

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

ITEMA 2017

OCTOBER 26, 2017
BUDAPEST, HUNGARY
Vitta Hotel Superior



CONFERENCE PROCEEDINGS

***INTERNATIONAL SCIENTIFIC CONFERENCE
ITEMA 2017***

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

CONFERENCE PROCEEDINGS

***Budapest, Hungary
October 26, 2017***

Conference ITEMA 2017

Conference Proceedings – Recent Advances in Information Technology, Tourism, Economics, Management and Agriculture

Scientific Committee:

1. **Pece Nedanovski**, PhD, Full - Time Professor, Ss. Cyril and Methodius University, Faculty of Economics, Skopje, Macedonia
2. **Dejan Filipović**, PhD, Full - Time Professor, Dean, Faculty of Geography, University of Belgrade, Belgrade, Serbia
3. **Zhanna Mingaleva**, PhD, Professor, Perm National Research Polytechnic University, Perm, Russia
4. **Duško Tomić**, PhD, Full - Time Professor, American University in the Emirates, Dubai, United Arab Emirates
5. **Branko Ljutić**, PhD, Full - Time Professor
6. **Miodrag Simović**, PhD, Full - Time Professor, Faculty of Law, Banja Luka, Judge of the Constitutional Court of Bosnia and Herzegovina, Bosnia and Herzegovina
7. **Duško Šnjegota**, PhD, Associate Professor, Faculty of Economics, Banja Luka, Bosnia and Herzegovina
8. **Gordana Marjanović**, PhD, Associate Professor, Faculty of Economics, University of Kragujevac, Kragujevac, Serbia
9. **Sandra Jednak**, PhD, Associate Professor, Faculty of Organisational Sciences, University of Belgrade, Belgrade, Serbia
10. **Brilanda Bushati**, PhD, Associate Professor, University of Shkodra "Luigj Gurakuqi", Economic Faculty, Shkodër, Albania
11. **Irena Andreeska**, PhD, Associate Professor, University for Tourism and Management - Skopje and Euro College – Kumanovo, Macedonia
12. **Zoran Ćirić**, PhD, Associate Professor, Faculty of Economics, University of Novi Sad, Subotica, Serbia
13. **Zafer Çalışkan**, PhD, Associate Professor, Hacettepe University, Department of Economics, Ankara, Turkey
14. **Gordana Dozet**, PhD, Associate Professor, Faculty of Biofarming, Backa Topola, Serbia
15. **Karolina Olszewska**, PhD, Assistant Professor, Faculty of Social Sciences, Institute of International Studies, Wrocław, Poland
16. **Nikolina Ljepava**, PhD, Assistant Professor, MBA Program Director, American University in the Emirates, Dubai, United Arab Emirates
17. **Veneta Krasteva**, PhD, Assistant Professor, Institute for the Study of Societies and Knowledge, Bulgarian Academy of Sciences, Sofia, Bulgaria
18. **Robert Jurča**, PhD, Assistant Professor, European Polytechnic Institute, Kunovice, Czech Republic
19. **Željko Sudarić**, PhD, Senior Lecturer, College of Applied Sciences "Lavoslav Ružička", Vukovar, Croatia
20. **Yasin Galip Gençer**, PhD, Assistant Professor, Yalova University, Yalova, Turkey
21. **Nada Kosanović**, PhD, Institute for the Application of Science in Agriculture, Belgrade, Serbia
22. **Branka Remenarić**, PhD, Lecturer, Zagreb School of Economics and Management, Zagreb, Croatia

Organizational Committee:

Anton Vorina, PhD, Professor; Vuk Bevanda, PhD, Associate Professor; Nikolina Vrcelj, PhD candidate; Nevena Vrcelj, PhD student; Danijela Rutović, BSc; Ivana Mirčević, BSc; Uroš Mirčević, Ing.; Goran Stevanović, BSc; Ana Rusić, BSc; Marko Vrcelj Photography

Published by:

Association of Economists and Managers of the Balkans, Belgrade, Serbia

Printed by: All in One Print Center, Belgrade

Belgrade, 2017

ISBN 978-86-80194-08-0

CIP - Каталогizacija u publikaciji -
Narodna biblioteka Srbije, Beograd

330(082)
004(082)
005(082)
338.48(082)
631(082)

INTERNATIONAL Scientific Conference ITEMA 2017
Recent Advances in Information Technology, Tourism,
Economics, Management and Agriculture (2017 ; Budapest)
Conference Proceedings / International scientific conference
ITEMA 2017 Recent Advances in Information Technology,
Tourism, Economics, Management and Agriculture, Budapest,
Hungary October 26, 2017 ; [organized by Association of
Economists and Managers of the Balkans]. - Belgrade :
Association of Economists and Managers of the Balkans,
2017 (Belgrade : All in One Print Center). - ilustr. - XXIV,
953 str. ; 30 cm

Tiraž 100. - Napomene i bibliografske reference uz tekst. –
Bibliografija uz svaki rad.

ISBN 978-86-80194-08-0

1. Association of Economists and Managers of the Balkans
(Beograd) a) Информациона технологија - Зборници b)
Економија - Зборници c) Менаџмент - Зборници d)
Туризам - Зборници e) Пољопривреда – Зборници
COBISS.SR-ID 254932748

CONTENTS

THE APPLICATION OF INFORMATION AND WEB TECHNOLOGY IN THE PRODUCTION PROCESS MANAGEMENT	2
Nenad Kojić Uroš Biberdžić Natalija Vugdelija	
THE A/B TESTING OF DISPLAY ADVERTISING BASED ON EYE TRACKING ...	11
Radovan Madleňák Tatiana Čorejová Lucia Madleňáková	
ADVANCED TOOLS FOR DYNAMIC ROUTING PROTOCOL OPTIMIZATION IN COMPUTER NETWORKS	19
Goran Zajić Milan Pavlović Milanko Kragović	
SUPPLY CHAIN MODELLING AS DIGITAL ECOSYSTEM.....	27
Alexandru Averian	
ROLE OF EXPERIMENTS IN SIMULATIONS MODELS	36
Sandrina Dimitrijević	
WEB CONTENT MINING IMPROVEMENT USING MULTIFRACTAL ANALYSIS.....	41
Milena Vesić Goran Zajić Nenad Kojić	
ADVANCES OF CUSTOMER RELATIONSHIP MANAGEMENT SOLUTIONS IN ORGANIZATIONAL MARKETS.....	47
Stanislav Levičar	
THE ATTITUDES TOWARDS ONLINE SHOPPING: THE CASE OF MACEDONIAN STUDENTS.....	52
Ana Tomovska Misoska Ilijana Petrovska Stefanija Mindova	
POSSIBLE ASPECTS OF ICT TEACHING METHODOLOGY.....	61
Nebojša Denić Stevica Janković	
TECHNOLOGY USE IN EDUCATION SECTOR; NOT ‘WHEN’ BUT ‘HOW’.....	67
Misbah Saboohi	

BASECAMP AND FLIPBOARD IN TERTIARY EDUCATION BUSINESS ENGLISH COURSE	78
Igor Rižnar	
MODEL OF THE ETL PROCESS AUTOMATION FOR THE SUBJECT SALE IN A PRODUCTION BUSINESS SYSTEM.....	87
Milena Kukrić Milan N. Drašković Ivica Stanković	
FIGHT AGAINST COMPUTER CRIMES IN SERBIA	95
Miodrag N. Simović Dragan Jovašević	
IMPLEMENTATION ALBERTO DIFFUSO MODEL FOR SUSTAINABLE TOURIST DEVELOPMENT ON ELAPHITI ISLANDS IN CROATIA	102
Sanja Tišma Anamarija Farkaš Anamarija Pisarović	
THE ROLE AND IMPORTANCE OF LOGISTICS ON THE DEVELOPMENT OF TOURIST DESTINATIONS IN THE REPUBLIC OF CROATIA.....	109
Željko Sudarić Katarina Vučko Marko Eljuga	
EXPLORING THE DIMENSIONS OF CUSTOMER SATISFACTION: THE CASE OF CROATIAN HOTEL INDUSTRY	116
Sanja Raspor Janković Suzana Marković	
TOURISM AND TOURISM CLUSTERS IN THE SLOVAK REPUBLIC	124
Katarína Kráľová Jana Sochuľáková Dagmar Petrušová	
ARE COUCHSURFING AND OTHER FORMS OF FREE AND CHEAP ACCOMMODATION A THREAT TO TRADITIONAL TOURISM?	131
Cilka Demšar	
A STAKEHOLDER EVALUATION FROM TOURISM BUSINESSES IN SHKODRA TOURISM DESTINATION.....	137
Mersida Bala Mokçi Romina Dhora	
CLUSTER ANALYSIS OF REGIONAL TOURISM IN SLOVAKIA.....	144
Dana Jašková	
TAKING ADVANTAGE OF UNESCO WORLD HERITAGE FOR PROPAGATION OF SLOVAK DESTINATIONS	151
Barbora Suchá	
RURAL TOURISM AS A MEANS FOR STRENGTHENING RURAL ECONOMY. 158	

Gordana Rokvic
Milos Galic
Zeljko Vasko

PROFILE OF VISITORS IN THE NATIONAL PARK ŠUMAVA AND THEIR ATTITUDE TO ENVIRONMENTALLY FRIENDLY TOURISM OFFERS 167

Dagmar Škodová Parmová
Zuzana Dvořáková Líšková
Rostislav Kain
Marie Korousová

AGRO-TOURISM DEVELOPMENT BASED ON THE CONCEPT OF TOURISM PRODUCT DIVERSIFICATION 174

Tihana Sudarić
Jadranka Deže
Ružica Lončarić

ECOLOGICALLY IMPORTANT AREAS AND PROTECTED NATURAL SITES AS IMPORTANT POTENTIAL FOR THE DEVELOPMENT OF ECOTOURISM IN SERBIA 183

Milan Počuča
Jelena Matijašević-Obradović

DRIVING FOOD TOURISM DEVELOPMENT THROUGH LOCAL GASTRONOMY 193

Alžbeta Kiráľová
Iveta Hamarneh

THE SIGNIFICANCE OF THE CUSTOMER RELATIONSHIP MANAGEMENT (CRM) SYSTEM IN HOTEL INDUSTRY – FROM THE GUEST TO THE CLIENT 201

Ivana Deže
Ana Gavran

INTELLECTUAL CAPITAL AS POTENTIAL AND BENEFITS OF THE STRATEGY OF MARKET SEGMENTATION OF TOURIST SERVICES..... 207

Julija Avakumovic
Jelena Avakumović

URGENT NEEDS FOR THE EDUCATION OF NEW WORKERS EMPLOYED IN ALBANIA'S TOURISM SECTOR 215

Mirela Ballhysa
Valbona Belshaku

THE IMPACT OF LOCATION PRODUCT PLACEMENT ON TOURISM IN SELECTED COUNTRIES..... 220

Bianka Chorvatova

THE INFLUENCE OF THE SHARING ECONOMY IN ROMANIAN TOURISM. CASE STUDIES ABOUT AIRBNB AND UBER 226

Budz Sonia

THE IMPACT OF SOCIO- DEMOGRAPHIC CHARACTERISTICS OF TOURIST PARTICIPATING IN GASTRONOMIC ACTIVITIES: THE CASE OF SHKODRA CITY.....	240
Romina Dhora Mersida Bala Mokçi	
KEY RESOURCES MANAGING IN EU TOURIST DESTINATIONS	247
Svetlana Božović	
THE CITIES – OPPORTUNITY FOR INNOVATIONS IN TOURISM.....	255
Irena Emilova	
THE ROLE OF TOURISM AND CULTURE IN CITY BRANDING: CASE STUDY OF NOVI SAD	264
Ana Jovičić Vuković Jelena Damnjanović Nataša Papić-Blagojević Ivana Jošanov-Vrgović	
CITY BRANDING AS A KEY TO SUSTAINABLE DEVELOPMENT: THE CASE OF HERMOUPOLIS, GREECE.....	271
Roido Mitoula Minas Iosipou Panagiotis Kaldis Eleni Sardanou	
TOURISM UNDER THE ARCHITECTURAL PERSPECTIVE OF VACATION INFRASTRUCTURES	285
Myrto Stenou	
FROM PROMISING INSTITUTIONAL TRANSPLANTS TO LEGAL IRRITANTS: SOME INSTITUTIONAL ASPECTS.....	290
Ružica Šimić Banović	
ECONOMIC IMPLICATION OF LABOUR MARKET ORGANISATION.....	302
Gabriela Kozlinger Nenad Vretenar Davor Mance	
RELATIONSHIP BETWEEN THE UNEMPLOYMENT RATE AND DETECTED OFFENSES IN THE CZECH REPUBLIC	310
David Lenert	
SHARING ECONOMY: COMBINATION OF PHYSICAL AND DIGITAL SUPPLY CHAIN; CURRENT SITUATION AND NEW TRENDS.....	318
Višnja Bartolović Sandra Mrvica Mađarac Ante Nemeček	
INDICATORS OF SUSTAINABILITY.....	329
Monika Dušková Markéta Součková	

