EU definition of food containers will result in divergence in interpretation and implementation in Member States. If some Member States include the food and drink industry's packaging in their interpretation of "food containers", it risks distorting and fragmenting the Single Market, thereby hindering the free movement of food and drink products.

In a nutshell, the current EU legislation contains enough resources to harmonizing the environmental and economic interests, so the EU consumers to continue enjoying, thanks to the variety of packaging, the widest possible choice of products. On the other side, the data around consumers' awareness on how to handle biodegradable packaging is not sufficient to know whether the simple replacement of the plastic packaging will tackle the root cause of littering, or the consumers will keep on disposing packaging into the environment.

3. LEGISLATIVE CHALLENGES FOR THE SINGLE USE PLASTICS

The milestone of this year's European legislative process is the adoption of the so - called Single Use Plastic Directive or the "SUP Directive" (European Commission's Proposal 340/2018 for a Directive on the reduction of the impact of certain plastic products on the environment), a piece whose impact on the industry, retail and consumers is still a matter of debate.

Instrumenting SUP for market restrictions to achieve consumption reduction for items that are considered packaging is a source of concern for the food and beverage industry; we are hereby treating those concerns as 'threats'; however, current EU legislation contains enough resources to harmonizing the environmental and economic interests, so the EU consumers will continue to enjoy, thanks to the variety of packaging, the widest possible choice of products; we are hereby treating those resources as 'opportunities".

A selection of both of the above is illustrated bellow:

Table 2: SUP legislative challenges for food and beverage industry

SUP Opportunities	**SUP Threats**
Internal Market is the cornerstone of the EU's global competitiveness and of advancing the Circular Economy objectives	Any disturb of the Internal Market would have a chilling effect on investment, innovation, circularity, growth and jobs in Europe
EU consumers enjoy, thanks to the variety of plastic packaging, the widest possible choice of products	Product choice will be limited if Member States take unilateral measures on plastic packaging
The vast majority of goods circulating within the Union are packaged in the same way	Divergent packaging restrictions across the EU would undermine the free movement of plastic packaging and packaged goods
Member States can derogate in order to restrict, for example, the placing of the plastic carrier bags on the market	Further derogations for plastic packaging could trigger a much more harmful effect on the Internal Market, given the very wide variety of products targeted in the SUP Directive

Smaller Member States could easier stop production of plastic items for which have introduced unilateral packaging measures	Such a loss in the economy of scale at an EU level would also run contrary to the ambition for a Circular Economy and would also impact consumers in terms of price

The proposed SUP definition of plastic creates legal uncertainty about what is considered a "main structural component". Such uncertainty might lead to diverse legal interpretation by member states. As expressed in Article 1, the SUP Directive intends to promote the transition to a circular economy with innovative materials. [16] Such materials need to meet equal packaging functionality and performance requirements ensuring that the safety and quality of food and drink products are maintained.

Alternative fibers need to contain a small amount of plastic acting as barrier to fulfill functionality requirements. In the case of food and drink packaging, alternative fiber materials alone would not fulfill the necessary functional barrier properties to ensure safety and quality, causing food to degrade rapidly. Such functionality concerns could be solved by adding a polymeric coating, layer or lining to the surface of the material, representing a fraction of its weight. Where the plastic coating, lining or layer does not impede the main material from being accepted into a recycling stream for that main material, it should be outside the scope of this Directive.

With regard to the attached caps and lids, as proposed by the SUP Directive, they do not appear as the most environmentally sound solution since it will require more plastic, and therefore more CO_2 emissions. It also comes with a high opportunity cost as the investment necessary to meet the requirement could yield greater environmental benefits if channeled towards improving recycling infrastructure. As an alternative, the Food and Drink industry has to play its part to contribute towards educational campaigns and consumer communications.

In what concern the straws that are attached to a food or beverage package, it appears as necessary to allow an adequate transition time before market restrictions apply; the reason is that they qualify as packaging - as defined by article 3 of Directive 94/62/EC on packaging and packaging waste – so they are essential for the presentation or delivery of a product. For these plastic straws are presently no safe alternatives readily available at industry scale. Apparently, the industry is working on alternatives, but it will take a few more years until innovations such as paper straws or entirely new packaging designs and openings will be approved for food and fully commercially available.

Straws attached to portion-sized packages can and should be collected and recycled as part of the packaging. Directive 94/62/EC already mandates extended producer responsibility (EPR) for all packaging, packaging components and ancillary elements, such as straws attached to food and beverage packages. Until market restrictions for these plastic straws apply, we think that they shall be still subject to the extended producer responsibility measures.

A major impact on the food and beverage industry could have the mandatory provision of using at least 35% recycled PET (rPET) in their beverage bottles by 2025. Before discussing mandatory percentages, there are certain boundary conditions that need to be in place to ensure sufficient quantity of high-quality food-grade secondary raw materials. If there is not enough supply of food grade secondary raw materials, a mandatory recycled content requirement would mean that producers would not be able to put bottles on the market. Therefore, we consider that the mandatory target should be replaced by an indicative one.

4. CONCLUSIONS

The Internal Market is the cornerstone of the EU's global competitiveness and of advancing the Circular Economy objectives. Food and beverage industry, consumers and governments have the option to work together in a harmonized manner thus creating sustainable market opportunities, instead of market restrictions caused by fragmentation.

For the food and beverages supply chain, the implementation of the incoming norms on the single use plastics might result in disruptive innovation of the way that food and beverages are packed, with particular regard to the plastic packaging.

Originating from the principles of the Circular Economy, the European Plastic Strategy launched earlier this year and its subsequent act, the SUP Directive, aims that all plastic packaging on the EU market to be recyclable or reusable by 2030, [17].

All the above result into a new system of relationships and flows amid food supply chain operators that have to be promptly and properly communicated to the consumers.

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SUSTAINABLE WATER CONSUMPTION IN WATER INTENSIVE TRANSITIVE ECONOMY[381]

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Abstract: *Water intensive production is a big challenge for economic and environmental problems in post-soviet transitive economies. Intensity of water consumption differs among the geographical regions of targeted region. The purpose of this paper is to analyze the regional inequalities of water consumption in Ukraine as one of post-soviet republic. To examine water resources issues in targeted country, basic mathematical and statistical tools are applied. In order to examine the sustainability of water consumption by social and environmental factors, we take into account all the administrative units of the country under review and conduct a comparative analysis.*

Keywords: *water resources, water stress indices, transitive economy, Ukraine*

1. INTRODUCTION

Water consumption issues and the scarcity of water resources that are facing the needs of a growing world economy and rapid population growth [4] are increasingly becoming the subject of debate on global policy forums and international organizations such as the United Nations or the World Bank. According to the United Nations Program for Sustainable Development (SDG), clean and affordable water for all is one of the main objectives. Due to poor management and poor infrastructure, millions of people, including children, are dying of illnesses health associated with poor supply of clean drinking water, lack of sanitation and hygiene. The drought affects some of the poorest countries in the world, increasing hunger and malnutrition. Water scarcity and its quality have become one of the priorities of the international community in recent decades. The World Bank and the UN have expressed their commitment to meeting the sustainable development goals by 2030 and the issue of water resources is a priority not only in the poorest regions of the world.

For many countries suffering from scarcity of water resources, these problems have come to the forefront. Countries with a shortage of water resources are potential sources of international and regional instability, which implies an economic, political and social (environmental) dimension. Post-Soviet space is no exception and has several examples of political tension caused by the use of water resources. Water disputes involving the Aral Sea, the rivers Amu Darya and Son Darya [10], water shortages in the conflict region of Donbas [5] are not the only cases of waterborne tensions in the former USSR republics.

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In this paper, we emphasize social and environmental aspects of water consumption. The aim of this article is to analyze regional aspects of water resources and their consumption in Ukraine. In order to examine the sustainability of water consumption by social and environmental factors, we take into account all the administrative units of the country under review and conduct a comparative analysis.

2. EVALUATION OF WATER SCARCITY AND STRESS

Assessing water scarcity and sustainability often involves obscure social, economic or policy factors that are sometimes complicated to quantify. Assessing sustainability and water scarcity is a difficult task to make when deciding on water management, or implementing water management policies or monitoring. For these reasons, a successful evaluation of measures for sustainable use of water resources is a difficult and sometimes impossible goal [8]. Nevertheless, in the last decades, when water issues have become a popular agenda on the platform of international organizations, many indicators where developed to assess the scarcity and sustainable use of water.

One of the basic water scarcity measures is the Falkenmark indicator, which is defined as the total annual runoff of water available for consumption in a particular region or country [1]. The Falkenmark water stress indicator allows us to determine the available volume of water consumption per capita in a particular region and compare the values obtained with certain critical values [3]. The water stress index defines two thresholds. There is water stress in the region if the annual volume of water per person is less than 1700 m^3. An indicator of less than 1000 m^3 per inhabitant per year indicates that the region or country has a shortage of water [2]. With an annual runoff of 1000 m^3 per capita in Ukraine, it is possible to refer to it as a water stress landscape.

The Falkenmark water stress indicator reflects only water reserves without taking into account the real needs of water resources implicitly. The indicator does not reflect specific economic and social structures of different regions and countries. When calculating the water resource vulnerability index [7] a slightly different approach is used, which is calculated as a ratio of total annual usage to available water resources [1]. To some extent, the vulnerability index reflects the change in demand for water.

Brown and Matlock [1], for example, summarize five different approaches to assessing water scarcity. It includes indicators based on population requirements, vulnerability indexes for water resources, indexes containing the environmental dimension of water resources utilization. Measurements of sustainable use of water resources include indices such as water poverty index, environmental performance indicator, water sustainability index [8], etc. These water sustainability indicators usually include several dimensions with opposite characteristics such as the economy and the environment. For example, the water poverty index [9] should reflect five aspects of water supply, including reserves, access to water resources, the socio-economic situation in the region, sectoral consumption and environmental characteristics of water use. Aggregated measurements do not always allow adequate assessment of water scarcity, because they do not include unequal distribution of resources and consumers in a particular region [3].
Assessment of water scarcity and sustainability often requires different types of costs and encompass obscure social, economic or political factors that are sometimes complicated to measure or quantify. The evaluation of water sustainability and scarcity becomes a hard task for decision-making, water management, implementation of water policies or monitoring [8].

In the past few decades, when water issues became a popular agenda on the platform of international organizations, many indices and indicators where developed in order to assess water scarcity and sustainable water usage.

3. DATA AND METHODOLOGY

For a more complete understanding of the environmental and economic situation that arose after 26 years of independent economic activities of the selected case, we are conducting a brief analysis of the current state of water resources and the perspective of its further usage based on the principles of sustainable development. Various environmental and social variables where selected to control the various factors of sustainable development, reflecting the current state of water resource utilization with regard to the environmental burden of water usage.

Sustainability indicators are definitely elements of information that reflect the state of the system by which we can better understand the full picture of the current state of the selected system and explore the direction of the development of the target social or environmental complex. Indicators of sustainable development are a method for determining the future development of a particular system. The development of such a criterion is essential for the decision making and consideration of the environmental factor in the development of the region of the country as a whole. The issue of sustainable economic development and water consumption is particularly important in the context of the achievement of the SDGs set by the international community in the UN Resolutions of 2015.

To investigate the sustainability of water resource usage at regional level, we apply a revised Sustainable Water Consumption criterion [11], including environmental and social criteria for assessing the sustainability of water resource usage in selected regions of the target country. The criterion helps evaluating the social and environmental problems of water usage, and allows the comparison of selected administrative units of the state under review according to the environmental and social efficiency of water consumption. The applied criterion makes it possible to identify discrepancies between the regions. In addition, standard methods of mathematical and econometric analysis, including cluster analysis, where applied to achieve the objectives of the paper.

To assess the sustainability of water use in a particular administrative unit, we also need to count on the environmental effectiveness. Environmental efficiency is calculated as the quantity of discharged water that does not meet the quality in accordance with environmental safety standards. The environmental criteria are defined as the proportion of cleaned discharged water in the total volume of discharged water (*Kenv*). Social efficiency is a more complex indicator that is complicated to measure and compute. Reflecting the sustainable water consumption this criterion deals with the minimization of water usage in order to meet the needs of society. To determine the social efficiency of water consumption we use the ratio of indicators such as average country value of water consumption per capita and water consumption per capita in particular administrative region (*Ksoc*). All water consumption and discharged water data was obtained from annual national report of Ministry of ecology and natural resources of Ukraine [6].

Data on volumes of consumption and water consumption are expressed in millions of cubic meters. Gross national product was collected from the regional statistical database of the State Statistical Service of Ukraine. Transformation of regional product values was also needed as all data is only available in the national currency of the country under review.

4. RESULTS AND DISCUSSION

The data for our calculations are presented in the Table 1. It shows the heterogeneity of the regions of Ukraine. We can emphasize the four groups of regions that represent extremes and, at the same time, they are valuable for interpreting the results. Table 1 shows the available information for all regions of Ukraine.

The regional distribution of water usage, in the Table 1, shows the differences in overall amounts of water discharged into the environment (water discharge) and the extent of pollution (Discharged untreated and insufficiently treated). Water consumption in absolute numbers is concentrated (up to 65%) in a relatively few industrial or agrarian regions of Ukraine (Dnipropetrovska, Donetska, Zaporizhska, Kyjivska, City of Kyjev). The same applies for the main polluting regions (Dnipropetrovska, Donetska) where up to 65% of untreated and insufficiently treated water was discharged.

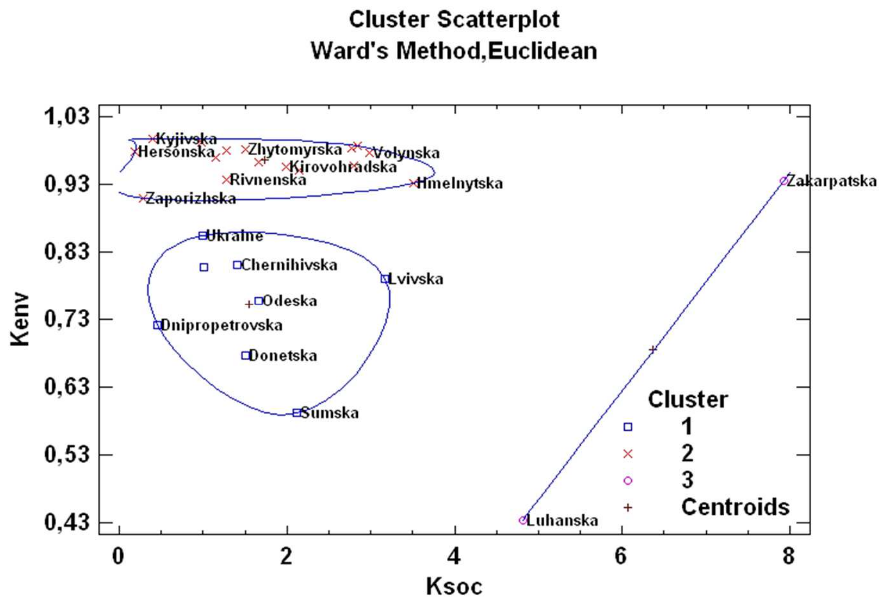
Table 1: Water usage and discharge in Ukraine (2014), thousands m^3

	Water usage, m3/person	*Water discharge*	*Discharged (untreated)*	*Discharged (insufficiently treated)*	*Discharged (normatively pure)*	*Discharged (normatively treated)*
Ukraine	188,78	6354	175	748	4015	1416
Vinnycka	68,30	70	0,2	1	41	28
Volynska	63,28	44	1	0	17	26
Dnipropetrovska	414,75	1123	119	193	727	84
Donetska	124,96	914	6	290	518	100
Zhytomyrska	125,00	159	0	3	123	33
Zakarpatska	23,82	31	0	2	1	28
Zaporizhska	648,95	807	2	71	680	54
Ivano-Frankivska	66,54	73	0	1	25	47
Kyjivska	467,26	724	0	2	674	48
Kirovohradska	94,84	90	0	4	65	21
Luhanska	39,19	53	1	29	12	11
Lvivska	59,50	215	1	44	20	150
Mykolajivska	187,23	125	0	24	100	1
Odeska	113,08	206	28	22	63	93
Poltavska	147,69	194	0	4	148	42
Rivnenska	147,27	112	0	7	72	33
Sumska	89,01	49	0	20	22	7
Ternopilska	67,29	70	1	2	48	19
Harkivska	113,13	299	6	5	84	204
Hersonska	993,56	56	1,2	0	33	23
Hmelnytska	53,79	29	1	1	3	24
Cherkaska	163,76	165	2	3	114	46
Chernivetska	87,92	61	2	1	39	19
Chernihivska	134,51	101	0	19	77	5
City of Kyjev	192,18	584	5	0	309	270

The water consumption per capita is also heterogeneous. In four regions of Ukraine (Dnipropetrovska, Zaporizhska, Kyjivska, Hersonska) the water usage per capita is two times higher than the Ukraine average. Hersonska region has the extremes values of water usage per capita because it has vast agrarian irrigations systems. This is also the reason why Hersonska does not discharge vast amounts of untreated and insufficiently treated water.
In accordance with the methodology stated in the section above, we made the calculations of disaggregated coefficients that allow us the comparison of the regions by the means of cluster analysis. The methodology of cauterisation allows the determination of extreme values and

problematic regions for policy creation and addressing the critical cases of water pollution and consumption of water resources. Both coefficients are calculated so that their values have the same logic of interpretation (in our case the higher the value the better performance of a selected region).