EFFICIENCY IN ENERGY CONSUMPTION AS A FACTOR OF SUSTAINABLE DEVELOPMENT.....	340
Zhanna Mingaleva Ksenia Lapshina	
EXTERNAL DETERMINANTS OF GROWTH IN THE BULGARIAN ECONOMY	350
Vera Pirimova	
IMPROVING TRANSPORT CONNECTIVITY OF REGIONS AS THE BASIS FOR ECONOMIC GROWTH.....	358
Anna Mingaleva	
THE DYNAMICS OF AGGREGATED INDICATORS OF EFFICIENCY OF ELECTRICITY CONSUMPTION BY RUSSIAN REGIONS AT THE FIRST STAGE OF IMPLEMENTING THE ENERGY STRATEGY OF RUSSIA TILL 2030	367
Lyudmila Yu. Bogachkova Shamam G. Khurshudyan	
STRUCTURAL DEPENDENCE OF ECONOMIES IN THE ERA OF GLOBALIZATION	378
Leon Olszewski Pawel Dobrzanski	
CONTEMPORARY CHALLENGES FOR THE KNOWLEDGE-BASED ECONOMIES IN THE LIGHT OF CURRENT GLOBAL TRENDS – REFLECTIONS ON THE REPUBLIC OF MACEDONIA –	386
Pece Nedanovski	
PROPERTY FUND – A VIABLE SOLUTION FOR THE ROMANIAN CAPITAL MARKET?.....	403
Catalin Gheorghe	
SOVEREIGN WEALTH FUND APPLICATIONS IN TURKEY AND THE WORLD	410
Seçkin Arslan Ayberk Nuri Berkman Tuğba Kayıkçioğlu	
THE ACCESSION OF BULGARIA TO THE EURO AREA: PROSPECTS, PROBLEMS AND RECENT DEVELOPMENTS.....	426
Vanya A. Ivanova	
FINANCING OF INNOVATION ACTIVITIES IN SMALL AND MEDIUM ENTERPRISES IN SLOVAK REPUBLIC	433
Monika Jančovičová Kristína Kováčiková	
ISSUES OF FAMILY BUSINESSES IN SLOVAKIA	440
Ladislav Mura Martin Pafčo Lucia Rafajová	
COMPARATIVE COUNTRY STUDIES. CASE OF V4 COUNTRIES.....	449

Pawel Dobrzanski

THE IMPACT OF FOREX RATES ON THE STOCK EXCHANGE INDEXES' RETURNS IN SOUTH-EAST EUROPE..... 462

Gancho Ganchev
Elena Stavrova
Vladimir Tsenkov

COST-SENSITIVE LEARNING FROM IMBALANCED RETAIL CREDIT DATASET 469

Stjepan Oreski
Goran Oreski

OPTIONS - FINANCIAL DERIVATIVES FOR MANAGING INTEREST RATE RISK..... 478

Snezhana Dichevska
Vera Karadjova

ANALYSIS OF THE GLOBAL OIL PRICE TRENDS ON INTERNATIONAL MARKETS..... 485

Adrijana Vuković
Marijana Milunović
Aleksandra Pavićević

CONSEQUENCES OF SYSTEMIC FINANCIAL CRISIS ON REAL ECONOMY AND FISCAL IMBALANCES 494

Lucia Mihóková
Radovan Dráb

STRATEGIES OF SOCIALLY RESPONSIBLE INVESTMENT IN POLAND..... 505

Marzena Remlein

REALIZATION OF PARTNERSHIP IN THE CONCEPT OF SUSTAINABLE DEVELOPMENT ON REGIONAL LEVEL 513

Zhanna Mingaleva
Christina Uzhegova

THE IMPACT OF SERVICE QUALITY DIMENSIONS IN BANKING ON BUSINESS SUCCESS OF BANKS IN BOSNIA AND HERZEGOVINA..... 521

Momčilo Poljić
Željko Jovanović

ANALYSIS OF THE IMPACT OF THE ACQUISITION OF SOCIÉTÉ GÉNÉRALE – SPLITSKA BANKA BY OTP BANK CROATIA ON THE CONCENTRATION OF THE BANKING MARKET OF THE REPUBLIC OF CROATIA..... 535

Ivana Beljo
Kristina Devčić
Željko Deković

PREPARATION FOR THE INTRODUCTION OF A DIRECTIVE PSD2 IN BANKING 543

Petya Biolcheva

**ANALYSIS OF THE CREDIT RATING OF THE COMPANY "13. JUL PLANTAŽE
AD PODGORICA "FOR THE PERIOD FROM 2011 TO 2014..... 549**

Zoran Todorović

**INFLATION INFLUENCE ON ECONOMIC DEVELOPMENT OF THE COUNTRY
AND MAIN DIRECTIONS OF OVERCOMING IT 560**

George Abuselidze

**PROCESS OF LEGALIZATION OF THE CRIMINAL PROCEEDS IN THE LEGAL
FINANCIAL SYSTEM OF THE REPUBLIC OF MACEDONIA 568**

Svetlana Nikoloska

Jovche Angeleski

Nikola Nikoloski

**THE GROWTH ACCOUNTING FOR AGRICULTURE, INDUSTRY AND SERVICES
OF SLOVENIA 580**

Manuela Raisová

**FINANCIAL LITERACY OF THE UNIVERSITY STUDENTS IN THE TECHNICAL
FIELDS OF STUDY 588**

Zuzana Kozubíková

Aleš Kozubík

Jiří Nožička

**MANAGEMENT DECISIONS IN A COMPANY IN CRISIS IN THE SLOVAK
REPUBLIC 597**

Lucia Ondrušová

PROJECT RESEARCH FUNDING IN SLOVAKIA..... 604

Alexandra Lešková

Miroslav Šipikal

**ENTERPRISE RISK MANAGEMENT THROUGH THE VALUE AT RISK CONCEPT;
ANALYSIS OF BELGRADE STOCK EXCHANGE INDEX..... 613**

Luka M. Filipovic

Branko Z. Ljutic

Borjana B. Mirjanic

THE CHALLENGES OF ESTABLISHING FOOD DONATION SYSTEM..... 622

Đeni Lovrenčić

Nenad Vretenar

Zoran Ježić

**EFFICIENCY OF POLISH PROGRAMMES FOR FAMILIES WITH MANY
CHILDREN 630**

Anna Bebel

**CHILDREN AND THEIR ROLE IN FAMILY TRAVEL PURCHASE DECISION-
MAKING PROCESS: EVIDENCE FROM HUNGARY..... 635**

Slavica Tomić

Ksenija Leković

Dražen Marić

HOW SOCIAL MEDIA MARKETING IMPACT ON THE ORGANIZATIONS IN REPUBLIC OF MACEDONIA 642

Sanja Nikolic
Sreten Miladinovski

INTERNATIONAL MARKETING IN THE SERVICE SECTOR: POTENTIAL AND CHALLENGES 648

Sasa Virijevec Jovanovic
Dusko Mladjenovic

ANALYZING PASSENGERS PROFILE USING LOW COST AND FIXED COST CARRIERS: A CASE STUDY OF PRISTINA AIRPORT 654

Lorik Abdullahu

ORGANIZATIONAL IMAGE – KEY FACTOR IN ETHICAL COMMUNICATION WITH THE TARGET AUDIENCE 666

Nicoleta Dospinescu

COMPARISON OF COPING STRATEGIES CONSIDERING TO SELECTED SOCIO-DEMOGRAPHIC CHARACTERISTICS OF EMPLOYEES 673

Tatiana Lorincová

COPING STRATEGIES OF MANAGERS AND NON-MANAGERS 678

Lucia Zbihlejšová
Miroslav Frankovský
Zuzana Birknerová

NON-MATERIAL STRATEGIES FOR MOTIVATION OF EMPLOYEES IN IT SECTOR 689

Lidija Lesko Bošnjak
Mirela Mabić
Damir Musa

A COMPARATIVE ANALYSIS OF THE ROLE OF HRM FUNCTION AND ITS CONTRIBUTION TO THE COMPANIES' PERFORMANCES IN SERBIA 696

Agneš Slavić
Nemanja Berber
Radmila Bjekić

INTERNATIONAL STRATEGIES AND EXPATRIATES MANAGEMENT: DO THEY RUN TOGETHER? 711

Patrizia Silvestrelli

CRITICAL ANALYSIS OF INTERACTIONAL THEORY IN WORKING GROUPS 722

Maja Vojinović

FRANCHISE SYSTEM PARTICIPANTS AS ENTREPRENEURS AND THEIR CAREER DEVELOPMENT OPPORTUNITIES 728

Suzana Stefanović
Milica Stanković

UPCOMING 4TH INDUSTRIAL REVOLUTION IS A NEW CHALLENGE FOR INTER-COMPANY EDUCATION OF EMPLOYEES IN THE CZECH REPUBLIC 737

Robert Jurča
Jindřich Petrucha
Petr Koudela

HISTORY AND THE RISE OF COWORKING SPACES IN SLOVAKIA..... 744

Zuzana Skorková
Natália Tarišková

ESTIMATION OF IMPACT FACTORS FOR HOFDTEDE'S CULTULAR DIMENSIONS FOR CROSS-CULTULAR MANAGEMENT 752

Dalibor Petković
Nebojša Denić
Miloš Milovančević
Boban Stanković

DEVELOPMENT OF INFORMATION SYSTEM OF MANAGEMENT DECISIONS IN SPORTS ORGANIZATIONS..... 758

Aleksandr V. Bashminov

VERIFICATION OF COMPLIANCE WITH THE TIME AVAILABILITY STANDARD OF THE UNIVERSAL SERVICE AND COMPARISON OF THE SURVEY RESULTS FROM 2013 TO 2017 767