Figure 1: Relationship between environmental and social indicator



The division into three main clusters allows grouping the regions by their similarity. The first cluster groups the regions that achieve low levels of pollution and their environmental footprint is low. Simultaneously this group of regions has a high variability of consumption per capita. The second cluster groups the relatively more polluting regions. This cluster is discharging absolutely the biggest amounts of untreated and insufficiently treated water. From the policy making point of view these regions are in need of actions and projects for improvement of their filtration capacities. Prioritization should be directed from the bottom of this cluster up (Luhanska, Sumska and up). The third cluster is grouping the extreme readings. Zakarpatska and Luhanska regions have the lowest values in their water consumption per capita relatively to the Ukraine average. In addition, at the same time both of these regions are in the extreme positioning in pollution. Zakarpatska has one of the smallest environmental footprints and Luhanska is positioned on the other side of the distribution being relatively the most polluting, having only 43% of the discharged water normatively treated.

5. CONCLUSION

The economy of Ukraine quite extensively uses natural resources both energy and water, which is caused by the historical development of the previous stage of industrialization. Environmental problems, such as ignoring ecological balance and pollution of water resources, have become part of the agenda of the newly created state. During the last years of the independence of Ukraine, the intensity of water use in the Ukrainian economy gradually declined, but still high enough. Our findings highlighted the differences in the use of water resources in the individual regions of Ukraine. Internal regional heterogeneity is manifested not only in the economic sphere but also in the environmental sphere. Our findings show that the dispersion in the indicators of the use of water resources is substantial and expressed in multiples. A similar situation is in the case of ecological burdens.

However, making water use more effective is very desirable because the water use rate in Ukraine is relatively high compared to European and other post-Soviet economies. Particular attention should be paid to increasing the efficiency of water use in the industrial complex. In the context of the above statements, an important issue is also the introduction of new economic regulation tools for the better and more efficient use of water resources. Also relevant could be the introduction of economic incentives for the efficient use of water resources and the implementation of the modernization of industrial technological systems.

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DEVELOPMENT OF DENDROMETRICAL INDICES OF SCOTS PINE *PINUS SYLVESTRIS* L. STAND AFTER THE FOREST DRAINAGE

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Abstract: *The work analyses an impact of a drainage system, established in 1939. on overgrown pine tree stand in longer period of time. For the purposes of study 14 sample plots, established by scientists K. Buss and P. Zalitis during the 50's and the beginning of 60's, were remeasured. Sample plots were organized in the Myrtillosa turf. mel., Vacciniosa turf. mel., and Callunosa turf. mel. forest site types. Stands basal area increased in all compared forest site types, maximal being 41.7 m^2 ha^{-1} in Myrtillosa turf. mel. forest site type in 2016. Average diameter and average height of a tree in the stand was also bigger in Myrtillosa turf.mel. forest site type plots. The stand volume in Myrtillosa turf. mel. in 2016 was 384.8 m^3 ha^{-1}, in Vacciniosa turf. mel. it comprised 326 m^3 ha^{-1}, but in Callunosa turf. mel. it was 259.7 m^3 ha^{-1}. The average stand volume in 2016 was 323.5 m^3 ha^{-1}. Analysis of statistical parameters showed the substantial impact by the forest site type on diameter and height of the tree. For the inventory of ground cover vegetation, the point-square method was used. 37 plant species from 32 ecological groups were detected at Myrtillosa turf. mel. forest site type plots, 26 species from 23 ecological groups – at Vacciniosa turf. mel., and 23 species from 17 ecological groups – at Callunosa turf. mel. forest site type plots. Ellenberg indicator values, Chekanovsky similarity index and Shannon index for ground cover plants showed the changes of ground cover plant coverage caused by forest drainage. Study results confirm the hypothesis: forest drainage has positive impact on overgrown Scots pine stands dendrometrical parameters and stands growing stock increase. The beneficial effect of hydrotechnical melioration continues even 50 years after reaching the cutting age.*

Keywords: *drained forests, Scots pine, dendrometrical indices, tree increment.*

INTRODUCTION

The forest for a long time has been considered as one of most important nature resources for forming and providing of the biosphere. It has a multifunctional importance both in the global and local scale. In Latvia there the forest is significant part of vegetation and, independently from the spatial structure and the dominant tree species, - one of most important elements of the landscape [5].

The forests in Latvia are formed mostly by coniferous tree species; however a considerable part is taken by deciduous trees. The coniferous trees – Scots pine (*Pinus sylvestris* L.) and Norway spruce (*Picea abies* (L.) Karsten) are dominating in most part of forest stands. The stands of coniferous trees take 55% from all stands, birch (*Betula* sp.) stands – 30%, grey alder (*Alnus incana* (L.) Moench) – 7%, and asp (*Populus tremula* L.) – 4% [6].

The stands of Scots pine (*Pinus sylvestris* L.) take approximately 34% of the total forest area in Latvia [4]. The age structure of pine stands has to been valuated as quite unfavorable, although

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there dominate the stands with an age between 50 and 80 years, and, in the nearest future there is no deficiency of mature stands to be predicted [10].

The positive impact on soil moisture regime in tree stand gives melioration. There are improvement of soil aeration, wood increment, mass increase of needles (leafs) as well the intensifying of tree stand transpiration process taking place [11].

Peatlands are drained to improve the forest increment and productivity in many northern hemisphere countries. The peat soil initially forms of partly decomposed and with water saturated plant residues [2]. Firstly, for the productive growth of trees, there is needed a sufficient aeration of the peat top layer. Decreasing the groundwater level there are the vegetation changes in direction from wetland to forest vegetation by succession [1].

The hydrotechnical drainage is one of most important measures of productive and qualitative management of forest ecosystem. Since its beginnings which are dated with the year 1878, in drained forests are registered tree stand volume changes by performing of measurements of annual rings of trees. The tree stand productivity in coniferous tree species forests is increased 4-10 times after the drainage ditches establishment [12].

The purpose of research is to clarify the impact of hydrotechnical drainage on the dendrometrical indices of overgrown tree stand of Scots pine.

To realize the purpose of research, there are following tasks defined: to analyze the development of Scots pine dendrometrical indices due the time before and after the melioration and changes by reaching of overgrown age of stand; to characterize the ecological condition in forest stand by using of Ellenberg's ecological scales; to give evaluation of further development course of overgrown Scots pine stands in drained forests.

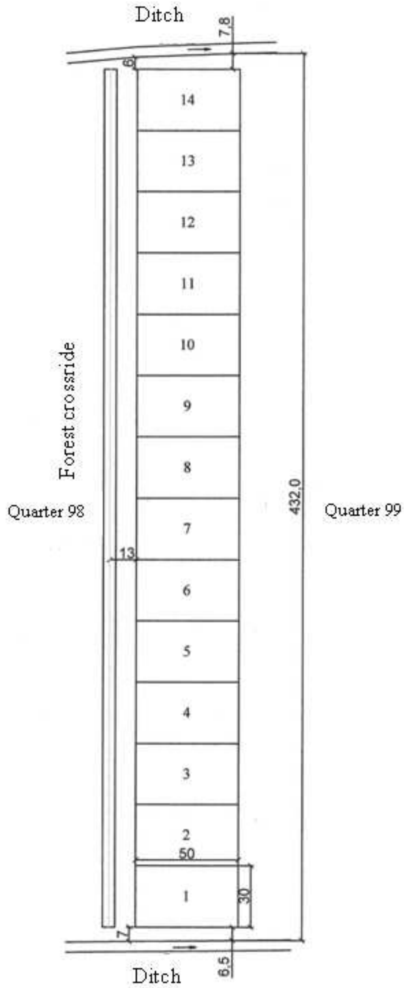
There is following research hypothesis pointed out: the forest hydrotechnical drainage has a positive impact of Scots pine dendrometrical indices and tree stand volume increase also in overgrown age of tree stand.

MATERIALS AND METHODS

The research object is established in forest stand which is located in Viesīte Forest District of Dienvidlatgale Region managed by Joint Stock Company “Latvian State Forests”.

There are 14 sample plots in research object established with the total area of 21 000 m^2 (size of one sample plot: 30x50 m, area 1500 m^2) (Figure 1). As the number of sample plots as those areas fit the parameters of historical sample plots established and measured in 1961 by supervision of scientists K.Buss and P.Zalitis. Measurements were performed also in 1984 when instead of previous plots 7 plots were established. The sample plots are located between two drainage ditches, which, according P.Zalitis [9], are established in 1939, and still perform the drainage functions. The distance between the ditches is 432 m.

Figure 1. Layout of sample plots



At each plot there numbering of trees performed, the diameter in height of 1.3 m above the root collar measured. The species of measured trees estimated, the characterization of trees given: the Kraft's class, damages and other properties. For the construction of height curve the height of separate trees was measured by height measurement equipment *Vertex*.

At every sample plot there are also the ground cover vegetation plants obtained and their abundance estimated. The registration is made by point method. Going across the sample plot with 1 meter long 1 mm diameter metallic needle there were needle sticks in soil surface made registering all ground cover vegetation plants touching the needle. At each plot there were 200 needle sticks made.

For separate trees there were wood annual rings core drillings made in 2014, to estimate the width of annual rings. The wood annual rings widths were using *Lintab* annual rings measurement gauge and *Leica* stereomicroscope measured. The measurements are stored in the *T-tools* program, which graphically shows the annual rings width at every year of tree growth.

For the estimation of the additional increment, grounding on method elaborated by professor I.Liepa [3], there was the method of the evaluation of environment impact used [8]. The influencing factor in research object is hydrotechnical drainage of forest stand. As methods are used data of annual rings width, the diameter and height measurement data of trees from sample plots in different forest site types.

RESULTS AND DISCUSSION

The number of trees in sample plots is generally reduced, which can be explained with increase of tree stand age and natural decrease of tree stand density by decay of one part of trees.

Since beginning of measurements the total number of trees has reduced for about 51%. Nevertheless, 893 trees per hectare is quite good, indices suggesting about establishment of resistant and stable forest stand.

The basal area of tree stand is one of most important indices of tree stand productivity which has increased in all three forest site types researched.

As the tree stand basal area, as well the total stand volume has been increased (Table 1). In the first five sample plots, corresponding to the growth conditions of *Myrtillosa turf. mel.* forest site type, in time period between 1961 and 2016, the total stand volume has increased for 206 m^3 ha^{-1}. The stand volume of pine and spruce has increases equally, since 1961 increasing for about 107 m^3 ha^{-1}. It can be explained with fact that spruce has come more rapidly instead of suppressed or decayed trees, mostly in the place of birch.

The total stand volume in *Vacciniosa turf. mel.* forest site type since the first measurements in 1961 has increased for about 181 m^3 ha^{-1} or 77%. The pine as the dominant tree species is the most influential in forming of total stand volume. Also the spruce since 1961, when first measurements were performed, the average stand volume has increased for about 65 m^3 ha^{-1}.

The stand volume in *Callunosa turf. mel.* forest site type is practically equal to indices observed in *Vacciniosa turf. mel*. However the volume of pine stand volume here has increased more rapidly. The birch is presented in small amount – it has been replaced by spruce which stand volume since the beginnings of measurements, here has increased for about 32.8 m^3 ha^{-1}.

Table 1. Average stand volume (m^3) in sample plots with different forest site types

Year	Tree species			
	Pine	Spruce	Birch	Pine+Spruce+Birch
Callunosa turf. mel. forest site type				
1961	96.7	2.6	2.9	102.1
1984	174.3	5.0	5.0	181.7
2016	222.4	35.4	1.8	259.7
Vacciniosa turf. mel. forest site type				
1961	131.0	5.0	9.0	145.0
1984	219.0	28.0	4.0	252.0
2016	254.0	70.0	2.0	326.0
Myrtillosa turf. mel. forest site type				
1961	148.6	19.6	10.5	178.7
1984	223.3	85.0	11.3	319.7
2016	256.0	127.0	1.8	384.8

As shown in Table 2, the radial increment has increased in all forest site types after establishment of drainage. The increase is most visible in *Vacciniosa turf. mel.* where it increased for 0.359 mm.

As well the diameter increment, after the beginning of drainage most powerful increased in sample plots with *Vacciniosa turf. mel.* forest site type being located next to drainage ditches. The value of increase comprises 0.72 cm.

The height increment has gradually increased in plots of all forest site types but especially in *Vacciniosa turf. mel.* where it increased for 0.08 m. The smallest difference between the increment values is observed in *Callunosa turf. mel.* forest site type comprising just 0.01 m.
The average stand basal area has more increased in *Myrtillosa turf. mel.* forest site type, but according to increment indices it has more risen in *Vacciniosa turf. mel.* - for about 2.23 cm^2. As it mostly observed for all types of increment, the smallest changes also for basal area increment are in plots of *Callunosa turf. mel.* forest site type.

The volume increment in sample plots of all forest site types and thus in forest stand generally has significantly increased. Since establishment of drainage the most rapid volume increment is registered for *Myrtillosa turf. mel.* forest site type which is represented in first five sample plots. As well the stand volume is higher in these sample plots.

Table 2. The indices of current average periodic increment of separate trees in sample plots

Time period, years	Radial increment, mm	Diameter increment, cm	Basal area increment, cm^2	Height increment, m	Volume increment, m^3
Callunosa turf. mel. forest site type					
Till 1939	0.88	1.76	3.49	0.23	0.0005
Between 1939 and 2014	0.903	1.81	3.54	0.24	0.0057
Vacciniosa turf. mel. forest site type					
Till 1939	0.639	1.28	1.83	0.18	0.0003
Between 1939 and 2014	0.998	2.00	4.06	0.26	0.0058
Myrtillosa turf. mel. forest site type					
Till 1939	0.823	1.65	2.67	0.21	0.0006
Between 1939 and 2014	0.996	1.99	3.65	0.26	0.0075

The additional increment of stand volume shows the increase or loss of timber volume which appears by influence of the researched factor [3].

As suggests the results, in all forest site types the width of annual rings most rapidly increased in first decade after the tree stand drainage. However, the additional increment is negative or decreases due the time. In plots of *Myrtillosa turf. mel.* forest site type, in the first year after drainage (1940) it was 0.24 m^3 ha^{-1}, but in year 2014 - just 0.04 m^3 ha^{-1}. In plots of *Callunosa turf. mel.* forest site type there is the additional increment of volume in 2014 is negative comprising -0.57 m^3 ha^{-1}.

In the plots of *Vacciniosa turf. mel.* forest site type there are positive changes of the volume additional increment dynamics. At the beginning of drainage it was negative comprising -0.48 m^3 ha^{-1}, but due the time has increased and in 2014 reached 0.16 m^3 ha^{-1}.

The plants analyzed in plots of *Myrtillosa turf. mel.* forest site type are medium demanding according to growth conditions. The same can be concluded for *Vacciniosa turf. mel.* forest site type as suggests the ecological values of Ellenberg. The values of soil pH and nitrogen availability there are lower as well temperature value. It can be explained with location of plots because the 6^{th} and 7^{th} plots are in about the middle between the ditches, where tree stand is dense and plants are adapted to lower temperature conditions. In plots of *Callunosa turf. mel.* forest site type the lowest ecological values of Ellenberg are observed for soil pH reaction and nitrogen. There can be observed that Ellenberg values of light, moisture and continentality are the highest which can be explained with the fact that these plots are located in the middle between the ditches where there is higher soil moisture and the tree stand is less dense thus ensuring more light for ground cover plants.