Michal Pavličko
Alena Košťálová

IMPROVING THE LEAN IMPLEMENTATION AND THE COMMUNICATION PROCESS IN AUTOMOTIVE INDUSTRY 777

Velika Temelkova
Nevenka K. Rogleva
Vangel Fustik

FACTORS OF INCREASING UNIVERSITY COMPETITIVENESS IN RUSSIA..... 785

Evgeniya Yazovskikh
Oksana Yatsenko

APPLICATION OF SERVQUAL MODEL IN STATISTICAL QUALITY CONTROL..... 792

Zarko Radjenovic
Danijel Milosevic
Valentina Radjenovic

PESTEL ANALYSIS OF PROJECT MANAGEMENT IN WATER SECTOR IN BULGARIA 800

Zornitsa Stoyanova
Hristina Harizanova-Bartos

A SURVEY OF PRIVATE WELL WATER QUALITY IN SUBURB OF ALBANIAN CAPITAL CITY 808

Ariola Devolli
Mariola Kodra

Edlira Shahinasi
Merita Stafasani

ECONOMIC DEVELOPMENT BY THE FOREIGN DIRECT INVESTMENT IN AGRICULTURE SECTOR 822

Sandra Jednak
Milos Parežanin
Dragana Kragulj

INTERACTION VARIETY AND MICROBIOLOGICAL FERTILIZER ON YIELD BEAN IN ORGANIC CULTIVATION 831

Gordana Dozet
Sufyan Abuatwarat
Nenad Djuric

NEW BUSINESS MODEL OF PRECISE AGRICULTURE 839

Mirjana Kranjac
Srđan Tomić
Jakob Salom
Stanko Bulajić

HOUSEHOLD CHARACTERISTICS DETERMINING SLOVAK MILK PURCHASE BEHAVIOUR 846

Klaudia Kurajdová
Janka Tábovecká-Petrovičová
Gabriela Nedelová

FARM MANAGEMENT SOFTWARE: A CONCEPTUAL FRAMEWORK..... 856

Tome Dimovski
Ilija Hristoski

VALUATION OF PLANT BIOLOGICAL ASSETS - FAIR VALUE VERSUS HISTORICAL COST 865

Dawid Obrzeźgiewicz

DIACRONIC ANALYSIS OF THE LAND USE OF THE VLĂSIA PLAIN (ROMANIAN PLAIN) IN THE PERIOD 1864-2012 874

Răzvan Oprea
Roxana Cuculici
Iulian Săndulache

THE ROLE OF FARMERS IN IMPLEMENTING ECOSYSTEM-BASED APPROACH FOR FLOOD RISK MANAGEMENT – A CASE STUDY IN BULGARIA 883

Kristina Todorova

SMART AGRICULTURE A SOLUTION FOR ROMANIA 890

Camelia Slave
Mariana Coancă
Diana Vască Zamfir

DIFFERENT POST HERBICIDE PROGRAMS FOR CONTROL OF *ECHINOCHLOA CRUS-GALLI* IN DIRECT WET-SEEDED RICE 898

Zvonko Pacanoski

HEAVY METAL POLLUTION IN THE ELBASAN CITY, BASED ON THEIR CONTENT IN PM10	907
Lirim Bekteshi Pirro Karamelo	
EXPERIMENTAL MODEL FOR VALIDATION OF ANTI-FOG TECHNOLOGIES	914
Miclea Razvan-Catalin Silea Ioan Dughir Ciprian	
GREEN IT AS AN IMPORTANT TOOL FOR SUSTAINABILITY	923
Yasin Galip Gencer Ulas Akkucuk Semih Gencer	
VALUE CO-DESTRUCTION AND DEVIANT BEHAVIOR DURING MULTIPLE ACTORS' ONLINE INTERACTIONS: THE CASE OF JETSTAR AIRWAYS.....	925
Moreno Frau Francesca Cabiddu Fabio Muscas	
RURAL TOURIST PROFILE IN THE CZECH REPUBLIC	928
Astrida Peruthová	
VALORIZATION OF PAKLENICA NATIONAL PARK AS A DESTINATION FOR ECOTOURISM.....	929
Anđelko Vrsaljko	
MEASURING A SUSTAINABLE TOURISM DESTINATION IN THE CONTEXT OF COMPETITIVENESS WITH MULTIPLE ATTRIBUTE DECISION MAKING.....	931
Zoran Ćirić Otilija Sedlak Stojan Ivanišević Boris Radovanov Bojana Ćirić	
A COMPARATIVE STUDY ON TOURISM DEMAND WITH ARTIFICIAL NEURAL NETWORKS: THE CASE OF TURKEY	933
Gökhan Seçme Mert Topcu	
TENDENCIES AND CHALLENGES TO THE DEVELOPMENT OF LABOR IN THE KNOWLEDGE ECONOMY	934
Elka Syarova	
DEVELOPING LOCAL INDUSTRY THROUGH COOPERATION – A JAPANESE PROGRAM ONE VILLAGE, ONE PRODUCT AND CLUSTERS	935
Anna H. Jankowiak	
SERBIAN VILLAGES IN THE SELF-GOVERNMENT SYSTEM	937
Nada Kosanovic Danijela Rakic	

SINGLE MONETARY POLICY VERSUS MACROECONOMIC FUNDAMENTALS IN NEW MEMBER STATES	938
Marianna Siničáková Vojtech Siničák	
DE-EVROIZATION IN MACEDONIA	939
Kiril Jovanovski	
ICO CROWD-SALES OVERVIEW AND PERSPECTIVE	940
Stojan Ivanišević Zoran Ćirić Otilija Sedlak Ivana Ćirić	
THE ETHICAL CONDITIONING OF REALIZATION OF THE IMAGE-CREATION ACCOUNTING FUNCTION.....	941
Artur Jastrzębowski	
A COMPARATIVE ANALYSIS OF ALBANIA HUMAN CAPITAL WITH THE REGION COUNTRIES.....	942
Megi Marku	
COMPANIES' SUSTAINABILITY PRACTICES AND CONSUMER BOYCOTTS: A CONCEPTUAL MODEL.....	943
Dursun Yener Mertcan Taşcıoğlu	
ADVANCES OF BUSINESS RESEARCH: IMPACT OF THE INTERNET ON QUANTITATIVE AND QUALITATIVE MARKETING RESEARCH.....	946
Nikolina Ljepava Marko Selakovic	
E-PRIVACY AS A KEY CHALLENGE OF EU-US COOPERATION ON THE TRANSATLANTIC DIGITAL ECONOMY.....	948
Karolina Olszewska	
ECONOMICS OF PRIVACY AND CHALLENGES OF NEW EU DATA PRIVACY REGULATION.....	950
Marija Boban	
THE EU SCHENGEN NEEDS RESPECT FOR INTERNATIONAL LAWS ALSO ON FIGHT AGAINST INTERNATIONAL CRIME – HUMAN TRAFFICKING AND SMUGGLING NOT QUOTAS.....	951
Dusan Soltes	
INTERNET OFFERS OF DNA TESTS.....	953
Katerina Dulčić	

Index of Authors

A

Adrijana Vuković, 485
Agneš Slavić, 696
Aleksandr V. Bashminov, 758
Aleksandra Pavićević, 485
Alena Košťálová, 767
Aleš Kozubík, 588
Alexandra Lešková, 604
Alexandru Averian, 27
Alžbeta Királ'ová, 193
Ana Gavran, 201
Ana Jovičić Vuković, 264
Ana Tomovska Misoska, 52
Anamarija Farkaš, 102
Anamarija Pisarović, 102
Anđelko Vrsaljko, 929
Anna Bebel, 630
Anna H. Jankowiak, 935
Anna Mingaleva, 358
Ante Nemeček, 318
Ariola Devolli, 808
Artur Jastrzębowski, 941
Astrida Peruthová, 928
Ayberk Nuri Berkman, 410

B

Barbora Suchá, 151
Bianka Chorvatova, 220
Boban Stanković, 752
Bojana Ćirić, 931
Boris Radovanov, 931
Borjana B. Mirjanic, 613
Branko Z. Ljutic, 613
Budz Sonia, 226

C

Camelia Slave, 890
Christina Uzhegova, 513
Cilka Demšar, 131

D

Dagmar Petrušová, 124
Dagmar Škodová Parmová, 167

Dalibor Petković, 752
Damir Musa, 689
Dana Jašková, 144
Danijel Milosevic, 792
Danijela Rakic, 937
David Lenert, 310
Davor Mance, 302
Dawid Obrzeźgiewicz, 865
Diana Vască Zamfir, 890
Dragan Jovašević, 95
Dragana Kragulj, 822
Dražen Marić, 635
Dughir Ciprian, 914
Dursun Yener, 943
Dusan Soltes, 951
Dusko Mladjenovic, 648

Đ

Đeni Lovrenčić, 622

E

Edlira Shahinasi, 808
Elena Stavrova, 462
Eleni Sardianou, 271
Elka Syarova, 934
Evgeniya Yazovskikh, 785

F

Fabio Muscas, 925
Francesca Cabiddu, 925

G

Gabriela Kozlinger, 302
Gabriela Nedelová, 846
Gancho Ganchev, 462
George Abuselidze, 560
Gökhan Seçme, 933
Goran Zajić, 19, 41
Goran Oreski, 469
Gordana Dozet, 831
Gordana Rokvic, 158

H

Hristina Harizanova-Bartos, 800

I

Igor Rižnar, 78
Ilija Hristoski, 856
Ilijana Petrovska, 52
Irena Emilova, 255
Iulian Săndulache, 874
Ivana Beljo, 535
Ivana Ćirić, 940
Ivana Deže, 201
Ivana Jošanov-Vrgović, 264
Iveta Hamarneh, 193
Ivica Stanković, 87

J

Jadranka Deže, 174
Jakob Salom, 839
Jana Sochuláková, 124
Janka Táborecká-Petrovičová, 846
Jelena Avakumović, 207
Jelena Damnjanović, 264
Jelena Matijašević-Obradović, 183
Jindřich Petrucha, 737
Jiří Nožička, 588
Jovche Angjeleski, 568
Julija Avakumovic, 207

K

Karolina Olszewska, 948
Katarína Kráľová, 124
Katarina Vučko, 109
Katerina Dulčić, 953
Klaudia Kurajdová, 846
Kristina Devčić, 535
Kristína Kováčiková, 433
Kristina Todorova, 883
Ksenija Leković, 635
Ksenia Lapshina, 340

L

Ladislav Mura, 440
Leon Olszewski, 378
Lidija Lesko Bošnjak, 689

Lirim Bekteshi, 907
Lorik Abdullahu, 654
Lucia Madleňáková, 11
Lucia Mihóková, 494
Lucia Ondrušová, 597
Lucia Rafajová, 440
Lucia Zbihlejová, 678
Luka M. Filipovic, 613
Lyudmila Yu. Bogachkova, 367

M

Maja Vojinović, 722
Manuela Raisová, 580
Mariana Coancă, 890
Marianna Siničáková, 938
Marie Korousová, 167
Marija Boban, 950
Marijana Milunović, 485
Mariola Kodra, 808
Markéta Součková, 329
Marko Eljuga, 109
Marko Selakovic, 946
Martin Pafčo, 440
Marzena Remlein, 505
Megi Marku, 942
Merita Stafasani, 808
Mersida Bala Mokçi, 137, 240
Mert Topcu, 933
Mertcan Taşcıoğlu, 943
Michal Pavličko, 767
Miclea Razvan-Catalin, 914
Milan N. Drašković, 87
Milan Pavlović, 19
Milan Počuča, 183
Milanko Kragović, 19
Milena Kukrić, 87
Milena Vesić, 41
Milica Stanković, 728
Milos Galic, 158
Milos Parežanin, 822
Miloš Milovančević, 752
Minas Iosipou, 271
Miodrag N. Simović, 95
Mirela Ballhysa, 215
Mirela Mabić, 689
Mirjana Kranjac, 839
Miroslav Frankovský, 678
Miroslav Šipikal, 604
Misbah Saboohi, 67

Momčilo Poljić, 521
Monika Dušková, 329
Monika Jančovičová, 433
Moreno Frau, 925
Myrto Stenou, 285

N

Nada Kosanovic, 937
Natália Tarišková, 744
Natalija Vugdelija, 2
Nataša Papić-Blagojević, 264
Nebojša Denić, 61, 752
Nemanja Berber, 696
Nenad Djuric, 831
Nenad Kojić, 2, 41
Nenad Vretenar, 302, 622
Nevenka K. Rogleva, 777
Nicoleta Dospinescu, 666
Nikola Nikoloski, 568
Nikolina Ljepava, 946

O

Oksana Yatsenko, 785
Otilija Sedlak, 931, 940

P

Panagiotis Kaldis, 271
Patrizia Silvestrelli, 711
Pawel Dobrzanski, 378, 449
Pece Nedanovski, 386
Petr Koudela, 737
Petya Biolcheva, 543
Pirro Karamelo, 907

R

Radmila Bjekić, 696
Radovan Dráb, 494
Radovan Madleňák, 11
Răzvan Oprea, 874
Robert Jurča, 737
Roido Mitoula, 271
Romina Dhora, 137, 240
Rostislav Kain, 167
Roxana Cuculici, 874
Ružica Lončarić, 174
Ružica Šimić Banović, 290

S

Sandra Jednak, 822
Sandra Mrvica Mađarac, 318
Sandrina Dimitrijević, 36
Sanja Nikolic, 642
Sanja Raspor Janković, 116
Sanja Tišma, 102
Sasa Virijevec Jovanovic, 648
Seçkin Arslan, 410
Semih Gencer, 923
Shamam G. Khurshudyan, 367
Silea Ioan, 914
Slavica Tomić, 635
Snezhana Dichevska, 478
Srđan Tomić, 839
Sreten Miladinovski, 642
Stanislav Levičar, 47
Stanko Bulajić, 839
Stefanija Mindova, 52
Stjepan Oreski, 469
Stevica Janković, 61
Stojan Ivanišević, 931, 940
Sufyan Abuatwarat, 831
Suzana Marković, 116
Suzana Stefanović, 728
Svetlana Božović, 247
Svetlana Nikoloska, 568

T

Tatiana Čorejová, 11
Tatiana Lorincová, 673
Tihana Sudarić, 174
Tome Dimovski, 856
Tuğba Kayıkçioğlu, 410

U

Ulas Akkucuk, 923
Uroš Biberdžić, 2

V

Valbona Belshaku, 215
Valentina Radjenovic, 792
Vangel Fustik, 777
Vanya A. Ivanova, 426
Velika Temelkova, 777
Vera Karadjova, 478

Vera Pirimova, 350
Višnja Bartolović, 318
Vladimir Tsenkov, 462
Vojtech Siničák, 938

Y

Yasin Galip Gencer, 923

Z

Zarko Radjenovic, 792
Zeljko Vasko, 158
Zhanna Mingaleva, 340, 513

Zoran Ćirić, 931, 940
Zoran Ježić, 622
Zornitsa Stoyanova, 800
Zuzana Birknerová, 678
Zuzana Dvořáková Líšková, 167
Zuzana Kozubíková, 588
Zuzana Skorková, 744
Zvonko Pacanoski, 898

Ž

Željko Deković, 535
Željko Jovanović, 521
Željko Sudarić, 109

PREFACE

Association of Economists and Managers of the Balkans headquartered in Belgrade – Serbia, organized International Scientific Conference on Recent Advances in Information Technology, Tourism, Economics, Management and Agriculture - ITEMA 2017 in Budapest on October 26, 2017 at the Vitta Hotel Superior.