The similarity coefficient of Chekanovsky shows the similarity of ground cover vegetation between the forest site types. The results suggest that the biggest total similarity of ground cover vegetation is observable between the *Vacciniosa turf. mel.* and *Callunosa turf. mel.* forest site types. The smallest vegetation similarity is between *Myrtillosa turf. mel.* and *Callunosa turf. mel.* forest site types. Comparing the measurements made in 1961 and 2017, the biggest similarity remains in *Vacciniosa turf. mel.* but the smallest similarity is in *Callunosa turf. mel.* forest site type. The conclusions made after the analysis of the coefficients of similarity suggests that during the years the forest ground cover transforms and vegetation succession proceeds.

The biggest abundance in all three forest site types has the *Pleurozium* plant group, in *Callunosa turf. mel.* forest site type the number of touching of the given group of plants is 81. Abundant are also the plants of *Hylocomium* and *Myrtillus* groups in all forest site types. From bryophytes there is the *Sphagnum fallax* group the most abundant, in *Myrtillosa turf. mel.* having 41 touchings to the needle.

The Shannon index shows the relationship – if the environmental conditions are more stable and the biocenosis older, and then there is bigger species richness.

The Shannon index was calculated for each of plots, as well comprised between the forest site types. The biggest value of Shannon index has been found in 2^{nd} sample plot with forest site type *Myrtillosa turf. mel.* and, also, if to compare between forest site types, in *Myrtillosa turf. mel.* the Shannon index is the biggest reaching 4.290. The Shannon index values in *Vacciniosa turf. mel.* and *Callunosa turf. mel.* forest site types are quite similar.

The Shannon index values show the highest or maximal value of plant ecosystem diversity. However, it is known that Shannon index is only partly dependent from the number of groups and group's size. This dependence causes difficulties if it is necessary to compare results in different forest ecosystems. Therefore several authors suggest using the relative value of given index, thus the forest ecosystem can be characterized with one index (Pielou index) in limits between 0 and 100% [7]. Thus the forest ecosystem diversity can be integrated.

The values of Pielou index are the highest in first five sample plots with forest site type *Myrtillosa turf. mel.* In this forest site type also the abundance of plant ecological groups is the highest.

CONCLUSIONS

The number of trees in stand generally continues to reduce, which can be explained by increase of tree stand age and natural selfreducing of stand density. During the last twenty years the total number of trees has reduced for 51% comprising 893 pieces per hectare. The number of trees has reduced in all forest site types compared. Almost smaller number of trees in 2016 has been found in sample plots with *Callunosa turf. mel.* forest site type – 675 pieces per hectare.

The average diameter and height of trees for pine is higher in sample plots with *Myrtillosa turf. mel.* forest site type, reaching 26.7 cm and 24.1 m correspondingly.

The tree stand basal area in plots of all forest site types has increased. The most important changes are founded in sample plots with *Myrtillosa turf. mel.* forest site type where in 2016 the average tree stand basal area was 41.7 m^2 ha^{-1}.

The tree stand volume in 2016 in sample plots with *Myrtillosa turf. mel.* forest site type was 384.8 m^3 ha^{-1}, in *Vacciniosa turf. mel.* forest site type it was 326 m^3 ha^{-1}, but in plots with *Callunosa turf. mel.* forest site type – 259.7 m^3 ha^{-1}. The average stand volume in researched forest object in 2016 was 323.5 m^3 ha^{-1}.

The similarity of ground cover plants is the highest between the sample plots with *Vacciniosa turf. mel.* and *Callunosa turf. mel.* forest site types, but comparing the changes in time, the smallest changes proceeded in sample plots with *Myrtillosa turf. mel.* forest site type.

The Ellenberg's ecological values, similarity coefficient of Chekanovsky and Shannon's index calculated for ground cover vegetation plants suggest that the hydrotechnical drainage has changed the ground cover vegetation coverage but biological diversity remained.

The increment values estimated for separate trees have increased after the hydrotechnical drainage of tree stand. The almost higher changes are observed for basal area increment dynamics in sample plots with *Vacciniosa turf. mel.* forest site type where it increased for 2.23 cm^2.

The annual additional increment of tree stand volume more rapidly increased in first decade after the forest hydrotechnical drainage decreasing due the time.

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AUTONOMOUS INTELLIGENT AERIAL SEARCH AND RESCUE (ASAR) ROBOTS IN RESCUING MISSIONS

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Mohammad Nourbakhsh[387]

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Abstract *Rapid advances in technology are revolutionizing the roles of aerial, terrestrial and maritime robotic systems in disaster relief. Robots can be deployed quickly in areas deemed too unsafe for humans and are used to guide rescuers, collect data, deliver essential supplies or provide communication services.*
Information plays a key role in crisis management and relief efforts for natural disaster and firefighting scenarios. Given their flight properties, UAVs (Unmanned Aerial Vehicles) provide new and interesting perspectives on the data gathering and processing for these purposes. A new generation of UAVs may help in rescuing missions in the way to be used to detect and enter damaged buildings, assisting rescue robots and responders on the ground by speeding up the search for survivors through prioritizing which areas to search first.
UAVs used for rescuing missions are most commonly powered by rechargeable batteries and are operated autonomously through onboard computers or by remote control. Their equipment typically comprises radar and laser scanners, multiple sensors and video and optical cameras as well as infrared cameras that are used to identify heat signatures of human bodies and other objects. This helps rescuers to locate survivors at night and in large, open environments and to identify hot spots from fires. Listening devices can pick up hard-to-hear audio, while Wi-Fi antennas and other attachments detect signals given off by mobile phones and plot a map that outlines the locations of victims.
Developing autonomous intelligent aerial search and rescue (ASAR) robots is faced with two main challenges. The first one is to achieve a sufficient autonomy level, both in terms of navigation and interpretation of the data sensed. The second major challenge relates to the reliability of the robot, with respect to accidental (safety) or malicious (security) risks. In the field of aerial rescuing robotics, big research challenges include also the design of a) robust enough hardware than can resist collisions and is easy to transport, b) new control methods for autonomous flight, c) innovative sensors for safe navigation and rescuing purposes, and d) fast interpretation and analysis of vital data collected through sensors.
This paper presents some of solutions to above mentioned challenges in design of ASAR robots for rescuing missions.

Keywords*: disaster management, firefighting, UAV, robot, ASAR, autonomous, rescuing mission*

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1. INTRODUCTION

Rescuing operations are often carried out in hazardous environments, depending on the characteristics, severity, and the extent of the disastrous event. Accurate estimates of the equipment to be sent to the affected areas, as well as the number of items and the requirements for rescuing activities are usually determined only upon the arrival of first rescuing forces to the field of accident. Given the traffic volumes of today, especially in the big cities, the deployment of rescuing forces to crisis-hit areas is often time-consuming. On the other hand, the short time of response in rescuing operations is of crucial importance.

The main purpose of using Aerial Search and Rescue robots (abbreviation ASAR will be used in further text) in rescuing operations is the provision of relevant data to the collecting system for the rapid acquisition and transmission of images from crisis areas to the command centers of rescuing teams.

The ASARs are able to fly at the shortest time to the accident area from the moment of receiving first alert message, enabling in this way fast response of ground rescuing crews. They are capable of flying to the most distant endangered areas at very short time periods, e.g. in 2 to 3 minutes from first alarm. At the same time, land vehicles might need at least ten minutes to travel across the same distance. As soon as the ASAR arrives in the area with its installed camera, having the infrastructure for sending images online, the images of the affected area are transmitted to the command centers and are helping the rescuing crews to make fast and accurate decisions about rescuing activities.

On the other hand, the ASAR can fly on the route to endangered areas to help rescuing vehicles by sending the images of the route to the cars and the command center. In that way rescuing cars can at any moment determine their optimal routes and prevent traffic jamming and other traffic problems.

The ASAR can also carry rescuing packages to the affected areas. This feature, especially in the cases of severe fires or earthquakes with possibly blocked rescuing paths, can save lives.

As noted, ASARs can be reliable tools for disaster management, given their high technical capabilities and the ability to save time, costs, and manpower. Traditionally, ASARs were used as monitors for gathering needed data for helping in fast and accurate decision making of rescuing crews, but they also can be used in future to replace the role of humans in many risky tasks.

2. CHALLENGES AND SOLUTIONS

However, there are several challenges to overcome when designing successful ASAR. These challenges are as following:

1. **Design of robust enough hardware** that can resist collisions and is easy to transport,
2. **Deployment of innovative sensors** for safe navigation and rescuing purposes,
3. **Reliability of robot** with respect to accidental (safety) or malicious (security) risks,
4. **Sufficient autonomy level** both in terms of navigation and interpretation of the data sensed,
5. **Designing new control methods** for autonomous flight,
6. **Fast interpretation and analysis** of vital data collected through sensors.

Solutions for the first challenge, that is, design of robust enough hardware may be the following [1]:

- Compact, small size and low weight electronics, without wired off-board sensors,
- **Module-based design** with slot-based architecture to achieve task specific application,
- **Universal communication interface** allowing the usage of both wireless (different RF modems) and wired (FTDI USB) connectivity,
- **Autopilot** which can store at least 200 waypoints, the parameters of planes, and control functions in a non-volatile memory,
- Fully autonomous operation (telemetry issues should not affect the flight).

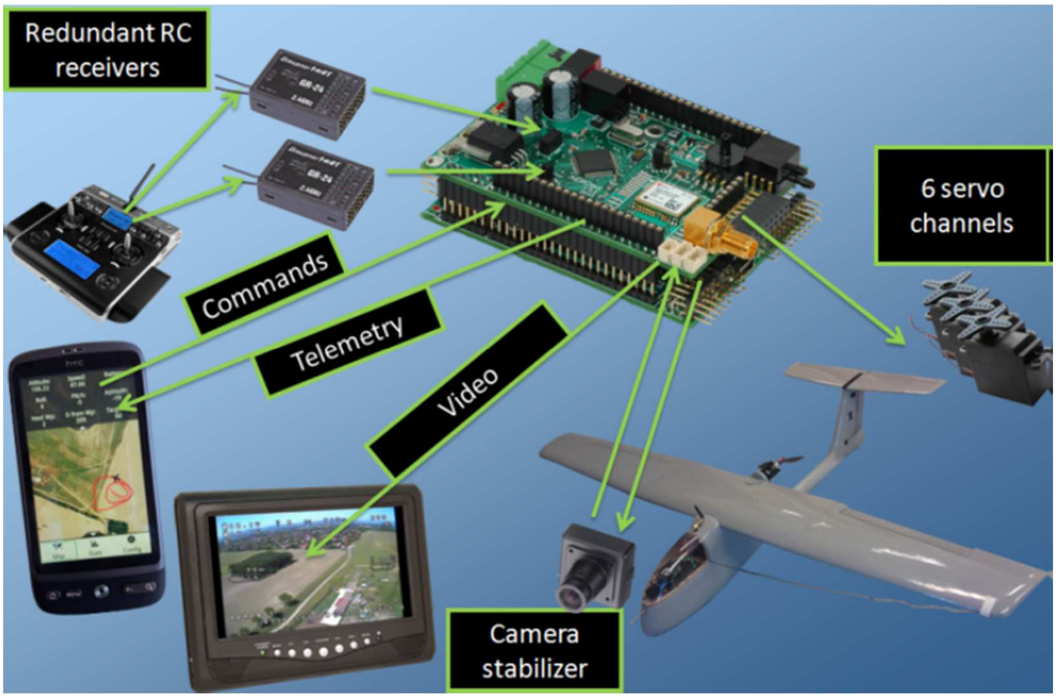

Figure 1. Robust hardware

Solutions for second challenge is development of new and innovative sensors, such as:

- Forward- and downward-facing vision sensors to detect obstacles,
- New types of cameras,
- Obstacle sensing,
- Air sensors for situational awareness,
- Collision avoidance sensors,
- Spotlights for dark or low-light areas,
- Loudspeakers.

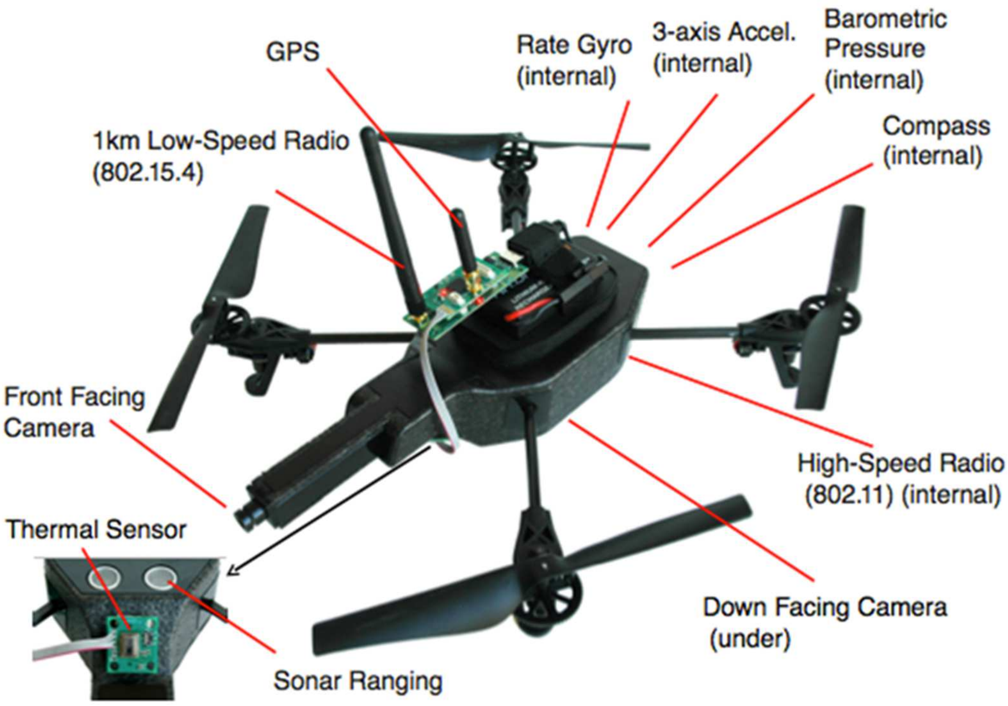

Figure 2. New and innovative sensors

Solutions for third challenge related to reliability of ASAR are as following:

- The **reliability assessment** must be performed on the ASAR for the main purpose of finding the baseline for the requirements of making the ASAR highly reliable,
- Each complex system such as an ASAR, being inserted in generally very extreme environment, must have its **intrinsic reliability**. Therefore, **reliability evaluation** of a system and its subsystems is an important task,
- The **intrinsic reliability** is the one that comes from a careful study of ASAR’s parts so that there is a set of design criteria that take into account the vulnerabilities of the considered ASAR,
- **Mean Time Between Failure (MTBF)** and **Failure Rate (FR)** can suggest useful information about diagnostic aspects, maintenance and investments needed for design and production of a highly reliable ASAR,
- Obviously not all the parts or subsystems will have the same failure rate so not all parts or subsystems will be treated equally. It is possible to individuate the most critical components from the reliability point of view and thus suitably design them,
- The **reliability model** can be also used to assess key product parameters (voltage, temperature and so on) in order to perform devices stress and derating analyses.