The aim of the ITEMA 2017 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 was opened by **Nikolina Vrcelj**, Executive Director of the Association of Economists and Managers of the Balkans and Secretary General of the Organizational Committee of the ITEMA 2017 conference.



Participation in the conference took a total of **248 researchers with the paper** representing:

- 18 different countries,
- 68 different universities,
- 62 eminent faculties,
- 5 scientific institutes,
- 15 colleges,
- various ministries, local governments, public and private enterprises, multinational companies, associations, etc.

In the Conference Proceedings of the ITEMA 2017 conference **108 papers** and **20 abstracts double peer reviewed** have been published on more than **950 pages**.

1. Albania
2. Bosnia and Herzegovina
3. Croatia
4. Czech Republic
5. Georgia
6. Greece
7. Italy
8. Macedonia
9. Montenegro
10. Poland
11. Romania
12. Russia
13. Saudi Arabia
14. Serbia
15. Slovakia
16. Slovenia
17. Turkey,
18. United Arab Emirates



Participating universities

1. "Luigj Gurakuqi" University, Shkoder, Albania
2. "St. Kliment Ohridski" University, Bitola, Macedonia,
3. Agricultural University of Tirana, Albania
4. Aleksander Xhuvani University, Elbasan, Albania
5. Alexander Dubček University of Trenčín, Trenčín, Slovakia
6. Alexandru Ioan Cuza University, Iasi, Romania
7. Alfa BK University of Belgrade, Belgrade, Serbia
8. American University in the Emirates, Dubai, UAE
9. Batumi Shota Rustaveli State University, Batumi, Georgia
10. Bogazici University, Istanbul, Turkey
11. Brno University of Technology, Czech Republic
12. Comenius University in Bratislava, Bratislava, Slovakia
13. Harokopio University, Kallithea, Greece
14. Josip Juraj Strossmayer University of Osijek, Osijek, Croatia
15. Matej Bel University in Banska Bystrica, Slovakia
16. Mediterranean University-MBS Podgorica, Montenegro
17. Mendel University in Brno, Brno, Czech Republic
18. MIT University – Skopje, Skopje, R. Macedonia
19. Nevşehir HBV University, Nevşehir, Turkey
20. New Bulgarian University, Sofia, Bulgaria
21. Niğde Ömer Halisdemir University, Turkey
22. Pan-European University in Bratislava, Bratislava, Slovakia
23. Perm National Research Polytechnic University, Russia
24. Politehnica University of Bucharest, Bucharest, Romania
25. Politehnica University Timisoara, Romania
26. Poznan University of Economics and Business, Poznań, Poland
27. Singidunum University, Belgrade, Serbia
28. South-West University "Neofit Rilski", Blagoevgrad, Bulgaria
29. Ss Cyril and Methodius University in Skopje, Macedonia
30. St. Clement of Ohrid University of Bitola, Republic of Macedonia
31. Technical University of Košice, Košice, Slovakia
32. Technical University of Ostrava, Ostrava, Czech Republic
33. Transilvania University of Brasov, Brasov, Romania
34. Union – Nikola Tesla University Belgrade, Belgrade, Serbia
35. University American College Skopje, Skopje, R. of Macedonia
36. University College of Business in Prague, Prague, Czech Republic
37. University John Naisbitt, Belgrade, Serbia
38. University of Agronomic Sciences and Veterinary Medicine of Bucharest, Bucharest, Romania
39. University of Banja Luka, Bosnia and Herzegovina
40. University of Belgrade, Belgrade, Serbia
41. University of Bucharest, Bucharest, Romania
42. University of Business in Wroclaw, Poland
43. University of Cagliari, Cagliari, Italy
44. University of East Sarajevo, Bosnia and Herzegovina
45. University of Economics in Bratislava, Slovakia
46. University of Elbasan, Elbasan Albania
47. University of Kragujevac, Kragujevac, Serbia
48. University of Macerata, Macerata, Italy
49. University of Mostar, Bosnia and Herzegovina
50. University of National and World Economy (UNWE), Sofia, Bulgaria
51. University of Niš, Niš, Serbia
52. University of Novi Sad, Serbia
53. University of Pardubice, Pardubice, Czech Republic
54. University of Prešov, Prešov, Slovakia
55. University of Primorska, Koper, Slovenia
56. University of Prishtina "Hasan Prishtina", Pristina
57. University of Priština, Kosovska Mitrovica, Serbia
58. University of Rijeka, Rijeka, Croatia
59. University of Shkodra 'Luigj Gurakuqi', Shkoder Albania
60. University of South Bohemia, Czech Republic
61. University of Split, Croatia
62. University of Wroclaw, Poland
63. University of Zadar, Zadar, Croatia
64. University of Zagreb, Croatia
65. University of Žilina, Žilina, Slovak Republic
66. Ural Federal University named after the first President of Russia B. N. Yeltsin, Ekaterinburg, Russia
67. Wroclaw University of Economics, Wroclaw, Poland
68. Yalova University, Yalova, Turkey

Participating Faculties

1. DOBA Faculty of Applied Business and Social Sciences, Maribor, Slovenia
2. Economic Faculty, Aleksander Xhuvani University, Elbasan, Albania
3. Faculty for Agricultural Sciences and Food, Ss. Cyril and Methodius University, Skopje, R. Macedonia
4. Faculty for Strategic and Operational Management, Belgrade, Serbia
5. Faculty for Tourism and Hospitality-Ohrid, Macedonia

6. Faculty of Agriculture, Josip Juraj Strossmayer University of Osijek, Osijek, Croatia
7. Faculty of Agriculture, University of Banja Luka, Bosnia and Herzegovina
8. Faculty of Biofarming, University John Naisbitt, Backa Topola, Serbia
9. Faculty of Biotechnology and Food, Chemistry Department, Agricultural University of Tirana, Albania
10. Faculty of Business and Management, Department of Economics, Brno University of Technology, Czech Republic
11. Faculty of Business Management, Department of Business Economy, University of Economics in Bratislava, Slovakia
12. Faculty of Business Studies and Law, Union – Nikola Tesla University Belgrade, Serbia
13. Faculty of Computer Sciences and Mathematics, Alfa BK University of Belgrade, Belgrade, Serbia
14. Faculty of Culture and Media in Belgrade, Serbia
15. Faculty of Economic Informatics, Department of Accountancy and Auditing, University of Economics in Bratislava, Bratislava, Slovak Republic
16. Faculty of Economics – Skopje, Ss. Cyril and Methodius University in Skopje, R. of Macedonia
17. Faculty of Economics and Administrative Sciences, Department of Banking and Finance, Niğde Ömer Halisdemir University, Turkey
18. Faculty of Economics and Business, Pan-European University in Bratislava, Bratislava, Slovakia
19. Faculty of Economics Brčko, University of East Sarajevo, Bosnia and Herzegovina
20. Faculty of Economics TUKE, Košice, Slovakia
21. Faculty of Economics, Technical University of Košice, Košice, Slovakia
22. Faculty of Economics, University of Belgrade, Serbia
23. Faculty of Economics, University of Kragujevac, Serbia
24. Faculty of Economics, University of Mostar, Bosnia and Herzegovina
25. Faculty of Economics, University of Niš, Serbia
26. Faculty of Economics, University of Novi Sad, Subotica, Republic of Serbia
27. Faculty of Economics, University of Rijeka, Rijeka, Croatia
28. Faculty of Economics, University of South Bohemia, Czech Republic
29. Faculty of Economics, VŠB – Technical University of Ostrava, Ostrava, Czech Republic
30. Faculty of Economics, “St. Kliment Ohridski” University - Bitola / Prilep, Macedonia,
31. Faculty of Electrical Engineering and Information Technologies, Skopje, Macedonia
32. Faculty of Engineering Management, Belgrade, Serbia
33. Faculty of Geography, University of Bucharest, Bucharest, Romania
34. Faculty of Information and Communication Technologies, “St. Kliment Ohridski” University - Bitola, Bitola, Macedonia
35. Faculty of Information Technologies, Alfa BK University of Belgrade, Serbia
36. Faculty of Law for Commerce and Judiciary in Novi Sad, Novi Sad, Serbia
37. Faculty of Law in Skopje, Ss Cyril and Methodius University in Skopje, Macedonia
38. Faculty of Law, Banja Luka, Bosnia and Herzegovina
39. Faculty of Law, Security and Management “Konstantin Veliki”, Union – Nikola Tesla University Belgrade, Serbia
40. Faculty of Law, University of Niš, Niš, Srbija
41. Faculty of Law, University of Split, Croatia
42. Faculty of Law, University of Zagreb, Croatia
43. Faculty of Management Science and Informatics – Department of the Mathematical Methods and Operations Research, University of Žilina, Žilina, Slovak Republic
44. Faculty of Management, Comenius University in Bratislava, Bratislava, Slovakia
45. Faculty of Management, Department of Intercultural Communication, University of Prešov in Prešov, Prešov, Slovakia
46. Faculty of Management, Department of Managerial Psychology, Prešov University in Prešov, Prešov, Slovakia
47. Faculty of Management, Poznan University of Economics and Business, Poznań, Poland
48. Faculty of Management, Union – Nikola Tesla University Belgrade, Sremski Karlovci, Serbia
49. Faculty of Management, University of Primorska, Koper, Slovenia
50. Faculty of Mechanical Engineering, University of Nis, Nis, Serbia

51. Faculty of National Economy, University of Economics in Bratislava, Bratislava, Slovakia
52. Faculty of Natural Sciences, Department of Chemistry, University of Elbasan, Elbasan Albania
53. Faculty of Operation and Economics of Transport and Communications, Department of Quantitative Methods and Economic Informatics, University of Žilina, Žilina, Slovakia
54. Faculty of Organizational Sciences, University of Belgrade, Belgrade, Serbia
55. Faculty of Sciences and Mathematics, University of Priština, Kosovska Mitrovica, Serbia
56. Faculty of Security of Skopje, St. Clement of Ohrid University of Bitola, Republic of Macedonia
57. Faculty of Social and Economic Relations, Alexander Dubček University of Trenčín, Trenčín, Slovakia
58. Faculty of Technical Sciences, Novi Sad, Serbia
59. Faculty of Tourism and Hospitality Management Opatija, University of Rijeka, Opatija, Croatia
60. Faculty of Transport Engineering, Department of Transport Management, Marketing and Logistics, University of Pardubice, Pardubice, Czech Republic
61. MEF - Faculty of Applied Management, Economy and Finance, Belgrade, Serbia
62. Pedagogical Faculty in Vranje, University of Niš, Vranje, Serbia

Participating Institutes

1. Institute for Development and International Relations - IRMO, Zagreb, Croatia
2. Institute for Mathematics, Serbian Academy of Sciences, Belgrade, Serbia

Other Participating Institutions

ATHENS TEI, Egaleo, Greece; Bank of Karlovac, Karlovac, Croatia; Visitor Centre PECKA, Pecka b.b., Mrkonjic Grad, Bosnia and Herzegovina; Russian Academy of Natural Sciences; European Academy of Sciences and Arts; Constitutional Court of Bosnia and Herzegovina, Sarajevo, Bosnia and Herzegovina; Dräxlmaier, Negotino, Macedonia; EuroAudit, Belgrade, Serbia; GO Studio, Uštica, Croatia; Hongoldonia Osijek, Osijek, Croatia; LOGIMAN, s.r.o., Praha, Žižkov, Czech Republic; NLB Banka, a.d. Banja Luka, Filijala Doboj, Bosnia and Herzegovina; OTP bank, Šibenik, Croatia; Academy of Sciences and Art of Bosnia and Herzegovina; JP Hrvatske telekomunikacije d.d. Mostar, Bosnia and Herzegovina; Komercijalna Banka Skopje, Skopje, R. of Macedonia; Secondary School of Economics Subotica, Serbia

3. Institute of Applied Science in Agriculture, Belgrade, Serbia
4. Institute of International Studies, University of Wroclaw, Wroclaw, Poland
5. Research Center for Sustainable Development and Innovation Processes, Perm, Russia