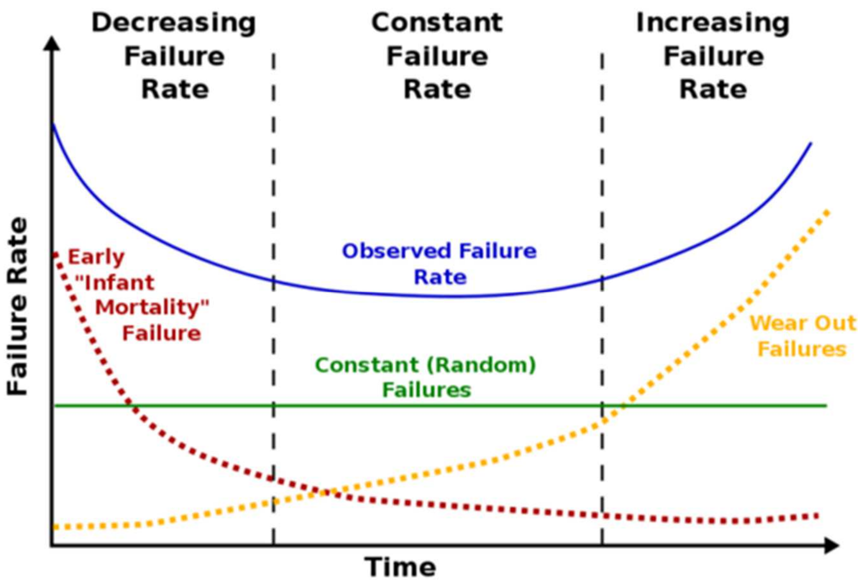

Figure 3. Failure rate (FR) model

To obtain solutions to fourth challenge autonomy classification model has to be applied. One of such models has four levels to classify autonomy of ASAR [2]:

- **Level 1**: ***Remotely Controlled System*** - System reactions and behavior depend on operator input,
- **Level 2**: ***Automated System*** - Reactions and behavior depend on fixed built-in functionality (preprogrammed),
- **Level 3**: ***Autonomous non-learning system*** - Behavior depends upon fixed built-in functionality or upon a fixed set of rules that dictate system behavior (goal-directed reaction and behavior),
- **Level 4**: ***Autonomous learning system with the ability to modify rules defining behaviors*** - Behavior depends upon a set of rules that can be modified for continuously improving goal directed reactions and behaviors within an overarching set of rules/behaviors.

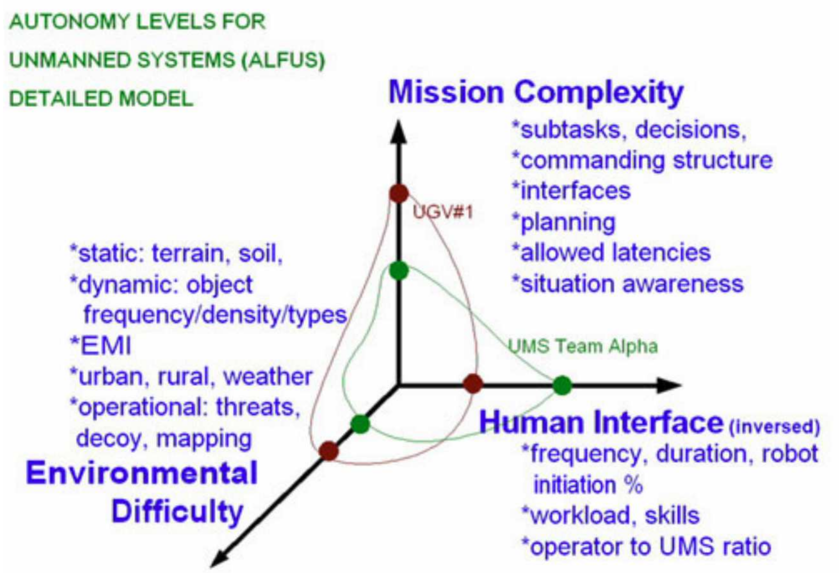

Figure 4. Autonomy levels – ALFUS model [2]

New control methods as solution for fifth challenge may be applied as following [3]:

- ASARs are commonly used for missions in unknown environments, where an exact mathematical model of the environment may not be available,
- Using **reinforcement learning (RL)** to allow the ASAR to navigate successfully in such environments can bring improvements into control methods of ASAR. **RL** became popular recently thanks to its capabilities in solving learning problem without relying on a model of the environment,
- The ASAR could be controlled by altering the linear/angular speed, and the motion capture system provides the ASAR's relative position inside the space,
- Popular **RL algorithm** known as **Q-learning**, in which the agent computes optimal value function and records them into a tabular database, called **Q-table**, can be used. This knowledge can be recalled to decide which action it would take to optimize its rewards over the learning episodes. For each iteration, the estimation of the optimal state is made and value function is update,
- To carry out the algorithm, the ASAR should be able to transit from one state to another, and stay there before taking new action.

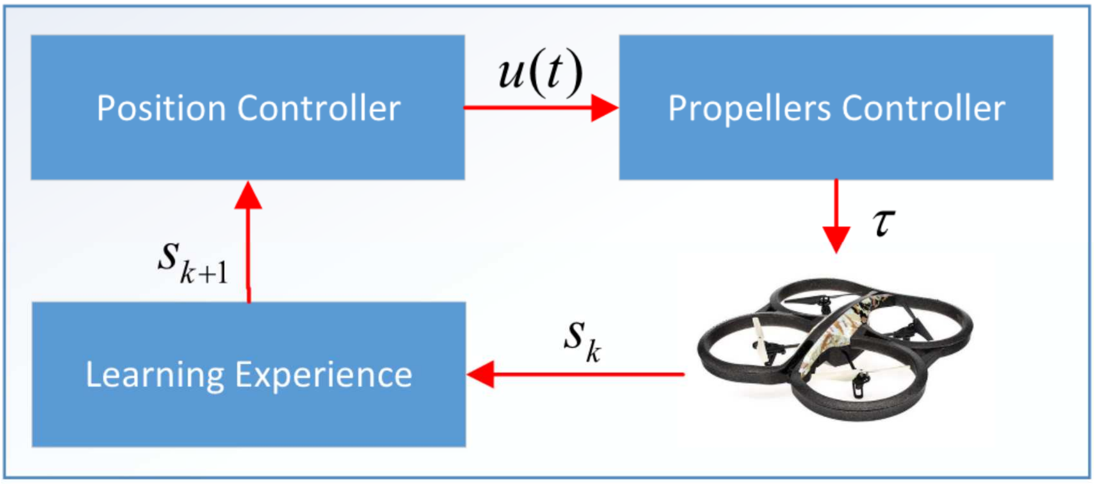

Figure 5. Reinforcement (RL) learning model [3]

Solutions for sixth challenge, fast interpretation and analysis of vital data collected through sensors, is Application of **Big Data** for Disaster Management. The storage and processing of large volumes of disaster data are perhaps the biggest challenges to be faced by civil defense, police, fire departments, public health and other government organizations managing disasters. It is very crucial for these organizations to get processed real-time disaster data as quickly as possible in order to react and coordinate efficiently all necessary activities in the cases of crises.

Big data tools and techniques can assist disaster management officials to optimize decision-making procedures. The tools and techniques that can be used may be:

- **Data mining,**
- **Machine learning (ML),**
- **Real-time analytics,**
- **Cloud sourcing,**
- **Visualization.**

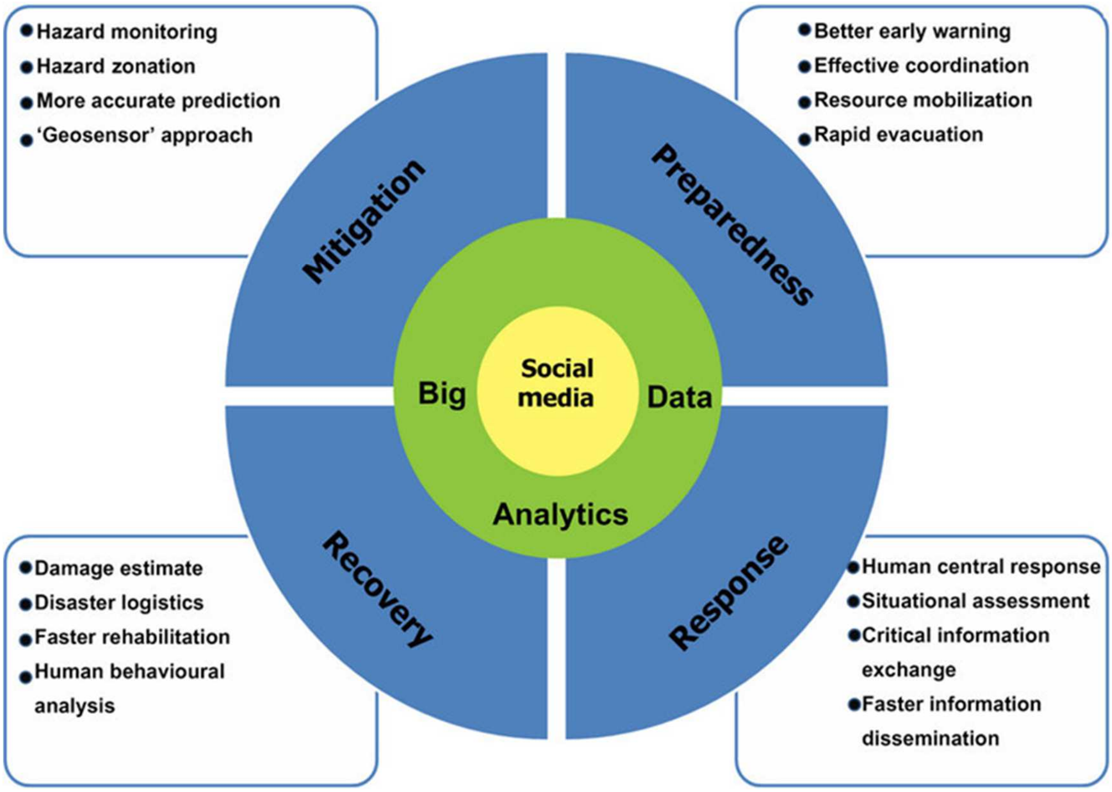

Figure 6. Big Data in rescuing missions

3. EXAMPLE OF ASAR ROBOT

InfoSet's ASAR robot **Flying Tiger Model A1** was constructed having in mind requirements to solve some of challenges mentioned in previous text.

Flying Tiger Model A1 has a multi-rotor structure capable of delivering half-kilogram up to 5 kilograms of cargo depending on the mission defined for them. A summary of the characteristics of this ASAR is presented in Table 1 [4]:

min 40	Continuity of flight
meter 500	Operational flight altitude
km 10	Operational radius
cm 1000	Length Body Length
k/g 4/5	Robot's weight on take-off
g 300	Maximum Optical Cargo Weight
Electric 4 and 6 rotor	motors
Up to 40 degrees and maximum wind of kph 25 -10	environmental conditions

Table 1. Operating Characteristics of Systems

It also has following capabilities:

- It has possibility of fully automatic take-off,
- Its body has stable carbon structure,
- It is able to carry out day and night surveillance flights,
- It is able to perform aeronautical observations,
- It is easy to carry,

- Its modular structure enables reaching very short operating conditions after deployment (less than 10 minutes),
- It has various flight modes for fully automated missions without the need for human agent involvement,
- For surveillance and identification, a digital camera and HD with a magnification of 10 times are used,
- In order to obtain stable images around the vertical axis of the flight path, a stabilizing system is used.

The land section, along with the airspace section, focuses on mission planning, flight control, and information processing. This part is responsible for sending and receiving information from the ASAR to rescuers and is actually user interface with the ASAR. The most important sub-sections included in this section are:

- Flight Planning,
- Flight Guidance and Control Station: includes Flight Design and Flight Management software, as well as Data Receiver,
- Monitoring station for receiving and displaying images from ASAR

The ground station, using the information provided, enables displaying of all the platform information, flight elements, and other parameters required by the users on the ground. It is also equipped with all necessary processing tools, such as keyboard, control arms and the like. The ground system is also equipped with USB ports for data entry or copying into the system.

The ground station software is equipped with an appropriate graphical interface for communication with the user, and along with the hardware capabilities of the platform, it is possible to design flight, change the direction of the ASAR and guide it during the mission. The flight control system provided on the platform along with the ground guidance software allows manual and autopilot flying or automatic guidance based on the use of GPS/INS. Also, to prevent control problems on the platform, it is possible to define the "home" for the ASAR and “return home” in crisis situations.

The ground station is designed as a native software installed on a laptop. In this way, the software used can be portable software that will be able to be carried and used as needed.

The second part of the station is receiving video images. In this section, images received from the ASAR are displayed based on the image receiver installed with the embedded antenna of ASAR. The images are displayed on the mounted monitor.

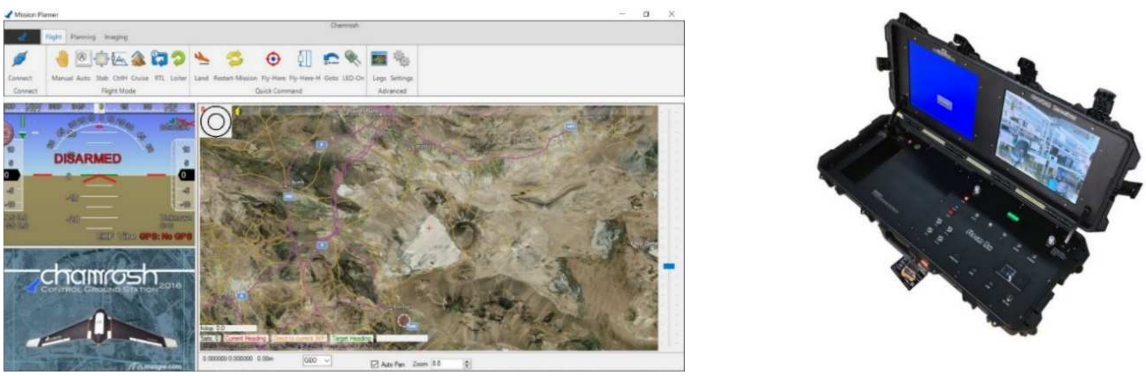

Figure 7. The ground station

CONCLUSIONS

For six known challenges related to improving ASAR's efficiency in disaster situations, we presented current efforts in finding relevant solutions.

Some solutions are easier to be found and implemented, while others might require more research and development, especially in domains of developing new control methods and obtaining fast interpretation and analysis of vital data collected through sensors.

New methods, such as reinforcement learning (RL), data mining, machine learning (ML), real-time analytics, cloud sourcing, visualization, and other Big Data tools and techniques can assist disaster management to optimize control efficiency of ASAR and decision-making procedures for ground personnel.

We also presented some of characteristics of InfoSet's ASAR robot **Flying Tiger Model A1** which was constructed considering requirements for solving some of challenges mentioned in the article. Further work and development on this type of ASAR will be performed by InfoSet's robotic team in near future.

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THE ELECTRONIC ENVIRONMENT AND THE PROTECTION OF INTELLECTUAL PROPERTY

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Abstract: *The term intellectual property indicates special specific rights that have the authors, inventors and other holders of intellectual property rights. Intellectual property is not specifically material property over an object; it is a right that is a set of authorizations that the legal system of the state recognizes to the holders of intellectual property rights.*
The revolution in information technology and the increasing number of inventors, the impact and significance of innovation along with globalization, will bring intellectual property at the centre of attention. Sometimes a subsidiary area, but today it is an important factor in the strategic planning of companies and also a key factor in any state policy.
New products in the markets attract consumers. They are also in the hit by competition who wants to make an identical or similar product. This can be done in various ways: using economies of scale, expanding access to markets, accessing cheaper raw materials, etc. All this is in order to make the same or similar products at a lower price and make pressure on the inventor of the original product or service. Such circumstances may lead to the downfall of the inventor's business of the original product because he has made significant investments in the creation and development of the new product, and competitors only use the results of such creativity and / or inventiveness.
That is why especially small and medium-sized enterprises have to think to protect their creative and innovative work through the intellectual property system. The system for protection of intellectual property rights provides exclusive rights in the use of inventions, designs, brands, literary and artistic works. Through the system of intellectual property protection and the provision of ownership of a particular invention or creative work, the possibility of copying and imitating innovative works by the competition is limited in an effective manner. We will try to prove it by elaborating the types of protection of the intellectual property from the aspect of the subject of protection, that is the protection of copyright and related rights and the protection of inventions-patents.

Keywords*: intellectual property, rights, protection, patent*

INTRODUCTION

Intellectual property can be divided into two main branches according to the subject of protection: copyright and related rights and industrial property.

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[389] Ministry of finance, Property and Legal Affairs Office, Regional office for carrying out first-instance procedure - Prilep, Macedonia
[390] University “Ss. Kliment Ohridski”–Bitola, Faculty of economics-Prilep, Macedonia

Copyrights and related rights include: cultural, artistic and literary works. Computer software and compilation of data can be also categorized as copyright in some countries.

Industrial property includes:

- innovative products and procedures through patent protection,
- creative designs through the protection of industrial design,
- brands through the protection of trademarks,
- microchips by protecting the design of the layout of the ingress circuit,
- marks of goods of certain quality through geographical origin with geographical indication,
- trade secrets through the protection of secret information with commercial value.