Participating Colleges

1. College of Applied Professional Studies Vranje, Vranje, Serbia
2. College of Applied Sciences "Lavoslav Ružička, Vukovar, Croatia
3. College of Law of Prince Sultan University, Riyadh. Kingdom of Saudi Arabia.
4. College of Slavonski Brod, Slavonski Brod, Croatia
5. Graduate School of Social Sciences, Niğde Ömer Halisdemir University, Turkey
6. Higher Business School of the Professional Studies "Čačak", Belgrade, Serbia
7. Higher Vocational College for Hospitality and Tourism, Bled, Slovenija
8. ICT College for Vocational Studies, Belgrade, Serbia
9. Novi Sad School of Business, Novi Sad, Serbia
10. Polytechnic Nikola Tesla, Gospić, Croatia
11. Polytechnic of Šibenik, Šibenik, Croatia
12. Regional Economics and Management School, Department of Mathematical Methods in Economics, Volgograd State University, Volgograd, Russia
13. School of Architecture, National Technical University of Athens, Athens, Greece
14. School of Economics Ljubljana, Ljubljana, Slovenia
15. Shkolla "Salih Ceka", Elbasan, Albania

THE APPLICATION OF INFORMATION AND WEB TECHNOLOGY IN THE PRODUCTION PROCESS MANAGEMENT

Nenad Kojić¹
Uroš Biberdžić²
Natalija Vugdelija³

Abstract: *Modern information technologies can significantly improve the business of a business entity. Automating the tracking makes it easier to collect, analyze, evaluate and distribute relevant information that enables the management body to manage and make business decisions in the best way possible. In this paper, one solution for tracking, monitoring and analyzing the obtained data is presented. The solution has a software and a hardware component and it was specifically designed for the needs of a small factory. There are a number of ready-made software tools designed to track the production process on the market, but these tools cannot be applied when it comes to specific and non-standard manufacturing processes. The presented solution is designed to answer the requirements of the contracting authority, including tracking the products that cannot be tagged, tracking unique elements, tracking manually processed elements, but also tracking the work of the employees, as well as the work of the machines. In addition to the software tool, special user terminals were created that provide mobility and ease of use. The factory management is provided with tools for centralized monitoring, tracking various parameters, analyzing and storing the received data and predicting some important events. The system can also be accessed from remote locations, via the Internet, and not only from inside the factory within the existing LAN network. The option to work in cloud systems is also available, thus providing additional flexibility. Cloud Computing services are especially appealing to small or start-up companies that cannot afford, or will not make profit from big initial investments in IT equipment and later maintenance. The presented solution consists of: client and server part, database and client terminals. The database in which all the collected information is stored can be located in the factory itself, or at a remote location. This possibility to dislocate individual parts of the application can provide additional protection, not only for the software parts, but also for the hardware. The software application uses a three-layer architecture in order to make the application maintenance easier and have greater possibilities for further extensions. The web technology that the application uses allows the system to be accessed in several different ways and from different remote locations. In the age of massive use of smart mobile devices the mobility of the users is very important, and this application supports such mobility.*

Key words: *Information technology, production process, web application, production tracking, production management*

¹ ICT College for vocational studies, Belgrade, Serbia

² Svea Ekonomski doo Beograd, Serbia

³ ICT College for vocational studies, Belgrade, Serbia

1. INTRODUCTION

Information technologies applied in production enable the collection, analysis, assessment and distribution of relevant information for management and decision making. The recent diversification in customers' needs has driven the development of agile manufacturing that can adapt to different manufacturing situations [1]. Automation is an effort, aspiration or result of all activities aimed at establishing control and management of industrial machines and processes, in order to eliminate human labor [2]. Industrial automation involves a lot of activities such as control of the final product or preparation, realization and monitoring of the production process [3] - [5]. Computer-driven machines provide a better scope for optimization and cost reduction, although they can initially require higher investment [4], [6]. There are many software solutions available on the market that enable automatic monitoring of the production process and processing of collected data [7]. In automated systems, tracking can be accomplished using:

- Automated recognition,
- Various sensors,
- NFC (Near Field Communication),
- QR code.

Almost all of these technologies require marking of the object, which later enables the monitoring of such a marked object through all stages of production [4], [8], [9]. However, in situations where objects are small, non-standard or unique, and when no type of identifier can be placed on them, the problem of monitoring unmarked object becomes quite complicated and existing software solutions are not useful.

This paper presents a concrete software and hardware solution that enables the monitoring of the production process, the efficiency of workers and the quality of used machines, in specific production conditions. The use of existing classical and high-quality software solutions to monitor the production process was impossible because hand-created elements, which are very small, could not be uniquely marked [9], and the production process itself is very non-standard. Application called Line monitor, was created for similar specific production processes.

The work is organized through five chapters: After the introduction, required by the contractor were defined in the system overview. The system details explains the architecture of the proposed solutions and which technologies have been used. The realized application and its capabilities are presented in the fourth chapter, before the conclusion.

Nenad Kojić was born in Valjevo, in 1977. He received his B.Sc., M.Sc. and Ph.D. from the School of Electrical Engineering, University of Belgrade, Serbia.

His research interests include neural network, routing algorithms, heterogeneous wireless networks, image processing, web programming and multimedia. He is an author and co-author more than 80 scientific papers in journal and conference proceedings.

Nenad Kojić is reviewer of several electrical engineering journals.

He was involved in the European COST292 project as member of the Image Processing, Telemedicine and Multimedia(IPTM) group from the School of Electrical Engineering of the University of Belgrade.

Now, he works at the ICT College of Vocational Studies in Belgrade as a professor of web programming.



2. SYSTEM OVERVIEW

The software and hardware solution presented in this paper was commissioned by the management of a small factory that deals with the specific production of jewelry parts. It is one of the products that pass several stages of the production process within the observed factory and are realized in the mechanical production but as unique elements. Sophisticated machines with specific tools are used for production purposes. Since the objects produced are very small, the slightest deviation in precision leads to the production of an unusable object, and because of this specificity, it is important to detect any deviation in the given standard as soon as possible. An increased amount of damage results in serious financial losses, so it is one of the more important items in this specific process of production of the prediction of the moment when it is necessary to repair or replace the machines. This factory rents machines and is not in the position to carry out necessary repairs or part replacements by itself, so this is another specificity to be taken into account. One of the defined project tasks is to analyze the precision of the machine and to detect the parameters that indicate the increase in the scratch, and based on all this, to point to the necessary corrections of the machine.

Significant segment is the monitoring of the product throughout the production process. This part cannot be fully automated because the products are extremely small, so it is impossible to do the usual product marking necessary for automatic tracking. In addition, unique items are produced, so that the process of preparing the products for automatic monitoring would be financially completely unprofitable. For this reason, a hardware solution is designed, in the form of a simple, mobile device by which workers record data about manufactured objects during the production process. As the workers manually enter the data, an appropriate wireless client terminal was created, adapted to the production conditions. Considering a larger number of machines, i.e. terminals, it was necessary to implement a server application that communicates with client terminals and collects data into a database. All data from the system should be stored permanently in the database, which may be on the site itself or in a remote location. Also, users of the application need to export the requested content from the database, in the form of an EXCEL document, for further analysis, report creation and graphs.

Finally, it is necessary to monitor the efficiency of the workers as well as the quality and efficiency of the entire production process. The entire system, client terminals and server applications, aim to record production statistics and measure performance for workers and machines, and these data are further used for analysis and reports creation. The application offers the functionality of tracking individual data on workers, production by shifts and machine performance.

Uros Biberdzic was born in Belgrade Serbia, in 1985. He graduated from Belgrade business school Department of electronic business and informatics in 2009.



In 2016 he graduated from ICT College of Vocational

Studies in Belgrade department of Electronic business.

Since 2008 Uros Biberdzic works in ICT industry as a developer mostly in web technologies.

He was involved in multiple international companies and projects.

Currently Uros Biberdzic works in Svea ekonomi as Senior full stack developer, building enterprise solutions.

Uros is also experimenting with IOT and their implementation in real world environment.

He is active in local community for promoting ICT.

One of the important tasks of the ordered application is the possibility of easy access, both to the terminals that are used to enter the data into the system, and to the section for viewing statistics. In order to provide flexibility in the administration and monitoring of the production drive, it is possible to access the server application from several different types of devices. The application can be used both in the local network and remote locations, since the system can be accessed over the Internet. The company's management and employees are enabled to monitor the production performance or their workstations in real time. The application is scalable and the system's settings are such that it allows easy deployment, upgrade, and expansion. This solution offers easy administration of users, workers and machines in the system and does not require changes to the application itself if the production volume changes.

Natalija (Jovan) Vugdelija was born in Belgrade, in 1966. She received her B.Sc. and M.Sc. from the School of Electrical Engineering, University of Belgrade, Serbia.



Since 2002, Natalija Vugdelija has been employed at the ICT College of Vocational Studies in Belgrade. She is also a trainer at Mikrotik Academy in ICT College for MTCNA, MTCRE and MTCWE courses.

Her research interests include acoustics, innovation in the teaching process, implementation of ICT in learning, networks security, web technologies. She is an author and co-author more than 30 scientific papers in journal and conference proceedings.

3. SYSTEM DETAILS

Analyzing the defined technical conditions, the application is realized through: client and server part, database and kings terminals. The server part of the application was written for the .NET platform in ASP.NET MVC technology [10], [11]. A Microsoft Sql server [12] was used as a database. All the tools, technologies and libraries used are free to use for non-commercial projects or small businesses, which significantly influenced the lower cost of the application and greater competitiveness on the market.

The languages and technologies used are [10] -[13]:

- .net Framework 4.5.2
- Asp.net MVC 5.2.3.0
- MS SQL server 2014 express
- HTML 5
- CSS 3

The following libraries were used to increase the performance of the entire system and its ease of use [14], [15]:

- EntityFramework 6.0.0.0
- Autofac 4.0.0.0
- Automapper 5.1.1.0
- Bootstrap 3
- JQuery
- Modernizr

The system can be graphically described with a structure of functionalities, as shown in Figure 1.

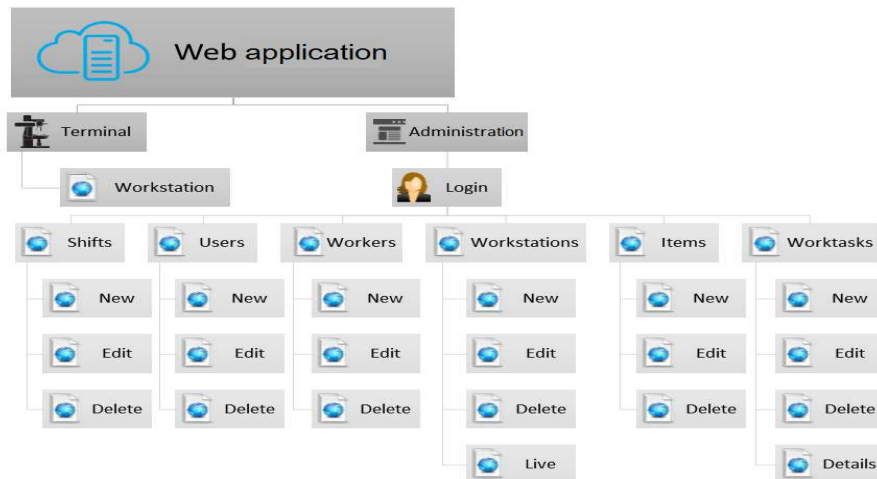


Figure 1: Organizational and functional diagram of the application

The application uses a three-layer architecture and is divided to the work with data layer, business logic layer and the presentation layer. This division makes it easier to maintain the application, gives greater possibilities for further extensions and makes reuse of the code easier. A schematic view of the application architecture is given in the Figure 2.

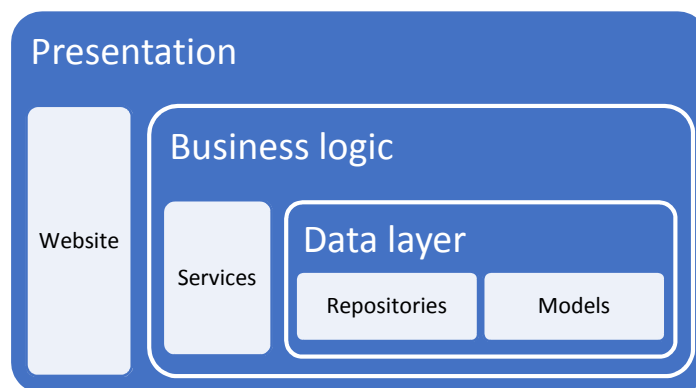


Figure 2: Schematic view of the application

- Data layer - In this layer, there is a logic with operations used for manipulating data stored in the database. Models represent the entities that are used in the system and based on which the SQL database was generated.
 - Models - The system uses 6 entities: Item, ItemDone, Shifts, Workers, Workstation and Worktask. These entities inherit the base class, which has their common properties.
 - Repositories - the logic for manipulating data from the database. This directory contains the code that performs operations on the database. It serves as a layer for separating the responsibilities, thus establishing clear boundaries in the program regarding which part is in charge of what. This logic belongs to the data layer infrastructure.
- Business logic - The application's business logic is separated into this layer to avoid dependency on other layers. Everything is in one namespace.
- Presentation - This application layer is implemented in asp.net mvc 5 technology [16]. The application uses viewmodels, controllers views and automapper.