These two main categories actually determine the ways of protecting intellectual property. Today, the absolute dominant role in the shaping of intellectual property rights belongs to large corporations owned by large portfolios of copyrights, patents, and brand names. [1]
The technological development and the emergence of globalization contribute to the issue of intellectual property rights and its protection. The development of intellectual property rights is predestined by the use of new technologies. Information technology and the Internet as a global communications network enable the development of communication systems on a global scale. This will enable a new way of using products created by the human mind such as: electronic reading of books, newspapers, watching movies.

New technology brings new risks. Abuse can cause major damages to the holders of the intellectual property rights, on the companies and on the society as a whole. The Internet space cannot be restricted. Computer is an asset through which can be violating the intellectual property from unauthorized users. It may be subject of attack because it has stored databases. Unauthorized use of databases and other information in digital form as well as other Internet content represents an illegal activity that is a big risk for large companies like banks, state bodies and often for the citizens.

2. THE SIGNIFICANCE OF THE PROTECTION OF INTELLECTUAL PROPERTY RIGHTS

Today, the issue for protection of intellectual property rights is of paramount importance and is one of the conditions for the development of the economy. High-tech crime in the computer area is a form of international crime. International cooperation is required for successful fight against this type of crime. The cooperation should be between the competent institutions through joint action, information exchange and risk assessment.

Developed countries will realize that their current and future comparative advantages depend on the ability to dominate industry branches with high participation in innovation, which will require them to take repressive measures against those countries that tolerate disproportionate intellectual property on the domestic market property. [2]

Computer crime is a new type of crime and it is developing very quickly. It is necessary to constantly monitor its forms and constantly improve the regulation in order to create an appropriate legal framework for the protection of intellectual property holders.

States that will provide good protection of intellectual property rights encourage foreign investors to invest in new ventures. Well-protected intellectual property is a new value not only in the economy, but also in the society as a whole. The economic costs of inadequate legal protection of intellectual property rights (protection that is inadequate from the aspect of social and private interest) is a loss of interest of foreign companies to innovate in a country where there is no adequate protection, a potential loss of the initiative for inventory operations, foreign companies to transfer top technology and reduce foreign direct investment. [3]

Intellectual property is a key element in electronic commerce. Electronic commerce often involves the sale of products and services that are based on intellectual property and licensing them. Intellectual property is also important because value-added goods that are traded on the Internet must be protected by technological security systems and intellectual property laws. Otherwise, they can be stolen or piracy and thus whole businesses fail.

The significance of intellectual property in electronic trade can be seen from another angle. Namely, intellectual property is important to put into operation the electronic commerce. The systems that enable functioning of the Internet, software networks, routers and others, very often are protected with intellectual property rights. Trademarks are an important part of the business in the electronic trade, because branding, consumer recognition, the basic elements of web based businesses are protected through the trademark protection system and anti-unfair competition laws.

Internet-oriented business and e-commerce can be based on product or licensing patents. The development of high-tech products would be impossible if each company would have to independently develop all the technological aspects of its products. Many large companies, but also small and medium-sized enterprises, depend on that joint sharing activity through licensing. It can be concluded that the economy of electronic commerce depends on the way of sharing new technologies. Evaluating the business of electronic commerce is always related to whether its intellectual property rights are protected.

3. PROTECTION OF COPYRIGHT IN THE ELECTRONIC ENVIRONMENT

Copyrights are set of authorizations for the author of the copyright work. They are authorizations that on the basis of legal norms are recognized by the author. Copyrights that are recognized by the author are actually original intellectual creations.

Copyright in the objective sense is a set of legal norms that regulate social relations in relation to the creation and exploitation of copyright works, that is, works in the field of literature, science and art. [4]

In legislation for protection of copyright there is not some sort of unified list of rights that are protected, but basically laws on copyright protection of national level predict copyright in the following fields: literary works, musical works, artistic works, maps and technical drawings, film works, computer programs and multimedia products.

Copyrights are acquired at the time of creating the work. In fact, it is an original picture of the author's idea. That is why at the copyright the subject of assessment is originality, and it is given separately for each particular case.

Apart from the author, the copyright should include the term "user of rights" and should be considered separately from the copyrights. It can be said that the copyright user is an entity that translates copyright into a product-goods (a copy of a book) or a service (displaying a movie, broadcasting music) and in such a form is offered to the audience and consumers. Observed from this aspect, copyright is a right that regulates the relations between authors and users of the work, whereby the audience and consumers are outside the copyright. [5]

The use of copyright as recordings, shows or performances is the basis of their business activities for many companies. Publishing houses, libraries, and radio stations operate on the basis of the use of these rights. Other copyright companies use them occasionally and are in the function of improving their publications.

Companies-entities that are copyright users when carrying out their business activities have an obligation to understand the copyright system and its protection because they use protected copyrights. Today, this primarily relates to software developers, creators of websites, advertising agencies, publishing houses, television channels and so on.

Apart from the field of copyright, a new field of copyright-related rights has been developed in the last few decades. These are the so-called related rights that are related to copyright works and often have similar powers that are more limited and shorter. This primarily refers to:

- performers-actors and musicians in their performances,
- producers of music recordings (albums, compact discs) on their recordings
- radio-diffusion organizations on their radio and television programs.

The distinction between related rights and copyright is reflected in the fact that related rights belong to carriers that are a kind of intermediary in the production, filing or diffusion of works. The aforementioned categories of related rights are derived from the process of intellectual creation of the copyright work; they actually give their support to the authors in what constitutes communication of the author's work with the public. These are situations when the musician performs the musical work written by the composer, the actor plays a role in a play written by a dramatic author. It should be noted that the use of these copyrights is always related to the permission of the right holder. In economic terms [6] it always avoids the payment of royalties or fees for obtaining such a license.

In order to ensure protection of intellectual property rights it is necessary to implement a procedure for their registration. In contrast, copyrights are not subject to official procedures. According to international conventions (for example, the Berne Convention for the Protection of Literary and Artistic Works), literary and artistic works in the countries signatories to this Convention are protected without the implementation of special procedures. There is no international copyright registration system. This issue is left to the national states. Today, a number of countries have their own national agencies or copyright bodies where copyright works are registered. Registration of copyrights under national laws of some countries is considered to be fundamental evidence before the courts in disputes concerning copyright.

Authors of copyrighted works have the exclusive right to use it or authorize to other persons to use it under pre-agreed terms. But they can also prohibit its use. This means that the authors have exclusive rights to their works. The author may permit or prohibit on his work to be performed:

- production-in different forms,
- initial distribution to the public,
- shaping samples to the public,
- publicly performing a drama or a musical work,

- discs in the form of discs or video tapes,
- broadcasting via radio, by satellite (satellite), cable,
- translation into other languages, or adaptation-an example of a novel for the scenario.

Failure to admit the decision of the creator of the work to allow or prohibit the use of his work, as well as in the case where it is used without his permission is often subject to administrative and judicial procedures.

A number of copyright should distribute an activity in order to be able to reach the public. This is often associated with a large financial investment (publications, films). That is why the authors often transfer the rights to their works to intermediaries or companies that can do it best and place them on the markets, in exchange for payment. This type of payment is made according to the actual use of the work and is called royalties. Fees for the transfer of copyright to other entities are in the category of **economic rights** and they have time limits. It is usually 50 years after the death of the author. But some national states can determine a longer term for a certain kind of copyright. Through the economic rights of the creators and their heirs, they are allowed to have financial gain over a certain period of time, which is not the basic kind of satisfaction for the author.

Besides economic rights, there are **moral rights**. Through the moral rights the author may seek the recognition of authorship of his work, the right to resist any changes that may harm his reputation and the like. Moral rights are related to the author himself, with his personality. They are not transmitted to others even after the death of the author and are not time-limited.

The growing popularity of multimedia productions which include more type of copyrighted works including computer software has need to provide licenses to use for various types of copyright. This is a fairly complicated process. Because of this there is a need for association of individual types in one organization called **One-stop-shops.** These organizations represent a central system through which appropriate authorizations can be obtained in a faster and easier way. The provision of licenses for the use of copyright and related rights through relevant associations for the collective exercise of rights of users always saves time and money.

Regulating copyright protection and the conditions under which other entities are able to use them is extremely important to both authors and anyone who wants to use copyrighted works.

After the adoption of the first copyright laws, the issue of international copyright protection appears. Foreign authors and their works are not enjoying legal protection, but it depended on the existence of bilateral agreements between the country of his nationality and author country in which the author appeals procedure. Such contracts were scarce and provided legal protection only to nationals of countries that had concluded bilateral agreements. In addition, these agreements usually regulated other disputes between contracting parties, and copyright rights shared the legal fate of other legal relationships. With the cancellation of contracts or the expiration of the time for which the contract was concluded, foreign authors were left without legal protection. [7]

Previously stated problems and questions will impose the need for this matter to be regulated by international documents.

The oldest and best known copyright law is the *Berne Convention of 1886 for the Protection of Literary and Artistic Works*. [8]

It has been signed by ten European countries in order to protect written and artistic works. By 2016, 164 States will accede to this Convention. Three principles have been established with the Bern Convention:

- The principle of national treatment - according to which the signatory countries of the Bern Convention are obliged to provide the citizens of the signatory countries with the same rights that the Law on Copyright gives their citizens,
- Independent protection - this principle creates an obligation for each State party to the Berne Convention to ensure the protection of works by foreign authors in the same way as the works of domestic authors are protected, even if the work of a foreign author is not protected by the copyright law of the country in which it was created.
- Automatic protection of copyright works-under which the States Parties to the Berne Convention are prohibited from making any conditions on foreign authors who are nationals of the signatory States of this Convention in order to secure the protection of their copyrights. By 1952 two of the biggest they states, the US and the USSR signed the Berne Convention. On a UNESCO proposal in 1952, a new convention will be created - the Universal Convention on Autocratic Rights [9] as a replacement for the Bern Convention, which will be signed by both the major world powers US and USSR.

The development of new technologies will impose the need to protect the recorded works. In 1961, the member countries of the World Trade Organization will sign the *Rome Convention* for the Protection of Producers, and Producers of Phonograms. It should be noted that with the Bern and the Rome Convention no sanctions have been provided for the member states in case some of the prescribed principles are not respected.

For copyright and particularly computer programs and computer databases was adopted *TRIPS agreement of -A contract Trade Related Aspects of Intellectual Property Rights*. This Agreement provides effective sanctions for member states that do not provide effective protection of copyrights within their own country, as well as mechanisms by which the undertaken obligations with the Agreement will be met.

In 2007, the ACTA Agreement was signed [10], in order to prevent the falsification of copyright works. The ACTA agreement provides officials with no prior notice to explore unauthorized downloaded music files and other content on the Internet. At the same time the Internet operators are mandated to provide information to the official person in respect of violators of laws for abuse on the Internet. Here we consider it is necessary to point out that there are opponents of the ACTA agreement, under which the agreement violates the personal rights of Internet users.

4. PATENTS IN ELECTRONIC COMMERCE

Inventions are the basis for the development of human civilization. Historically, from a steam engine to computers and other technologies, new discoveries are the greatest contribution that inventors have captured humanity. People with vision, entire life and often their own assets devoted to research that verified after their deaths, with most results of their work to benefit future generations.

But today the situation is quite different. A number of companies form scientific teams allocate huge financial resources in order for scientists-researchers to be motivated to create innovations that lead to company development, and often progress on the whole of humanity.

The invention is a new solution to the technical problem, while the patent is a universally accepted legal form for the protection of the invention. [11]

The patent is exclusively a territorial and time-limited monopoly right established for the benefit of the inventor. The patent is exclusive right which is recognized to protect the invention. A patent holder may prevent others from producing, using or selling a patented invention if they do not have permission to do so. Regarding the patent there is a theory of incentives under which society-with the approval of the patent stimulates innovation, which is an important factor for global economic growth, but also an important element in competitive relations. According to the theory of reward, the principle of equity requires that every useful service given to society be rewarded. [12] In many countries, the invention is often described as a solution to a technical problem. Regardless of whether the problem is old or new, the solution must be new so that it can be considered an invention. What already exists in nature, what everyone can discover cannot be considered an invention.

In order the invention to be patented, it should go through an appropriate procedure that ultimately will provide adequate legal protection. In doing so, the invention must meet the conditions in order to obtain the status of a patent.

The invention must be **new -** it should be a new solution to the technical problem. Novelty is considered to exist if there is any difference between the invention and the existing knowledge and state of the technique.

In addition to novelties as the first requirement to be fulfilled, the second requirement that the invention should fulfill is the so-called **inventive contribution**. The condition for the inventive contribution is considered fulfilled if the invention does not arise from the known state of the art technique for the expert in a particular area, but it is the result of the individual labor and creativity of the inventor. Inventiveness is essentially a matter of matter and it is determined on a case-by-case basis in a concrete manner, requiring a high level of inventiveness. Certain inventions that do not contain a higher level of inventiveness and do not qualify for patentability i.e. are not patentable, can be placed in the category of useful models-small patents. The third requirement that should be met in order for the invention to be patented is its **applicability in the industry or in some economic activity**. This means that the invention should go through the practical form of check whether it's a device, a new material, or a new process in the industry. It should be noted that the requirement of applicability is provided in all national legislation.

The procedure and conditions for patenting the invention are prescribed by international legal documents such as the Paris Convention of 1883 and the laws of each national state. All these regulations provide for the existence of an appropriate national registration body or patent office.

An appropriate procedure is being conducted in front of this competent authority in several phases: submission of the application, formal examination of the application, publication of the application, substantive examination and adoption of a decision for accepting or rejecting the patent application. Patent documents contain a large number of information that can be useful for companies, especially when planning their business. Special significance for small and medium enterprises because they with their direct application can save unnecessary costs for research, to explore new technologies and implement them in Mena, or through the patent can provide ready-made solutions to their technical problems.

On the other hand, patent information from companies can help them create new business partnerships, communicate with new suppliers.

It is undisputed that the invention cannot find its adequate application if it is not patented. The patent from an economic point of view in the time period foreseen for use-20 years, gives the entity a better image of the company, an opportunity to license or sell, a better position on the market. Otherwise, someone else can patent the invention, or be used by competitors.

Although at the national level, the purpose of the patent protection proceedings is very similar between the states, especially if the fundamental principles (national treatment, assimilation and minimum rights) of the Paris Convention for the protection of intellectual property are taken into account, its specifics. Therefore, the protection of inventions, especially in the Republic of Macedonia, is left to be the object of research for some other scientific work.

5. CONCLUSION

The revolution in technology development, especially in information technology and the increasing number of inventors, the impact and importance of innovation along globalization, contributed intellectual property to be found in the center of attention.

That is why especially small and medium-sized enterprises have to think to protect their creative and innovative work through the intellectual property system. The system for protection of intellectual property rights provides exclusive rights in the use of inventions, designs, brands, literary and artistic works.

According to the subject of protection, intellectual property can be divided into two main branches: copyright and related rights and industrial property.

Technological development and the emergence of globalization will contribute to the issue of intellectual property and its protection to be given greater importance.

Intellectual property rights are one of the conditions for development of economy. The question of their protection is extremely important today.

Computer crime as a new form of crime and it is developing very fast. It requires constant monitoring of its forms and continuous improvement of the regulation in order to create an appropriate legal framework for the protection of the holders of the rights of intellectual property.

Countries that will provide good protection of intellectual property encourage foreign and investitures for new ventures. Well-protected intellectual property is a new value not only in the economy, but also in the society as a whole.

Intellectual property is a key element of electronic commerce. This is because electronic commerce often involves the sale of products and services that are based on intellectual property and licensing them. The importance of intellectual property in electronic commerce can be seen from the aspect of its putting into operation. Without the innovations in information technology, the functioning of electronic commerce would be inconceivable.

Evaluation of the business of electronic commerce is always related to whether his rights of intellectual property are protected, because the value of businesses in e-commerce is usually in the form of intellectual property.

The regulation of copyright protection and the conditions under which other entities can use them is extremely important to both the authors themselves and anyone who wishes to use copyrighted works.

Inventions are again the basis for the development of human civilization. The invention is a new solution for technical and problem solving, while the patent is a universally accepted legal form for the protection of the invention. The patent is exclusively a territorial and time-limited monopoly right established for the benefit of the inventor. A patent is an exclusive right that is recognized to protect the invention. A patent holder may prevent others from producing, using or selling a patented invention if they do not have permission to do so.