4. RESULTS

The complete application from the client and server side was implemented in accordance with the defined requirements. In order to access the application, it is necessary for the user to log in with the defined parameters. Application is implemented in such a way that access to all unauthorized users is disabled. Login page is the first page that the user meets when it enters the system. After authentication and authorization, navigation is displayed depending on the role of the user defined in the system. Navigation has one hierarchical level and the user easily navigates through the main modules. By selecting the option from navigation, the user is redirected to the desired module with the display of all data from that module.

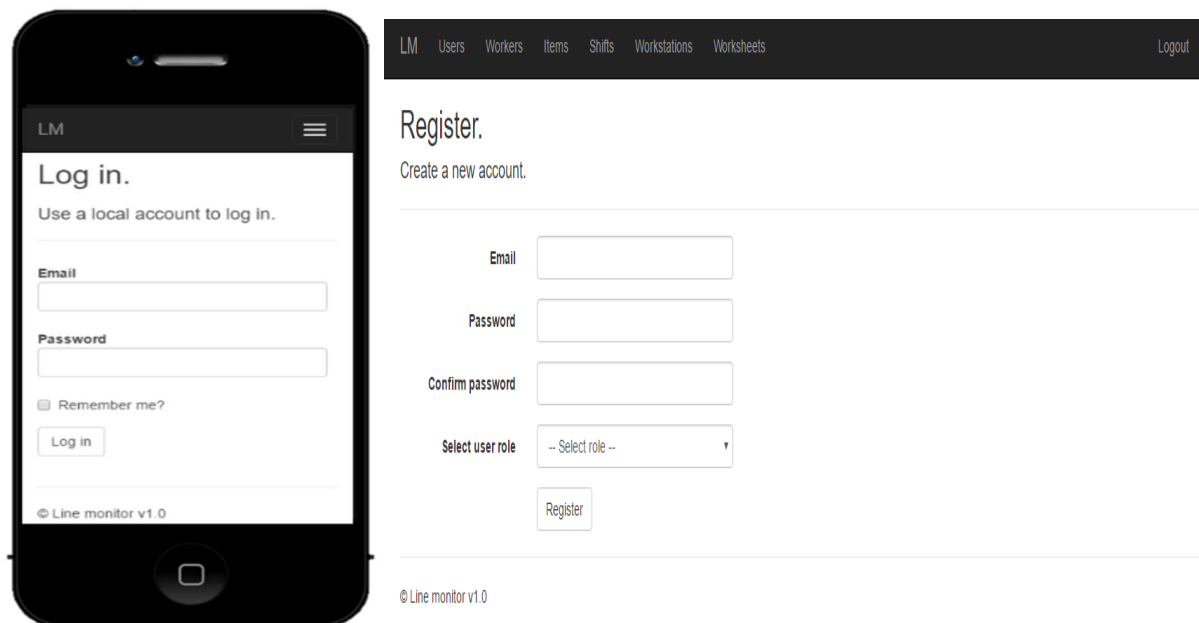


Figure 3: Displaying the login page on the desktop. Displaying creation of a new user account on the desktop

A list of workstations lists all machines in the production process, but with different options, depending on the role assigned to the user. The administrator can create new workstations, modify existing ones, delete and view details. The delete option is only available for machines that were not in use until the user opened the page to prevent accidental loss of data about the active machine. If the administrator wants to turn off a machine from the production that was in use, it needs to go to edit and wait for the Active option. For each option delete, you are asked to confirm that you really want to prevent accidental deletions.

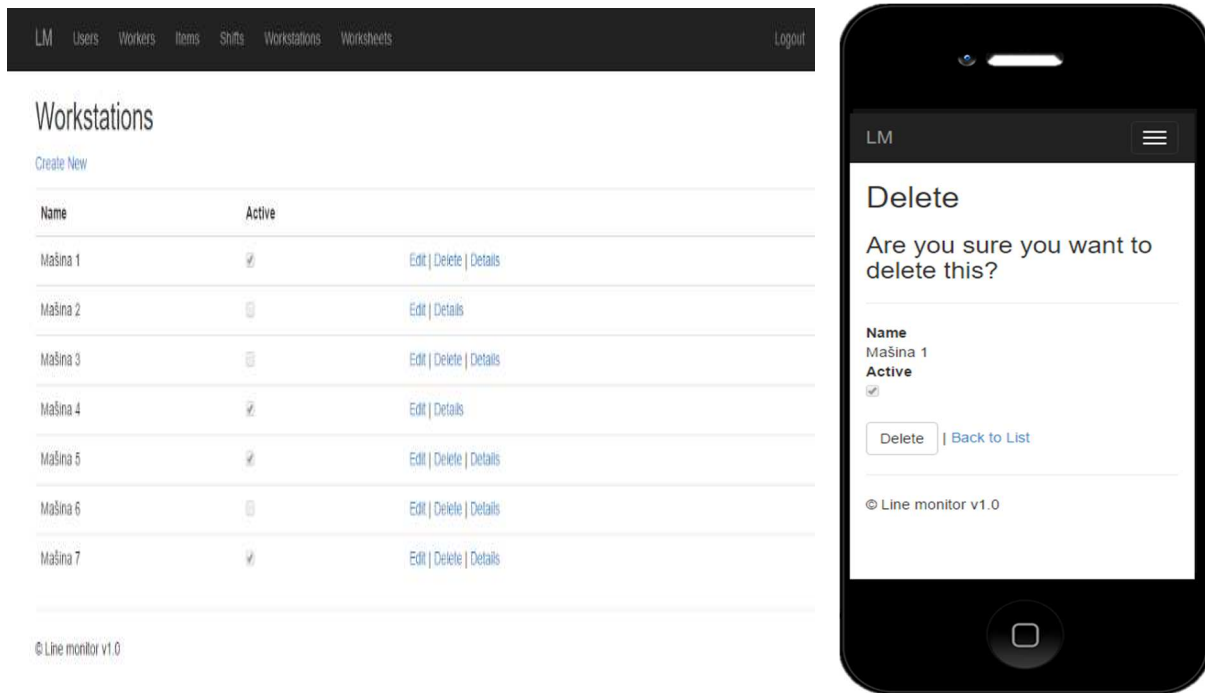


Figure 4: Displaying desktop workstations for the administrator on the desktop. Displaying how to delete a workstation on the mobile

The information screen is the same as the worker on the machine sees. If the machine is not active, i.e. no work task will be a message that currently there are no work tasks for that machine.

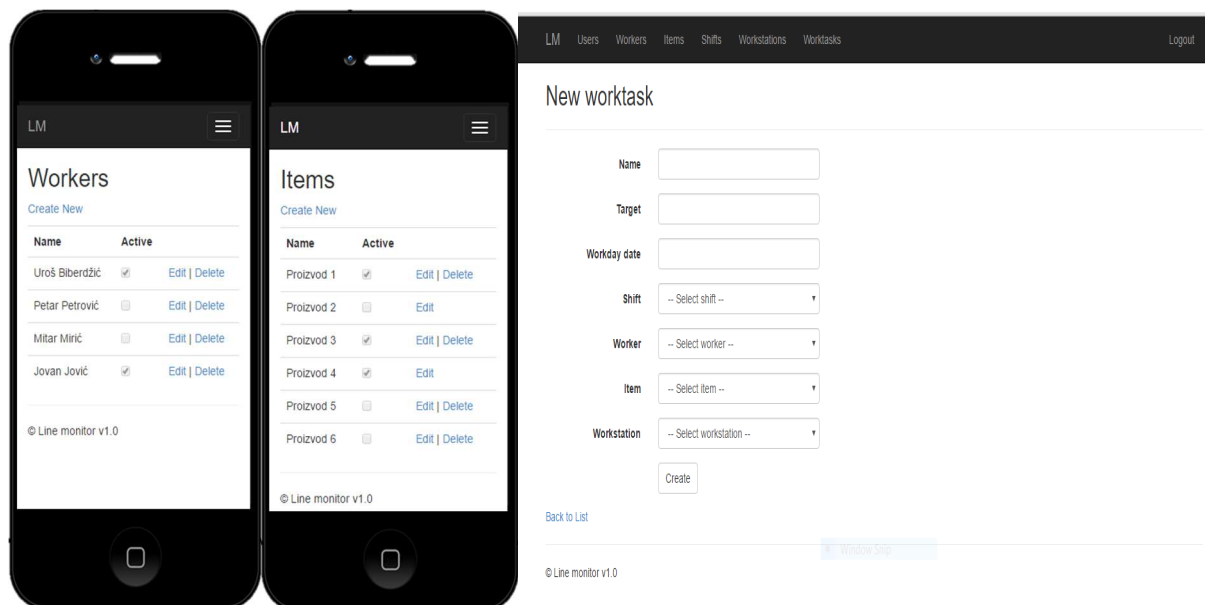


Figure 5: Displaying all workers on the mobile. Displaying all products in the system on a mobile. Displaying a form for creating new work tasks on the desktop.

On separate pages, data related to the task is displayed, as well as data on the current state of the machine. The Actual option indicates the number of successfully completed products, while spoiled indicates the number of scores.



13:43:56

Figure 6: Displaying an active account at the terminal

5. CONCLUSION

The application of information technologies in production processes has led to mass automation, both in the production and monitoring and management of almost all types of production. In situations where products are non-standard, specific or unique, pre-existing software solutions that can be found on the market are generally not convenient, or not applicable. An application such as Line Monitor enables automatic monitoring of the production process, as well as the collection, storage and analysis of various statistical data for small factories and workshops with special requirements. Realized software and hardware solutions provide user mobility and access to the system via multiple device types, as well as access from different remote locations. The web technology used by the application allows work in cloud, or some remote location, which reduces costs for the factory and makes it easier to maintain the system.

REFERENCES

- [1] Morinaga, E., Hara, T., Joko, H., Wakamatsu, H., & Arai, E. (2014). *Improvement of computational efficiency in flexible computer-aided process planning*. International Journal of Automation Technology, pp. 396-405.
- [2] Jaško, O., Čudanov, M., Jevtić, M., Krivokapić, J. (2014.) *Osnovi organizacije i menadžmenta*, Fakultet organizacionih nauka, Beograd.
- [3] Kalpakjian, S., & Schmid, S. R. (2014). *Manufacturing engineering and technology* (p. 913). Upper Saddle River, NJ, USA: Pearson.
- [4] Leitão, P., Colombo, A. W., & Karnouskos, S. (2016). *Industrial automation based on cyber-physical systems technologies: Prototype implementations and challenges*. Computers in Industry, 81, pp.11-25.
- [5] Jeston, J., & Nelis, J. (2014). *Business process management*. Routledge.
- [6] Tsafnat, G., Glasziou, P., Choong, M. K., Dunn, A., Galgani, F., & Coiera, E. (2014). *Systematic review automation technologies*. Systematic reviews, 3(1), 74.
- [7] Erl, T., Gee, C., Normann, H., Kress, J., & Maier, B. (2014). *Next generation SOA: A concise introduction to service technology & service-orientation*. Pearson Education.
- [8] Chernyi, S. (2015). *The implementation of technology of multi-user client-server applications for systems of decision making support*. Metallurgical & Mining Industry, (3).
- [9] Vogel-Heuser, B., Diedrich, C., Fay, A., Jeschke, S., Kowalewski, S., Wollschlaeger, M., & Göhner, P. (2014). *Challenges for software engineering in automation*. Journal of Software Engineering and Applications, 7(05), 440.
- [10] Shepherd, G. (2010). *ASP.NET 4 Step by Step*, Microsoft Press

- [11] Albahari, J., Albahari, B. (2010). *C# 4.0 In a Nutshell*, O'Reilly
- [12] Bagui, S., Earp, R. (2005). *Naučite SQL na SQL Serveru*, Mikro knjiga
- [13] Holzschlag, M. (2006). *HTML i CSS*, Kompjuter Biblioteka, Čačak
- [14] Burgess, A. (2011). *Getting Good with JavaScript*, Rockable Press
- [15] Sun, K., & Ryu, S. (2017). *Analysis of JavaScript Programs: Challenges and Research Trends*. ACM Computing Surveys (CSUR), 50(4), 59.
- [16] Hafizur, M., Bin, F., Naderuzzaman, M., Arifur, M., & Masud, M. (2016). *Optimizing and Enhancing Performance of MVC Architecture based on Data Clustering Technique*. International Journal of Computer Applications, 134(12), pp. 42-46.

THE A/B TESTING OF DISPLAY ADVERTISING BASED ON EYE TRACKING

Radovan Madleňák⁴

Tatiana Čorejová⁵

Lucia Madleňáková⁶

Abstract: *Many companies are trying to make the internet visible and attract new customers online through online advertising. Internet advertising is one of the fastest growing areas of business online. Each advertisement is created with a certain intent and for some purpose, some are created to increase site traffic, some try to increase brand awareness, others try to increase sales. The success of advertising is closely related to its effectiveness. Companies must continually measure the effectiveness of advertising and optimize its forms. One of the methods of optimizing Internet advertising is the A/B testing method. The purpose of this article is to present the results of the optimization of Internet advertising method A/B testing in specific conditions of discount portal. A/B testing was realized by experimental testing of internet users by eye tracking method. In conclusion, the paper contains general recommendations that can be applied in the creation offers of discount portals.*

Key words: *eyetracking, A/B testing, online advertising, discount portals*

1. INTRODUCTION

Nowadays, running a successful e-shop has become a real challenge, due to the existing competition on the market. This competition consists not only of the online e-shops with same or similar offers, but also shops that are located in the nearby [1]. That's why every retailer aims to attract the visitor's attention and attract him to visit his website. The most appropriate and probably, the oldest way to attract the visitor's attention in the online area is the internet advertising itself. An internet ad is a fast-growing form of advertising. People in everyday life have become more aware of how the advertising affects their lives, either it's commercial, online, or a printed ad. Each ad (internet ad too) is created with a certain intent and to some purpose. Some are created to increase website's traffic, some to raise brand awareness, others to increase the sales of products or services [2].

E-shop operators are trying to make it more visible and attract new customers exactly by internet ads. However, most of them do not think that there are different types of advertising. On the other side, they realize that advertising is successful only if it is effective, so it is necessary to test it [3]. If an entrepreneur invests in advertising, he wants to know the ad's outcome – has it been successful, did it address the determined target group, and whether it has attained the desired effect at all [4].

⁴ Vice dean for science and research at Faculty of Operation and Economics Transport and Communications, University of Zilina, FPEDAS, Univerzitna 1, 01026 Zilina, Slovakia

⁵ Rector of University of Zilina, University of Zilina, FPEDAS, Univerzitna 1, 01026 Zilina, Slovakia

⁶ Associate professor at Department of Communications, Faculty of Operation and Economics Transport and Communications; University of Zilina, FPEDAS, Univerzitna 1, 01026 Zilina, Slovakia

The specific type of e-shops are the discount portals that have changed the way of internet shopping over the past few years. The interest in shopping through these e-shops has also produced external circumstances such as the economic crisis or growth of social networks but has especially affected the desire for a profitable purchase. Discount portals are online platforms that sell products and offers different types of services at discounted prices. Over the last period, many retailers have focused on social networks through which they publish offers for the products and services they advertise on that discount portal. Therefore, these discounts on social networks can be understood as a specific form of advertising through which discount portals attract customers to buy products and services. Creating such forms of advertising is a task of creating a composition of different elements in order to engage a potential customer. The success of the chosen composition is a critical factor of the success of the entire ad, so it is necessary to test the suitability of the ad created for specific target audience before starting an ad campaign.

2. ANALYSIS

You can test your ad in multiple ways. What method is used depends on the actual development and the actual implementation of the ad. At the beginning of the ad testing, you can test the ad concept itself. At the beginning, the testing can take the form of testing a draft or selection of candidates from the target group [5]. It is advisable to test the impact and effectiveness of an ad before it goes "live". It is also possible to test how advertising influences the brand perception. In addition to the above, it is possible to measure the campaign responses in the form of clicks, conversion rates, and to control funds through business models such as PPC (pay-per-click), PPA (pay-per-action) or PPV (pay-per-view) [6]. J. Mikeš claims [7], and many authors would agree with that "if you want to have a successful ad, it is necessary for the recipient to be exposed to it and to keep it" memorable". It is also necessary to be creative and to bring positive emotions. What's important, however, is ad targeting and timing."

Making an effective advertising is a long-term process in which advertising needs to be constantly tested and tailored to reach as many potential customers as possible. Variant testing is one of the fastest ways to get feedback, and its use is not an exception to test an internet ad. The most widely used method of testing variants is the so-called A/B testing. A/B testing is a tool to measure a performance, respectively the efficiency by testing variants. Several incentives are triggered in testing to see which one is more effective (when testing an ad - is the conversion ratio) [8]. The conversion ratio is one of the most important indicators of the online marketing and expresses the percentage of visitors who performed the desired action on the site. A/B testing is a method used by online marketers to compare two or more versions of the same content, from which will then determine the better [9].

Tests can be targeted to ads, websites, banners, blog posts, and more [10]. A/B testing can run for a long time and gives the marketer space to get an overview of what key phrases, CTA elements, design elements are most effective. A/B banner ad testing is a great way to test response to different messages, links and find out which ones have been most successful in the target segment. The A/B test should be performed on the same sample, at the same time and in the same geographical area, in order to gain a stable idea of which of the tested variants actually works better [11, 12]. A/B testing uses various tools and technologies. One of the methods successfully used in A/B testing is the eyetracking method. Eyetracking is based on eye movement monitoring. It allows you to monitor what a person looks at. Vision monitoring is possible with a device called an eyetracker. The eyetracker uses image projection and optical

infrared sensors to collect eye data, viewing direction, or eye movement with very high precision.

3. OBJECTIVE AND METHODOLOGY

The goal of the research/testing is to optimize the e-shop (discount portal) advertising. Based on an evaluation of the A/B test results that took place on a selected sample of potential customers through eye tracking technology, generalized suggestions should be made, that will lead to increased conversion.

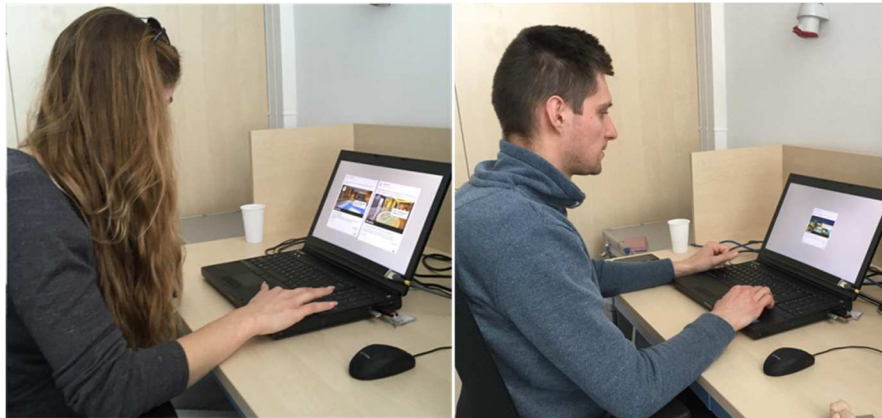


Figure 1: A/B testing with SMI REDn eye tracker technology

Measurements took place in conditions of HMI-LAB laboratory located in the University Science Park of University of Žilina. Testing was carried out on 10 respondents who were always presented with two variants of advertising and their role was to choose the one that was more acceptable to them (see Figure 1). Measured data from the eye tracking provided outputs in the form of heat maps and maps of areas of interest. Heat maps show where the view of respondents focused and the maps of areas of interest how long in average would respondent's view be focused on individual sectors of a divided picture.

4. RESULTS

Testing took place in an ad offering accommodation in Aquacity Poprad. Three different alternatives have been created for this ad. Alternative A - The original form of the ad, and alternatives B and C - modified ad variations. The difference between the variants of B and C is the extent of the modifications. Alternative B - represents a modified ad based on the requirements of the e-shop owner. Alternative C is based on the recommendations of e-shop clients obtained by conducting a survey before testing.

Figure 2 shows the areas of interest of the respondents as well as the heat maps that represent where the respondents looked when they were provided with variants A, B and C separately. Respondents were particularly interested in elements such as title, price, and the text itself. It is possible to confirm the results of A/B testing that the majority of the respondents were focused especially on bold text, in addition, the first few words from the text.

In variant A, according to the AOI, was the most interesting part (sector) A1, at which the respondents looked in an average of 2926.5 ms. This section is a caption that is intended to capture the addressee. The A-title is more personal and encourages people to relax and enjoy because these are the main reasons why people are visiting resorts of this type. In contrast to

the other variants, respondents also noticed the bottom of the ad where the number of "likes" and shares was placed, averaging 1173.2 ms.

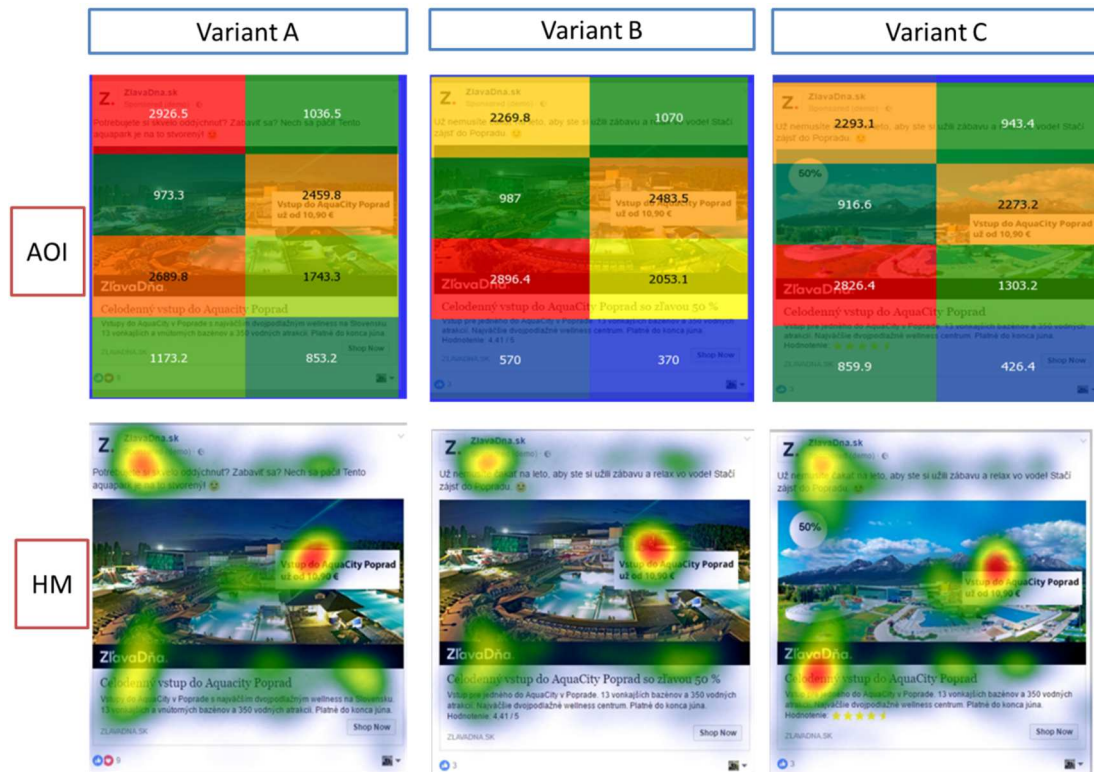


Figure 2: Heat maps and AOI of all variants (separate view)

In variant B, respondents were mostly focused on the text, that contains more text than the original version and the information is briefly formulated (number of pools and attractions). The text also contains a rating that is more visible and compelling in the form of stars. Respondents also noticed the amount of discount that was placed in the highlighted part of the text below the picture.

In the last variant C, respondents were particularly interested in the text that was the same as in option B. It follows that in both modified versions the text for respondents is more interesting. As can be seen from the AOI (see Figure 2), the most interesting part for the respondents was part A3, which respondents look at on average 2826.4 ms. This section, resp. the sector contains the e-shop logo as well as the title of the text containing the name of the service.

Comparison of variants A and B

In variant B, respondents most often looked at a white rectangle located on the right-hand side of the image, which shows the cost of the service. If we divide the variant into the 8 sectors, the most interesting part, which the respondents looked at on average 2033.4 ms, is in the sector B2. This sector shows the cost of the service, as well as the part of the image where the attractions of the aquapark, water slides, and pool are concentrated. In the original version A, the most interesting were the price and the picture. Part of which respondents were least interested was the bottom of the image showing the number of shares and the number of "likes". Respondents also ignored the top part where the name of the discount portal is displayed. As can be seen from the results of the comparison between these variants, the respondents were not influenced by the number of shares or the number of "likes". In this comparison, the title

and text were more interesting in option B. This is also because the text of this variant contained a numerical rating.