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INDIVIDUAL AND CONTEXTUAL FACTORS IN DETERMINING ATTITUDES TOWARDS CRIME AND PUNISHMENT

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Abstract: *The paper looks at the market for crime focusing on attitudes toward punishment and law obedience as expressed and collected by the fifth round of the European Social Survey in 2010. We find that highly educated people living in less corrupted countries show relatively more tolerant attitudes towards lawlessness and require less severe punishments for crimes. Compared to the previous literature, it confirms a modern view of fighting crime, based on education and civic sense rather than on fines and jail.*

Keywords: *attitudes***,** *crime***,** *punishment*

1. INTRODUCTION

Crime negatively affects economies as well as private and business life. Reducing crime works as business-promoting policy and for a reason it has always been considered as one of the most urgent tasks of any public policy agenda. However, how to intervene is still an open question, especially when the main goal is to prevent crime rather than implementing sanctions.

The economic approach to crime consists of viewing it simply as a human behavior motivated by rationality (Becker, 1968), where the crucial role is played by the demand of punishment and by the supply of crime (to be intended as the response of offenders to changes in enforcement). In this paper we examine the determinants of people attitudes toward punishment and law obedience to verify what sort of people asks for harsher punishment and stricter law obedience, and why.

On the side of the supply of crime, several attempts have been made in the literature to find possible explanations of why people break the law and to isolate the effect of specific features on crime: Muroi and Baumann (2009) find that the effect of wealth on crime in US is non-linear and turns out negative for rich countries and positive for poor countries; Buonanno et al. (2014) find an asymmetric response of crime to variations in unemployment, depending on economic conditions. Looking at more personal issues, a strong finding in criminology is that gender significantly and negatively affect crime in favor of women (Steffenmeier and Allan, 1996); a similar effect has been found also for religion (Baier and Wright, 2001). Similarly, there is strong evidence that education reduces both crime (Buonanno and Leonida, 2006; Freeman, 1996; Gould et al. 2002; Machin and Meghir, 2004; Viscusi, 1986) and the probability of incarceration (Lochner and Moretti, 2004).

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On the side of the demand for legality and punishment, public knowledge concerning crime is primarily derived from the media (Roberts and Doob, 1986; Surette, 1998) and empirical studies show a strong positive relationship between fear of crime and media consumption (Barille, 1984; Bryant et al., 1981; Hawkins and Pingree, 1980; Morgan, 1983; Weaver and Wakshlag, 1986; Williams et al., 1982). Evidence from Chicago also shows that poverty and economic recession are associated with higher tolerance of criminal behaviors independently of racial differences (Sampson and Bartusch, 1998).

Great attention has also been devoted in the literature on people beliefs and preferences in order to explain why severity of criminal codes and incarceration rates (Levitt, 2004) significantly vary around the world. Reasons have been traditionally found in both socio-economic factors and in psychological motivations. Di Tella and Dubra (2008) propose a theoretical model in which the demand for punishment is based on beliefs on the economic system that, in turn, produce a difference in meanness. If effort pays, such as in the “American dream” philosophy, being criminal is considered mean and deserves harsh punishment. In this way they explain why, example given, punishment (including death penalty) is harsher in US rather than in most European countries.

In the European culture it is rather true that asking for harsher punishment is usually associated to blind passion and insecurity, and refers to uncivilized, barbarian societies; whereas democracy and culture, together with higher levels of education and wealth, should work as an effective motivation to respect the law and contribute to determine milder attitudes toward punishment (Beccaria, 1764; Schmideberg, 1960)[394].

Our approach does not directly focus on any of the two sides of the crime market, but tries to reconstruct both indirectly by looking at people attitudes towards punishment and law obedience as they emerge from the fifth round of the European Social Survey (from now on ESS). ESS is a two-year multi-country survey involving 25 European countries with the purpose of mapping attitudes, beliefs and behaviors of people in Europe. It consists of a questionnaire that can be classified into two parts: a core section and a rotating section. The former is designed to measure a range of topics of enduring interest, whereas the latter contains new topics of relevant interest at the time of the survey. A module in the rotating section of Round 5 in 2010 (not reproduced in Round 6) was *Justice*. We have selected three items from this module to capture people attitudes toward punishment (Item 1: “People who break the law should be given much harsher sentences than they are these days”) and law obedience (Item 2: “All laws should be strictly obeyed” and Item 3: “Doing the right thing sometimes means breaking the law”). Precisely, attitudes toward punishment should capture the sense of (un)safeness inside the society and may work as a proxy of the demand for punishment. We find that high educated people living in less corrupted countries show a higher level of safeness or, at least, more tolerant attitudes. The result seems striking because these people are less likely to commit crimes and their attitudes cannot be interpreted selfishly as a way to be inflicted milder convictions. Compared to the previous literature, it rather confirms a modern view of fighting crime, based on education and civic sense rather than on fines and jail in line with the European tradition.

It makes even more interesting to look at the other side of the hypothetical market for crime to reconstruct the supply of crime, to be intended as a person’s predisposition to become criminal. The difficulty is that nobody would answer sincerely to a direct question, such as “did you ever

[394] For a complete survey, see Polinsky and Shavell (2000).

break the law?" or "did you ever commit crimes?" Accordingly our approach consists of looking at the demand for order and legality as expressed in the degree of agreement to items 2 and 3 in the ESS. Showing a strong agreement to item 2 and a strong disagreement to item 3 could be interpreted as a blind and total trust in the legal system that should not leave room to illegal behaviors. Vice versa, mild answers to both items seem to support a less intransigent approach to law and may hide the admission "yes, I may decide to break the law because if I believe it is the right thing to do".

We understand that the genuineness of our results crucially depends on whether it is methodologically correct to focus on attitudes, as expressed by the answers to a survey. As a matter of fact, this is not the first attempt to analyze and understand people attitudes towards punishment and legality. Using data from the world value survey, Torgler and Schneider (2007) investigated the determinants of attitudes towards paying more or less in taxes from a cross-country perspective, considering the impact of both socio-demographic and cultural background. Further studies have focused on the relationship between education and crime, commonly arguing that education and the associated higher earnings negatively affect both crime (Buonanno and Leonida, 2006; Freeman, 1996; Gould et al. 2002; Machin and Meghir, 2004; Viscusi, 1986) and psychological attitudes towards crime (Arrow, 1997). More closely related to our research question, Groot and Van Den Brink (2010) found evidence of a relationship between high education levels and attitude towards serious crimes in the Netherlands. D'Agostino et al. (2013) confirmed these findings in a cross analysis involving most European countries. What is common to all these papers is that each focuses on a particular aspect (media, economic recession, education) to establish the potential effect on attitudes. Our paper goes further and puts together individual variables (involving personal features, such as gender, race, education, family), and contextual variables (referring to institutional and economic aspects, such as corruption, GDP, growth, interpersonal safety). To our knowledge, this is one of the first attempts to consider mixed variables, individual and contextual, in a systematic analysis of the determinants of attitudes towards legality and punishment. Our results suggest that both types of variables influence attitudes, but the effect of the individual variables dominates.

This result is not itself surprising, but a different matter is to interpret attitudes as prodromal to behaviors. The psychological literature supports this reconstruction as expressed by Ajzen (1991) and his theory of planned behavior[395]. It would mean that people who are less likely to commit crimes, according to the previous mentioned literature, should show strict attitudes toward law obedience and punishment. In fact our data tell a different story. Education and corruption, among all the other variables, seem rather to have an opposite effect on attitudes and on behaviors: highly educated people living in less corrupted countries show milder attitudes toward punishment and law obedience although they are less likely to commit crimes according to the previous literature. This raises important questions about the social dimension of crime as a complex phenomenon involving the individual's life within society. What we mean is that even if no causality effect has been found between attitudes and behaviors it does not necessarily mean that they are not related at all. Respecting the law is the first step for a peaceful and pleasant life. However, when the level of trust in public institutions is very high, that is primarily where perceived corruption is very low, the marginal positive effect on security

[395] The theory of planned behaviour (TPB) says that an individual's decision to engage or not engage in a given behaviour is anticipated by the formation of positive intentions towards that behaviour. In Ajzen's (1991) view, intentions depend, among others, on personal *attitudes* towards a given behaviour. Applications of TPB can be found in Environmental Economics (see Koger and Du Nann Winter, 2010), Health Economics (see Liou and Bauer, 2007) and entrepreneurship (see Kautonen et al., 2013).

of an increase in penalties and/or of strict law obedience is considered so low that conscious and highly educated people are reluctant to agree to such a policy. Showing relatively mild attitudes does not therefore hide admission of past or future criminal behaviors, but rather a personal consciousness to establish what is right and what is not right beyond (and not in contrast to) the law.

The paper is organized as follows. The next section presents the data and the model used in the analysis. The empirical results are then discussed and an interpretation offered which is consistent with the existing literature. Finally, conclusions are drawn.

2. DATA AND METHODS

This work uses cross-sectional data available from the European Social Survey (ESS). ESS is a two-year multi-country survey supported by the European Commission, the European Social Science Foundation and other financing institutions for each participant country (Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Israel, the Netherlands, Norway, Poland, Portugal, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland, the United Kingdom, the Ukraine). To give an idea of the size of the sample, 50,668 people were interviewed during the fifth round of the ESS in 2010.

The interviews are conducted anonymously using questionnaires that include some core sections focusing on the socioeconomic characteristics of those in the sample; for this reason, the questionnaires have been reproduced unchanged every two years since the first edition of the survey (2002). Less frequently, the dataset also includes other sub-sections focusing on specific topics: one such sub-section in the fifth round referred to attitudes towards legality and to the level of trust in justice in European countries.

This study consists of an analysis on attitudes, viewed as '[…] disposition[s] to react favorably or unfavorably to a class of objects' (SARNOFF, 1960, p. 279). As the aim is to analyze the determinants of attitudes toward punishments and law obedience, the following three questions were selected from the ESS Round 5 (original item numbers given in parentheses):

1. People who break the law should be given much harsher sentences than they are these days. (Item 1)
2. All laws should be strictly obeyed. (Item 2)
3. Doing the right thing sometimes means breaking the law. (Item 3)

The participants were asked to indicate the extent of their agreement or disagreement with each of these three statements according to a five-point Likert scale. The levels of responses for the items listed above are the dependent variable. We interpret answers to the first item as attitudes towards punishments and answers to the second and third items together as attitudes towards law obedience.

The distribution of responses in the selected sample is summarized in Table 1:

Table 1. Frequencies of attitudes towards crime (ESS Round 5)

	People who break the law should be given much harsher sentences than they are these days	All laws should be strictly obeyed	Doing the right thing sometimes means breaking the law
Strongly agree	11,752 (23.86%)	12,540 (25.07%)	3,276 (6.86%)
Agree	22,365 (45.41%)	26,060 (52.09%)	20,175 (42.26%)
Neither agree or disagree	10,332 (20.98%)	7,777 (15.55%)	12,507 (26.20%)
Disagree	4,241 (8.61%)	3,283 (6.56%)	9,678 (20.27%)
Strongly disagree	560 (1.14%)	368 (0.74%)	2,099 (4.40%)

As can be seen, if the low levels of consensus for ‘Strong disagreement’ regarding the first two items are excluded, the distributions of the responses appear relatively balanced among the options presented. For the sake of simplicity of the empirical analysis, we have divided responses into two main categories, ‘Agree’ and ‘Disagree’: the former aggregates both the options ‘Strongly agree’ and ‘Agree’, whereas the latter collects the remaining alternatives (‘Neither agree nor disagree’, ‘Disagree’, ‘Strongly disagree’). We have decided to include ‘Neither agree nor disagree’ in the ‘Disagree’ category because of the interpretation of attitudes we propose. Precisely, if we claim that attitudes toward punishment interpret a general feeling of unsafeness, showing indifference in respect to the correspondent item cannot be associated to a demand for harsher punishment. A similar argument can be replicated for attitudes toward law obedience (items 2 and 3). The new dichotomous variable used for the empirical analysis shows the following distribution:

Table 2. Frequencies of attitudes towards crime (recoded)

	People who break the law should be given much harsher sentences than they are these days	All laws should be strictly obeyed	Doing the right thing sometimes means breaking the law
Agree	34,117 (69.27%)	38,600 (77.16%)	23,451 (49.12%)
Disagree	15,133 (30.73%)	11,428 (22,84%)	24,284 (50.88%)

A multilevel logistic model is employed for two reasons: 1) the use of a dichotomous response variable; (2) the hierarchical organization of the data. With regard to the latter, the aim is to capture both individual and institutional aspects in determining attitudes towards legality. Accordingly, countries are at the first level of the hierarchical model and individuals assigned to a given country according to their residence are at the second level. Using a latent variable approach, the model is organized as follows:

where y_{ij}^{*} is the propensity to agree with each of the statements presented in Table 3; x_{ij}^{T} is the vector containing the observed covariates at the individual level with the related coefficient β

; z_i^T is the vector of observed covariates at the country level with the related coefficient γ. This means that every individual *j* located in the same country *i* presents identical values of z_i^T, but may present different values of x_{ij}^T. The error term is decomposed in the form:

$$u_{ij} = \mu_i + \varepsilon_{ij}$$

where the μ_i component is the country-level variable, whereas the ε_{ij} component is the country- and individual-level variable.

We assume that, on the one hand, μ_i has a normal distribution with a mean of 0 and a variance of σ_μ^2. This means that:

$$\mu_i \sim N(0, \sigma_\mu^2)$$

On the other hand, to identify the model, it is assumed that u_{ij} has a logistic distribution with a mean of 0 and a variance of $\sigma_\varepsilon^2 = \pi^2 / 3$.

Given the purpose of the paper, the role of the intra-class correlation ρ is of great importance in the model. This is defined as follows:

$$\rho = corr\left[y_{ij}^*, y_{ij'}^* \mid x_{ij}, x_{ij'}, z_i\right] = \frac{\sigma_\mu^2}{\sigma_\mu^2 + \pi^2 / 3}$$

The ρ coefficient explains the within-country correlation in predicting the probability of an agreement with the items due to unobservable factors.

As already mentioned, the individual variables included in the ESS Round 5 are combined with some contextual variables, taken from different sources (see below). Starting with the first category of variables, as included in the ESS and following Groot and Van Den Brink (2010) and D'Agostino et al. (2013), the following explanatory variables are used:

a. *Age*: it is a continuous variable expressed in completed years.
b. *Education*: it comprises two separate indicators for the highest level of education, one for the respondent and the other for his/her father. Due to the strong heterogeneity of the education systems among European countries, individuals are compared according to the International Standard Classification of Education (ISCED), created by UNESCO as a worldwide system of classification of education courses and related degrees. Precisely, ISCED level 0–1 refers to children aged 3–11 years and internationally corresponds to pre-primary or primary education; ISCED level 2 corresponds to lower secondary education; ISCED 3–4 means that the respondent completed upper secondary education; ISCED levels 5, 6 and 7 are associated with university education at undergraduate, graduate and post-graduate levels, respectively.
c. *Gender*: female is the reference category.

d. *Employment*: it is ranked in five categories (unemployed, employed, students, pensioners and other[396]).
e. *Children*: it is a dummy variable that takes the value 1 if the respondent (and/or his/her partner) has a child and 0 otherwise.
f. *Born in the country of residence*: it is a dummy variable that takes the value 1 if the respondent was born in the same country as that of residence at the time of the interview and 0 otherwise.
g. *Urbanization level (first residence)*: it is a dummy variable that takes the value 1 if the respondent lives in a large town and 0 if he/she lives in a small town or a village;
h. *Religiosity*: it is a dummy variable derived using an ordinal scale from 1 (the individual reports not being a religious person) to 10 (the individual reports being very religious) based on self-assessment. The dummy takes the value 1 if the level declared is at least equal to 6 and 0 otherwise.

The vector of the contextual variables, that is variables measured at the state level, includes the following:

a. *GDP per capita*: it is the gross domestic product per capita, i.e. the market value of all officially recognized final goods and services produced per capita in the observed country in 2010, measured in thousands of dollars. The source is the World Bank.
b. *GDP growth:* it is the growth rate of GDP between 2009 and 2010. The source is the official report of the World Bank.
c. *Corruption perceptions index*: it is a variable derived from the Corruption Perceptions Index (CPI). According to Transparency International, the CPI is an index measuring the perception of corruption in the public sector and in politics in many countries around the world. It assigns each country a rating ranging from 0 (maximum corruption) to 10 (absence of corruption). The methodology is revised each year to make the index as reliable as possible. The survey was carried out by Universities or other study centers on behalf of Transparency International for the year 2010.[397]
d. *Interpersonal safety and trust*: it is a variable obtained from the Institute of Social Studies site, measuring (for the year 2010) personal security and trust by using data on general social trust from a wide variety of surveys, indicators of trustworthiness such as reported levels of crime victimization, survey responses on feelings of safety and security in one's neighborhood, data on the incidence of homicide and risk reports on the likelihood of physical attack, extortion, or robbery.
e. *Legal origin*: it is a control variable that classifies the countries as French, English, German, Nordic or Socialist according to the origin of their legal system.[398] As shown by La Porta et al. (2008), legal origin may have an impact on behaviors (and perhaps on attitudes).

To sum, Table 3 provides an overview of the variables used in the hierarchical model.

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[396] The category 'Other' is a residual category including people involved in community or military service, doing housework, or looking after children or other persons.

[397] There is also in the literature a similar index offered by the World Bank, sampled and used in this study for internal analysis as a proof of robustness. The results are perfectly in line with those of the Transparency International index, selected to diversify the sources of data.

[398] According to La Porta et al. (2008), countries in which the legal system originates from the civil law tradition are classified as either French or German depending on whether they derive from the Napoleon code or from Kelsen's tradition respectively; those in which the legal system originates from the common law tradition are classified as English, Nordic and Socialist and comprise countries in Northern and Eastern Europe respectively.

Table 3. List of explanatory variables in the model

x_{ij}^T	z_i^T
Sources: *European Social Survey, Round 3, 2010*	*World Bank, Transparency International*
Age (in years)	Gross domestic product (GDP) per capita (thousands of dollars)
Education (*ISCED < 2, ISCED =2–3, ISCED = 4, ISCED ≥ 5)*	Gross domestic product growth (GGDP) (%)
Father's education *(ISCED < 2, ISCED =2–3, ISCED = 4, ISCED ≥ 5)*	Legal origin (French, German, Scandinavian, English, Nordic, Socialist)
Gender (male, female)	Corruption perceptions index (CPI), Transparency
Employment status (unemployed, employed, student, retired, other)	Interpersonal Safety and Trust Index, Institute of Social Studies
Number of children (0; ≥1)	
Born in the country of residence (no, yes)	
Urbanization level of first residence (small town, large city)	
Religiosity (1–5, 6–10)	

Because of the high correlation between the *Corruption perceptions index* and *Interpersonal safety and trust* (Pearson's correlation coefficient = 0.67), it was decided to replace these variables with a unique factor, extracted using principal components analysis. The factor, named *Control of corruption and interpersonal safety*, summarizes approximately 83% of the variability in the two indices and is positively correlated with both the indicators; in other words, the higher the level of the factor, the lower the level of corruption and the higher the level of interpersonal safety and trust in the country.

3. RESULTS

As said in the Introduction, studying attitudes is important, on the side of the demand of justice, in order to comprehend to what extent citizens feel safe and, on the side of the supply of crime, in order to anticipate and possibly prevent future (illegal) behaviors. The three items of the ESS we have analyzed cover both these aspects: the first item refers to the demand of justice, whereas the last two interpret together the tendency of respecting the law and, *a contrario*, the tendency of committing crimes.

The results of the empirical analysis are summarized in Table 4. Since we have used both individual and contextual variables, we have decided to isolate the effect of the former category and, for this purpose, we propose two columns of coefficients for each item: the first column refers to regressions in which only individual-level variables have been used (and thus the contextual variables take the value 0); the second column includes both the individual and the contextual variables.

Table 4. Empirical results of regression analysis

	People who break the law should be given much harsher sentences than they are these days		All laws should be strictly obeyed		Doing the right thing sometimes means breaking the law	
Context variables						
Control of corruption and interpersonal safety		-0.328***		-0.472***		0.396***
GDP per capita		-0.012		-0.018		-0.028*
GGDP		-0.014		-0.008		0.052
Legal origin						
Socialist		0		0		0
French		0.464		0.464*		-0.116
German		0.919***		0.792***		-0.388
English		0.948***		0.907***		-0.439
Nordic		0.733**		0.957***		-0.557
Age	0.001	0.001	0.010***	0.010***	-0.005***	-0.005***
Education of the respondent						
ISCED < 2	0	0	0	0	0	
ISCED 2	-0.080*	-0.080*	0.015	0.017	0.058	0.057
ISCED 3-4	-0.091**	-0.092**	-0.056	-0.053	0.104***	0.104***
ISCED ≥ 5	-0.480***	-0.479***	-0.137***	-0.133***	0.193***	0.192***
Father's education						
ISCED < 2	0	0	0	0	0	0
ISCED 2	-0.080**	-0.082**	-0.008	-0.007	-0.009	-0.008
ISCED 3-4	-0.080**	-0.082***	0.069**	0.069**	-0.008	-0.008
ISCED ≥ 5	-0.269***	-0.269***	-0.054	-0.052	0.064**	0.063*
Gender						
Female	0	0	0	0	0	0
Male	-0.180***	-0.180***	-0.126***	-0.125***	0.172***	0.171***
Employment status						
Unemployed	0	0	0	0	0	0
Employed	0.124***	0.124***	0.169***	0.170***	-0.120***	-0.121***
Student	-0.101**	-0.099*	0.164***	0.167***	-0.095*	-0.096**
Other	0.142***	0.142***	0.314***	0.316***	-0.080*	-0.080*
Retired	0.178***	0.177***	0.316***	0.315***	-0.194***	-0.194***
Number of children						
0	0	0	0	0	0	0
≥ 1	0.098***	0.098***	0.027	0.028	0.015	0.015
Born in the country of residence						
Yes	0	0	0	0	0	0
No	-0.043	-0.043	-0.224***	-0.226***	0.057*	0.057*
Urbanization level (first residence)						
Small town	0	0	0	0	0	0
Big city	-0.092***	-0.093***	-0.075***	-0.076***	0.055***	0.056***
Religiosity						
Not religious	0	0	0	0	0	0
Religious	0.020	0.020	0.280***	0.279***	-0.142***	-0.142***

$\hat{\rho}$	0.064***	0.017***	0.070***	0.029***	0.061***	0.022***
Observations	49,017	49,017	49,789	49,789	47,510	47,510

We find that $\hat{\rho}$ is very low with respect to all the items even without including the contextual variables (first columns), showing that most of the variability is due to the individual variables. This is not surprising as attitudes towards punishment and law obedience tend to depend by definition on the individual's sensitivity towards social norms. Nevertheless, we note that $\hat{\rho}$ decreases in the regressions in which the contextual variables are included (second columns), demonstrating that they contribute to explaining variability at the country level. A first conclusion is therefore that attitudes towards punishment and law obedience depend primarily on personal characteristics.

We now interpret our results in order to answer the following questions: what does determine people demand for harsher punishment? Are attitudes toward law obedience informative about a person's tendency of breaking laws?

To answer these questions, we first look at the three items together. What immediately emerges is that some variables are significant in respect to all the three items: *Education, Gender, Employment, Urbanization level of first residence, Corruption and Interpersonal safety*. These 'core variables' affect the first two items ('People who break the law should serve more severe punishments than today' and 'Laws should be strictly observed') in the same way as shown by the coefficient signs, whereas the opposite results arise with respect to the third item ('Doing the right thing sometimes means breaking the law'). It is not surprising that people who do not believe that tougher punishments should be applied are also those who do not believe that laws should be strictly observed, but rather agree that breaking the law is sometimes the right thing to do. What is surprising is the sort of people expressing such tolerant opinions concerning crime and punishment. Indeed, what emerges from the regressions is that tolerance is supported for all the core variables except *Employment*. In other words, it seems that highly-educated males, especially students, living in large urban areas and in less corrupt countries show milder and more tolerant attitudes towards punishment and law obedience in that they tend to agree that breaking laws is sometimes the right thing to do. Precisely, the result for *Employment*, combined with that for *Education*, suggests that low-skilled people looking for a job are less tolerant than low-skilled employed people, who are in turn less tolerant than highly-skilled employed people. By the way, it cannot be meaningless that *Education* is more significant and plays a greater role in respect to all the items only at the highest ISCED level (≥ 5). An identical result can be observed looking at the effect of *Father's education* on attitudes: although there is no ISCED level turning out significant for all the three items, it is clear that this variable plays a role, especially in influencing attitudes toward punishment.

What follows is that, on the one hand, people trust each other to the extent that they accept that breaking the law might be the right thing to do in some circumstances; on the other hand, these results seem to support the claim that education and culture serve as better motivation than harsher punishments. Some of these results simply confirm the existing literature, such as the role of *Education* with respect to items 2 and 3 (D'Agostino et al., 2013; Groot and Van Den Brink, 2010), which is also extended to item 1.

This interpretation is corroborated by the effect of the remaining core variables, *Urbanization level* and *Corruption and Interpersonal safety*. About the former, *rebus sic stantibus*, it seems that living in big towns makes people more tolerant despite the evidence in favor of small towns where the crime rate tends to be lower. Again a so surprising effect can be justified in the light of the different cultural and educational level characterizing small and big towns in favor of the latter.

About *Corruption and Interpersonal safety*, keeping in mind that higher values are associated with lower levels of corruption and higher safety perception in the country analyzed, a negative coefficient means that people living in less corrupt countries show more tolerant attitudes towards crime and punishment. In light of previous considerations, we can conclude that if institutions are associated with social order and stability and therefore low corruption and high safety, people living in countries in which laws are commonly observed tend to be more tolerant because breaking laws is considered an exceptional event that does not affect the quality of their daily lives. Accordingly, they also realize that tougher punishments may not be an effective policy. This reaction is emphasized, among all, by Education.

Conversely, those accustomed to living in degraded environments, in which laws are commonly unobserved, tend to be strict and intransigent because they probably believe that more law obedience and tougher punishments are the easiest way to get order and security.

Even if not included into the core variables, also *Legal origin* seems to play a significant role in respect to both attitudes toward punishment and law obedience limited to item 2: not surprisingly all categories (German, English, Nordic and to a slightly lower extent, French) are associated with less indulgent positions than the Socialist category. However, *Legal origin* does not play a significant role in determining whether people may find it right to break the law (item 3), so it cannot be said that it helps explain attitudes as well as behaviors. In contrast, *GDP per capita* is significant only for the third item, whereas no significant effect can be attributed to *GDP growth.* Finding support for this result is difficult as there is a general consensus in the literature that high wages have a strong and consistent deterrent effect on crime (see Calvò-Armengo et al., 2007; Myers, 1983). However, high wages usually correspond to high-skilled (and therefore highly-educated) employees, so that the result has to be interpreted in a similar way of what already said for *Education* and *Employment status*.

Moving far from the core variables, we find that other explanatory variables are significant to explain only one of the two attitudes analyzed and therefore require a differentiated analysis.

On the side of the demand for punishment *Children* turn out significant, whereas attitudes toward law obedience are significantly influenced by *Age*, *Religiosity*, *Born in the country* and *GDP*. Among these variables, special attention should be devoted to *Children* and *Religiosity*. On the one hand, it is not surprising that both variables make people more intransigent: the significant and positive effect of *Children* on attitudes toward punishment can be easily explained by the visceral and blind desire to protect children (see Welch, 2011), and the significant and positive (negative) effect of *Religiosity* on answers to the second and third items finds support in the existing literature that religion can play a deterrent effect on crime (Baier and Wright, 2001) given that most crimes correspond to sins in most religions practiced in Europe. On the other hand, it is certainly striking that *Children* and *Religiosity* do not significantly affect respectively attitudes toward law obedience and punishment. Focusing on the former variable, parents are expected to teach their children what is allowed and what is forbidden; looking at the latter variable, most religions (including those mainly practiced in Europe) claim serious punishment for sinners after death. On a deeper thought, this result can be explained as follows: even assuming that most parents teach their children to respect the law, it does not mean that being parents change a person’s view of whether laws should be always strictly obeyed or not. Similarly, being religious has not to be associated to a demand of harsher punishments, but should rather make people more prone to forgive, as shown by Sandys and McGarrell's (1997) with respect to attitudes towards capital punishment. Moreover, and more importantly, the two results together seem to support the claim that people responses are based on their perceived sense of safeness, so that attitudes may be informative in this sense, especially those toward punishment where respondents have no reason to lie. We can therefore conclude that the demand for harsher punishment follows unsafeness, as procured by high corruption levels and low education levels.

The analysis becomes rather complicated turning to attitudes toward law obedience (items 2 and 3) as indirect expression of the tendency of respondents to respect/break the law. Before drawing some conclusive remarks, we have to say that also *Age* and *Born in the country of residence* show a significant effect of making people more intransigent. On the one hand, the strain theory (Agnew, 2009) helps explain the result about *Age* stating that adolescents are more exposed than adults to the experience of strain that leads to crime. However, the coefficient we find is so low (0,010 and -0.005 respectively for the second and the third item) that it cannot support the thesis that young people are less prone to obey the law. On the other hand, the effect of immigration is controversial. Bianchi et al (2012) and Martens (1997) find evidence respectively for Italy and Sweden that the size of the immigrant population is positively correlated only with the incidence of specific types of crime, such as robbery or violent crime. Butcher and Morrison Piehl (1998) find that cities with high crime rates tend to have large numbers of immigrants, but youth born abroad are statistically significantly less likely than native-born youth to be criminally active.

To sum, comparing our results with the existing literature on the supply of crime (see the Introduction), the effects of *Education* and *Corruption* on attitudes and behaviors clearly go to opposite directions, making people attitudes more tolerant and behaviors more legally oriented. On the contrary, *Age*, *Religiosity*, *Gender (Female)* and, to some extent, *Employment status*, *Born in the Country of Residence* and *Urbanization level* show effects on attitudes more aligned to those on behaviors. We can therefore conclude that attitudes serve the purpose of explaining behaviors only partially because civic sense and culture make the difference.

4. CONCLUSION

Using data from ESS Round 5, this study has focused on the determinants of attitudes towards punishment and law obedience, testing the effect of individual variables previously used in the literature (D'Agostino et al., 2013; Groot and Van Den Brink, 2010), together with certain contextual variables which, to the best of our knowledge, have never previously been used for this purpose. The results show that individual factors explain most of the variability at the country level, but that contextual variables also make a contribution.

We see that the demand for harsher punishment is mainly due to unsafeness: highly educated people living in non-corrupted countries feel more secure or, at least, believe that punishments have not to be harsher. A similar effect emerges turning to attitudes toward law obedience. In particular, the negative effect of *Control of corruption and interpersonal safety* proves that the institutional context plays a significant, though unexpected, role. If, on the one hand, good institutions promote social order and legality and work as a constraint against breaking the law, on the other hand, they allow more tolerant attitudes towards crime and punishment.

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THE ACCOUNTING AND FISCAL APPROACH OF MICRO-UNITS AS AN INFORMALITY RATE AND REDUCTION TOOL

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Abstract: *Micro-units are one of the main forms of business organization in the world and in Albania. Undertaking policies to reduce informality and tax evasion is a direct benefit to the Albanian economy in the context of the importance and contribution that these entities bring to the state budget. Micro-units currently have a simplified reporting framework under SKK 15 and are implemented in the framework of the approximation of Albanian legislation with that of the European Union. The accounting reporting of these units is not seen as a driving force for informality or fiscal evasion. On the other hand, in terms of fiscal reporting and existing fiscal laws, there is an opportunity to improve them as a way to reduce fiscal evasion and informality of micro-units. This conclusion comes in the context of the case study which deals with the legal vacuum in the law of VAT that brings inequality against taxpayers. Its elimination is argued by undertaking the policy of removing the exclusion threshold for annual turnover in the trade sector, as the questionnaire also finds the biggest problems in the sector. The key recommendations are needed to be directly implemented in the law on VAT and at the same time to adopt an action strategy to eliminate the negative effects that bring the main factor in promoting fiscal informality and evasion, which is the tendency for non-disclosure of the real financial situation as a way to pay less taxes. Taking these two recommendations would also have an indirect effect on reducing national informality and tax evasion.*

Keywords: *Business, accounting reporting, fiscal reporting, informality, tax evasion*

I. INTRODUCTION

Micro-units have a very crucial role in the economic growth and stable development of a country (Moore, 2008). Having such an indicative influence, the focus toward this category should be maximal in government policies which improve the business climate for these units and special attention should be paid to problems that this section faces every day. Meanwhile, tax evasion is the process of giving fake tax declarations. For the first time, about tax evasion is written in 1968, by the remarkable economist Gary Becker, in the "Crime Economy" edition on the basis of which authors MG. Allingham and A.Sandmo built, in 1972, the economic model of tax evasion. This model deals with tax evasion over income. Because of tax evasion, taxpayers deliberately distort their real amounts on their accounts in tax organs to diminish their tax obligation and they're included in the dishonest taxes reporting, such as declaring less income; profits or lower profits than actual gained amounts, etc. Tax evasions are a juristic reorganization of a business so that this business might minimize as much as possible its tax obligation to the limit that the law permits, whereas tax evasion can be seen as a whole reorganization for the business, for the same purpose, but that surpasses even legal limits.

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The identified percentage of tax evasion is much lower compared to the total size of tax evasion, including informal economy tax evasion, which is totally unidentified. Tax evasion is present in the formal economy as well as in the informal one, but it is more present in the informal economy. Meanwhile, the opposite cannot happen. Based on the above conclusion, a unit that can commit tax evasion may be formal or not.

Informality has been in the center of the fields with interest for many different scientific researchers and it has appeared in different forms during different time periods. Its identification and reduction is very important for the economic and social development of a country and for the government policies effectivity, but its evaluation and elimination is very difficult to achieve. For this reason, informality and the whole informal economy has become an important case in national and international levels especially in view of the European integration.

In the action taken for the informality in Albania, during the end of 2015, a very high number of informal businesses were identified, and they were registered as regular taxpayers. From data published in official statistics it is estimated that the number of people registered as a consequence of this action is increased by 40%. The action was focused mainly in micro-units which were identified as a category with high informality rate and the achieved results prove such a fact. On the other hand, there were some attempts to fight tax evasion in registered units mainly confirmed through the change of tax responsibilities for a taxpayers' category, and on the other side of employees increase in micro-units' payrolls. With all the encouraging results of the action, we reach a conclusion that shows that informality and evasion are in high levels for these categories. Besides the results and statistics, it's important to have a proper strategy to fight these disturbing phenomena for a very important category of Albanian enterprises. In terms of such indicators the natural question rises on which are the main fiscal and reporting problems for these micro-units in Albania today. Also, the purpose for the undertaking of this study is to offer some tools for the resolution of reporting and fiscal issues and for micro-units as condition for mutual profit of the state and these economic units. Thus, the purposes of this paper are:

- To show the existence of issues in the legal and fiscal framework of the activity exercise of micro-units.
- To enable the finding of solutions for the formalization and avoidance of tax evasion in micro-units, based on the main causes that stimulate such a thing in the own perception of entrepreneurs.

The main researching question of the study has to do with the accounting and tax regulating framework as a stimulant of informality and tax evasion in Albanian micro-units. So, in other words, does the accounting regulation or the existing tax framework affect as a stimulant of informality and tax evasion in the micro-units' category? To make every case simpler and more precise, other research sub questions are formulated. To these sub questions, according the appropriate treatment, is given an answer through studying of the literature, a study case and the testing of an organized questionnaire relating the perception of entrepreneurs of this category.

II. ACCOUNTING AND FISCAL REPORT OF MICRO-UNITS – REVIEW OF THE LITERATURE

Micro-units are usually family businesses or self-employed people who exercise their activity in partially formalized or not formalized sections of the economy. Some of them have less chances to convert to big firms mainly as a consequence of low crediting opportunities from the banks and for international expansion. The legal and accounting regulation of these units often requires particular institutions and specific instruments. An example of this differentiated approach is the loan oriented in methods based on applied groups from some micro-financial crediting institutions (Hallberg, Vol. 63).

The micro-units, in the definition provided by different authors, have a separate designation regarding the criteria that are used for the evaluation of this form. Until 2000s, such a category was not clearly identified even from fiscal standards or laws in different countries of the world or even from different researchers of the field. The few researches in this field started to be conducted in the groups of small and medium sized enterprises and often including the group of these units too in this large group without identifying the need for simplified procedures of reporting that this category has. According BSNK, small and medium sized units can be divided into three categories, micro, small and medium sized. The main requests for small and medium sized economic units are:

- These economic units don't have a public responsibility.
- They prepare financial statements for generic purposes (BSNK, 2010)

Meanwhile in the quantitative criteria, variables like the employees' number, annual realized circulation and/or the size of the financial position statement are taken into consideration. The recommendations for the proper and estimate definition of this category is for a combination of these two criteria to be used so that standards and policies might be drafted in their direct profit. This is because studies show that there's a difference between micro-units according different countries, sections they operate, the economic development rate, etc. Even inside a specific country, micro-units are not a homogenous structure because even the criteria for their identification are a combination of quantitative and qualitative variables in the same time.

Another logical division might also be the classification in micro-units with the possibility for growth and in micro-units which are limited to growth. Such an argument is supported by the fact that many big global firms enlisted in international grants have begun as this organization form; just to mention examples like McDonald's. So, every categorization and direct definition for micro-units that make their classification for the separation from the group of small and medium sized enterprises, might be arbitrary, taking into consideration the problems or limitations that such consideration hold on the basis of quantitative or qualitative criteria set by organisms to adapt to. (Demartini 2005)

II.1. Accounting report of micro-units in Albania.

In Albania too, micro-units have a clearly defined treatment referring to the National Accountability Standard 15 in which directives from the European Council are implemented for a simplified reporting of these economic units. The standard for these units makes a division according the reporting requests by designating as evaluation criteria the legal form of the economic unit, the annual circulation rate, the employees' number, and the value of the asset of the financial performance declaration. According the designation of the standard, two conditions must be met from the three criteria that are designated for the two last years of exercising economic activity by the economic unit. From these criteria, we mention the employee' number that shouldn't be higher than 10 people and also the figure of the business and/or the total of the asset to 10 million Lek. It is enough for one of the two criteria about the size of the annual balance or circulation to be accomplished together with the criteria of employee's number for the last two years and the units are subjects of this standard's implementation.

In the 5th paragraph of the standard implementation field is defined the simplified accountability with a one-fold monetary base as a basis for the registration of transactions that are made by individuals with an annual income up to 2 million. All other micro-units, regardless of the legal form, keep their records according the increasing accountability. This is a division that's been applied in the case of Albania to offer a simplification in reporting also based in the cost-profit criteria of the information produced by units with an annual circulation under 2 million.

Referring to the European Council's directive over the simplified reporting of micro-units, this is an opportunity where it's given independence of choice to the states regarding the choice of the accountability application on a one-fold monetary base or the application of the double registering method for all the micro-units group. A differentiated accounting approach, according SKK 15, offers the basic argument regarding the answer to the second research question regarding the simplified reporting of micro-units also implemented in Albania on the basis of preliminary criteria that bring the existence of this business organization form.

II.2. Fiscal reporting and contribution in the national income by micro-units in Albania.

Also, in the Albanian economy, micro-units play a big role in the economic development, taking into consideration their existence and their state of economic development. In the first part of the paper we identified the accountability approach that this category of entrepreneurship has in the world and in Albania. Following this is identified the fiscal approach in which micro-units are part as a way to show the contribution they bring to the national economy and on the other hand to create a fairer picture regarding problems of their fiscal reporting through problems that appeared in the past and from the direct reasoning.

An entity that's specified as a micro-unit according the national accountability standard 15, will be specified for the purpose of income taxes as a small business if it achieves an annual circulation under 8 million all during a calendar year. Being a subject of such a definition, this business category offers a differentiated approach compared to subjects with a greater circulation than this rate. This is because the small business is a subject of the simplified profit tax which has lower rate than the income tax that's achieved by the business. For the year 2015, the tax for unit subjects of the simplified tax for the little business was:

Table 1 Chart for the simplified tax over the small business before the change

Annual Circulation	**Profit tax of the small business**
0 – 2000000 ALL	25000 ALL
2000000 – 8000000 ALL	7.5% of the profit but not less than 25000 ALL

Source: The law on the simplified tax of the small business

With a decision made in the end of 2016, further facilitations are proposed for this category by rebuilding the chart as following:

Table 2. Chart for the simplified tax over the small business after the legal change

Annual Circulation	**Profit tax of the small business**
0 – 5000000 ALL	0
5000000 – 8000000 ALL	5% of the profit

Source: General Directorate of Taxation

Contributions for social and health care. Mainly, for the categories taken in the study are the levels of the applied rates for the self-employed individuals according the designation of the law for contributions.

Regarding the micro-units' informality or their tax evasion, there's a perception regarding the low importance they have in the macroeconomic contribution for the state's budget from the field's scholars. Mainly, this conclusion is reasoned upon the contribution that these units bring in the Albanian state's budget regarding the simplified tax over the small business. However, such an argument would be premature taking into consideration the entirety of the taxes mentioned above that these units pay for. Moreover, another argument that strengthens this conviction is also the effect that the evasion formalization or reduction for these units has in the other links of the biggest enterprises that enter the transactions with these units. Specifically talking, for each of the above-mentioned taxes is given the adapt argument and the effect that different taxing policies have over these units and in total in the national economy.

III. ISSUES OF THE FISCAL APPROACH OF MICRO-UNITS

The change of the tax's responsibility is a debatable case also referring to the designation in the changed law for the VAT since there's no clear designation regarding the criteria of the obligatory passing as a subject of this law. This legal vacuum is also strengthened from the fact that our tax system is built on the principle of self-declaration and on the other hand there's a high evasion rate in this field regarding the non-declaration of the real annual circulation. This creates a redundancy of the businesses that are hiding in this category and abuse with the profits of being under the excluding threshold for the VAT.

These changes are a main object of this paper and they'll be dealt with in the following sections. It's exactly the perception of the entrepreneurs of this changed category that will be studied and put in a parallel with other factors that will be identified in the following sections. The approach chosen to use for this concept in the paper has to do with the level of the threshold for registration in the requirement of the law of the Value Added Tax of the Republic of Albania. According the definitions made in the law, we identify that the obligation to register for this tax it's on the following subjects:

- Free professions (advocate, accountant, lawyer, immovable property registrant, chemist), regardless of the annual circulation rate.
- Subjects that realize activities in the area of hotels regardless of the annual circulation rate
- All the subjects who carry out imports in the Republic of Albania and are registered as resident taxpayers, as businesses regardless of the annual circulation they have realized.
- All the subjects who surpass the threshold of the registration in the Republic of Albania that is appointed with the decision of the Minister of Finance and is published in the website of the Ministry of Finance. Currently, this threshold of the procreation of the obligation for registration in the Value Added Tax is appointed in the level of 20% and for all of those businesses that carry out a circulation over 5 million Lek during the calendar year.

The point that is focused on in this work and that it's more valuable regarding the purpose of the paper's realization, has to do with the last point in which the appointed threshold is given for registration in the VAT. The focus group, just as it was identified above, are mainly micro-units which will be tested and conclusions made from the study of the literature.

As it was mentioned before, one of the biggest current issues is informality and tax evasion in Albania that appears in the forms of:

- Non-declaration of employees,
- Non-registration of the activity,
- Non-declaration of the actual turnover in Albania, mainly by micro-units.

In these conditions when the declared turnover is not real, then we're dealing with abuses in this category and with profits off the subjects that are not legal for these benefits. The concealment in this category is the main tool of evasion from the micro-units. But which is the way to fight such a phenomenon? Generally speaking, micro-units are represented by retail units, service units, handicraftsmen, the self-employed in different professions, restaurants, bars, etc. Our law for the VAT has clearly defined the involvement as a subject of the law of profession categories or economic units that exercise their economic activity in the area of hotels. Under these conditions why not making such a definition also for retail units and service units and have specific categories of professions that in fact don't pass the threshold? In the foundation of the legal change proposed, let criteria such as these remain: the object of the exercised activity is more in the orientation of the offering of the service offering or trading of the products? The exclusions to exist with thresholds but only for those units whose activity is mainly based in works such as production factors, and with national importance such as the handicraftsman section. However, besides the benefits, such a legal change would also have some opposite arguments which are referred to the possible solution as a counterargument to prove the surpassing of profits from the costs. Second, besides the costs, such a change will bring even more additional procedures relating the fiscal report. And last, all the statements process, that of the supervision, will also engage more funds and resources on the tax administration side. In view of these changes, the purposes of undertaking such a proposal must remain. Such an initiative, that's been previously argued about, will directly contribute in the reduction of tax evasion on the basis of previously made definitions, one of the main issues of enterprises in the current conditions of Albania.

On the other hand, through this study case, the negative effect was proved, that the excluding threshold has in the equality between taxpayers. In the conditions when a taxpaying group has homogenous attributes regarding the kind of activity and likeliness or the sameness of products that are traded, such a legal regulation will provide the adherence of one of the foundational principles over which our taxing system is built, which is the equality between taxpayers, according the regulations in the law for tax procedures in the Republic of Albania. Also, a proposal for taking under control of the reporting costs from the taxpayers and in the same time the tax administration, would be that the reporting system doesn't need intervention since the data transmission is actually accomplished through the equipment with fiscal cash register. Since the taxpayers are equipped with these tools and on the other hand they make daily reports of sales, then there's no need for an addition cost in the sales process.

As for the purchases report, a solution might be their reporting on a 3-months basis to not cause high added cost, or offering of the assistance through guidelines from the tax administration regarding this process for the entrepreneurs in micro-units. While the taxing management can be done with reduced costs by making a good use of the current informatics system of reporting sine it enables such a thing on a wide base of users. Promising results can also come from the permanent staffs' engagement specifically for this category in the tax directories' structure. The costs that will come as a result of the taxing management, because of above-mentioned arguments, will be covered from additional income in all kinds of previously treated taxes.

In conclusion of this case, legal vacuums are identified that are used as an argument relating the research question for fiscal issues of micro-units' reporting. The case study also brought a fact in the way the law itself creates premises for tax evasion in the approach it offers to taxpayers in sections with competition and with prices that are somewhat fixed. The given recommendations in this chapter and the logic flows from the interpretation of the findings, are an invaluable strategy regarding the reduction of these undesired effects, also taking into consideration the cost-profit ratio from such initiatives.

CONCLUSIONS AND RECOMMENDATIONS

The category of micro-units plays a great role in the economic development of countries and the support for them with favoring policies is a direct benefit in the tax income for countries' budgets, increase of employment, democratization of countries, the fairest distribution of income, etc. Since issues like tax evasion and informality for these units exist, the undertaking of initiatives to eliminate them would be a very great help for this category.

Micro-units have a well-defined accounting regulation through the European Union's directive for this category. Even in Albania we have adapted the legislation for the accounting report of these units like in the EU through SKK 15. Their reporting in this framework is simplified as a consequence and as a need for less information for users.

In Albania, there's a differentiated approach also from the fiscal party for this business category. The contribution that these units bring in the state's budget is through taxes, fees and contributions that are evaluated in high levels. The informality of this section was higher before September 2015 that was proved with new registrations through the addition with 40% of the micro-unit taxpayers.

The actual fiscal framework offers conditions for the stimulation of tax evasion and informality in micro-units, and this is proved through the case study regarding the registration threshold for the VAT, that brings a differentiating treatment of taxpayers in the same conditions. This is the case of Albania, where also the rate of income concealment is in a high level and many businesses hide under the excluded category as a subject of this law, bearing privileges in reporting and from the monthly non-declaration of sales and purchases booklets. In the same line is also evaluated the latest legal initiative that zeroes the profit tax of the small business, argued as a way of the addition of abuse from micro-units through the fragmentation of the activity.

Most of the entrepreneurs don't know the difference between the concepts of informality and tax evasion. Asked regarding the form of informality display, these entrepreneurs responded for the concealment of the sales and the differentiated treatment that the law of the VAT offers. With the undertaking of the anti-informality action, almost half of the micro-units haven't been affected. Meanwhile, the others have registered the informal business they owned before the action, and a part of them have changed their tax responsibility. Most of the interviewed, previously informal, are in the circulation rate under 2 million Lek and they belong to the trading section. Whereas, the tax responsibility is changed in most of them, not with the taxpayers' request themselves, but with subjectivity in the interpretation of the law from the tax administration representatives. This also testifies the necessity of the incorporation of trading subjects in the VAT scheme, regardless their realized circulation.

The most important factor that stimulates evasion, according the perception of entrepreneurs, is evaluated to be the desire and will to not expose the real financial condition so that less taxes and fees might be paid. Meanwhile, two other important factors that are evaluated in the perception of the entrepreneurs are the intensity of the laws change and fiscal regulations, and the existing fiscal framework.

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