Figure 3: Heat maps of A and B variants (A/B testing)

Figure 3 also shows which of the two variants the respondent likes more, as shown by the red diamonds in the picture. It can be said that respondents liked more variant A (6 out of 10 respondents) than Variant B.

Comparison of variants A and C

The respondents were most interested in the variant C (10 out of 10 respondents), where the focus was mainly on the picture, more precisely on the surrounding panorama like mountains, clouds, etc. If we divide option C into areas of interest, sector A2 and sector A4 were the most interesting sectors for the respondents (see Figure 4). Sector A2 represents the amount of service discount that is placed in a white ring and caption. The A4 sector is the logo of the ZlavaDna.sk discount portal. Sector A3 is also interesting for the respondents, due to scenery of High Tatras (background of advertising).

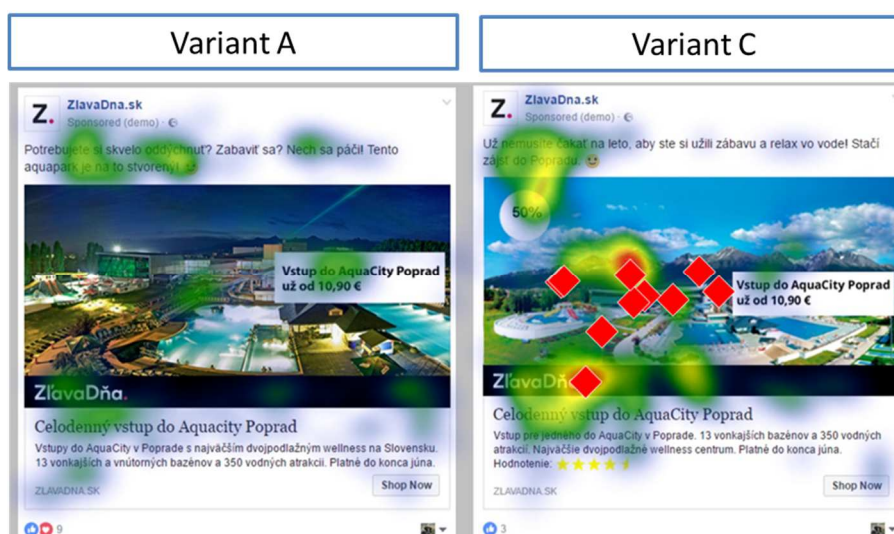


Figure 4: Heat maps of A and C variants (A/B testing)

Comparison of Variants B and C

On Figure 5, you can see that, as in Comparison of variants A and C (see Figure 4), also, in this case, respondents preferred modification C, where their focus was on the mountains, the overall panorama, and the price.



Figure 5: Heat maps of B and C variants (A/B testing)

In variant B, the respondents did not read the entire text. This is also because the text of the variation is the same as in the previous comparison. The most interesting part for the respondents was in variant C, more precisely the sectors A2 and B2, where respondents spent 1196.6 ms in average. This section shows the mountains and surrounding panoramas. The heat map comparing variants A-C and B-C shows that the respondents focused maybe on this area, the other parts were not eye-catching for the respondents, they ignored the text containing the ads, even the evaluation in both variants.

5. CONCLUSIONS

Based on A/B ad testing (primarily posted on the Facebook social network) to a group of selected respondents, general recommendations were made regarding the individual elements contained in the ad. If the price is in the ad, you need to be careful about where it is positioned (in some cases, the price overlaps a large portion of the image in the background). The outcome of the testing imposed that the price should be positioned with respect to the image so that it does not overlap the important parts, for e.g. to be placed in the title. Testing shows that the correct image selection in the background is very important. We recommend that the background of the ad could be an image that clearly shows the function of the product or to display the environment in which the service is to be provided. (E.g. if the ad promotes skiing, it is advisable to display the ski slope with the ski lift as well as the surrounding area where the slope is located).

In specific cases (offering discount portals), we recommend that the ad contain a user rating of the service, respectively, product, while this rating should be separated from the accompanying text and form a separate advertising area. The test revealed that the respondents did not read the entire text, but they are focused on the first few words, in addition, read highlighted text. Effective also is star-visualized rating, because it is clear, separated from the text and does not overlap. We recommend that you enter the discount rate directly into the ad as a separate element.

The last recommendation is to create ad variations by target group or if the target groups are already set, select only those bids that are appropriate for the target audience. If the target group we target in advertising is a family with children, it is advisable to select the text that would contain information about attractions for children, for example, children's playgrounds, children's pools, children's toboggans, children's animation programs, children's swimming, etc. However, if the target group were customers aged 25 and over, it is recommended to create an advertising format promoting various events, competitions, entertainment, sports activities, wellness, etc. The most successful variation tested was variant C, which was built on the results of the e-shop customer preference survey. That's why we want to create an effective one ad that will have a significant effect on the customer segment, therefore, it is necessary to choose which elements of advertising can attract the customer's attention.

ACKNOWLEDGEMENT

This contribution was undertaken as part of the research project VEGA 1/0515/15 “Endogenous factors of the IPR intensive Industries in the regional enterprise environment in Slovak Republic”

REFERENCES

- [1] Neszmélyi, G. (2014) *Socio-economic and regional processes in the developing countries*, Szent István University Publishing, Gödöllő, Hungary 2014, pp. 200
- [2] Madudova, E., Rostasova, M., & Ciba, J. (2015) The Institutional Environment and the Policy Affecting the Creative Industry - the Advertising Agencies in the Specific Conditions of the Slovak Republic and the Selected Region. *Cers 2014: 5th Central European Conference in Regional Science, International Conference Proceedings*, pp. 519-529.
- [3] Strenitzerova, M., & Garbarova, M. (2016) Impact of globalization on human resource management in the information and communication sector. *Globalization and Its Socio-Economic Consequences, 16th International Scientific Conference Proceedings, Pts I-V*, pp. 2143-2150.
- [4] Kolarovszki, P., Tengler, J., & Majercakova, M. (2016) The new model of customer segmentation in postal enterprises. *3rd International Conference on New Challenges in Management and Business: Organization and Leadership*, 230, pp. 121-127.
- [5] Jankalova, M. (2014) Methodical basis of the Business Excellence status assessment. *2nd World Conference on Business, Economics and Management*, 109, pp. 546-551.
- [6] Dmitriev, P., Wu, X., & Acm. (2016). Measuring Metrics. *Cikm'16: Proceedings of the 2016 ACM Conference on Information and Knowledge Management*, pp. 429-437.
- [7] Mikeš, J. (2007) *Reklama – jak delat reklamu*. Praha: Grada Publishing, pp. 182
- [8] Koukouvis, K., Cubero, R. A., & Pelliccione, P. (2016) A/B Testing in E-commerce Sales Processes. *Software Engineering for Resilient Systems*, 2016, 9823, pp. 133-148.
- [9] Kompella, K. (2015). A Guide to A/B Testing Tools. *Econtent*, 38(7), pp. 30-31.
- [10] Schwartz, E. M., Bradlow, E. T., & Fader, P. S. (2017) Customer Acquisition via Display Advertising Using Multi-Armed Bandit Experiments. *Marketing Science*, 36(4), pp. 500-522.
- [11] Castilla, D., Garcia-Palacios, A., Miralles, I., Breton-Lopez, J., Parra, E., Rodriguez-Berges, S., & Botella, C. (2016) Effect of Web navigation style in elderly users. *Computers in Human Behavior*, 55, pp. 909-920.

- [12]Goswami, A., Han, W., Wang, Z. R., & Jiang, A. (2015) Controlled Experiments for Decision-Making in e-Commerce Search. *Proceedings 2015 Ieee International Conference on Big Data*, pp. 1094-1102.

ADVANCED TOOLS FOR DYNAMIC ROUTING PROTOCOL OPTIMIZATION IN COMPUTER NETWORKS

Goran Zajić⁷
Milan Pavlović⁸
Milanko Kragović⁹

Abstract: *A particularly pronounced trend of web applications and access to a large number of services over the Internet, access to real-time multimedia contents, need a very rational and optimized use of network resources. To make this possible, routing algorithms play a very important role in maintaining and using the network, especially in the conditions of dynamic network topologies. This paper presents an improved OSPF protocol solution using two neural networks. The first one is Kohonen's neural network responsible for network clustering, while the second one is Hopfield neural network which provides the best route selection. Starting from the arbitrary network topology, the proposed algorithm uses the complete "infrastructure" of the OSPF protocol, with the aim of collecting data within the network, exchanging information between routers, etc. Unlike the OSPF protocol that uses only the bandwidth as a link quality parameter, it is suggested to introduce link load as a new parameter, corresponding to the data flow through the given link, occupying some part of the bandwidth. According to this new parameter, the remaining bandwidth of the link is calculated, which further describes the observed link and used by artificial intelligence to find the best route for routing. The first step for this purpose is to create clusters as logical structures in the network topology, using Kohonen's neural network. Each cluster includes links that have similar parameters in terms of "desirability" to find themselves in the final path. That means they have the largest possible remaining bandwidth. After clustering the links, the algorithm includes the Hopfield's neural network in order to find as much as possible better path between the source and the destination from the links belong to the best clusters. The aim in this paper is to analyze the theoretical bases and the justification of such changes. During the simulations, it will be check whether the proposed solution meets the necessary conditions for routing and finding a quality route.*

Key words: *computer network, routing protocols, neural networks, optimization*

1. INTRODUCTION

The development of computer networks and sophisticated hardware devices has become increasingly available to end users, increasing both the number of users and their requirements [1-2]. Routing algorithms are updated every day and their enhanced versions are increasingly used, which may include the application of artificial intelligence with the aim of making a more rational use of network resources, as well as a prediction of the state in the network [3]. An increasingly complex logic for the operations of the routing protocol are imposed, because of large number of end-users in computer networks and their unpredictability in terms of access the network, connection length, and especially when there are implemented guaranteed QoS. There are a large number of algorithms used by routers for finding the optimal routes for data transmission between two arbitrary end points in the network. Link state routing

⁷ ICT College of Vocational Studies, Zdravka Čelara 16, 11000 Belgrade, Serbia

⁸ ICT College of Vocational Studies, Zdravka Čelara 16, 11000 Belgrade, Serbia

⁹ ICT College of Vocational Studies, Zdravka Čelara 16, 11000 Belgrade, Serbia

protocol (LSP) means calculating the routing path based on information on the status of all links in the network topology [4]. LSPs provide faster convergence in the network due to the way in which information is exchanged about the state of the links and the calculation of the path to destination networks. As the most common example of LSP, Open Shortest Path First (OSPF) protocol is taken, which will be used as a starting protocol in this paper in order to analyze the possibility of its improvement.

2. THE PROPOSED ALGORITHM

Based on the theoretical basis of Kohonen and Hopfield's neural networks [5-7], the proposed solution of the dynamic routing protocol is realized. The proposed protocol is based on the OSPF principles [1], [4] which belong to the group of dynamic link-state routing protocols. This protocol dynamically processes data about the status of links in a network, described as a single cost. This cost is directly related to the bandwidth of the observed link, in such a way that the lowest price of the link corresponds to the "largest" bandwidth. The links with the largest bandwidth "stimulate" to be in the final path for routing. OSPF is a very used protocol because it provides fast network convergence. Based on all data in the network, each router creates its own routing table. Changes in the table are updated very quickly, and non-periodic, only when there is a change of the network status. Since this routing information is in every router, the proposed solution in this paper extends the database table of the bandwidths with additional data of the link loads, i.e., the amounts of traffic through the viewed links. In this way, the initial bandwidth information becomes much better because it has an insight into the difference between the initial band and the busy band for the needs of the instant data transfer through the link. This difference shows the amount of remaining bandwidth that can be used to establish other connections through the observed link. The load through a link is viewed as the sum of the total multiplexed traffic that the link uses to send the package through it, and link loadness changes over time.

If the difference between the initial bandwidth B and its occupancy L , as a consequence of the traffic load through the link i , is marked with Z_i , then the link with the larger parameter Z_i is considered as a "preferred link" to appear in the final path for the data routing. This is especially important for connections that guarantee the quality of service (QoS), and for which it is necessary to provide X bit/s bandwidth in every link in the path.

Goran Zajić was born in Rijeka, Croatia, in 1972. He received his Dipl.Ing degree in electrotechnical engineering from the Faculty (School) of Electrical Engineering, University of Belgrade, in 2005. In 2015., he received his PhD in electrotechnical engineering and computer science at the Department of Telecommunications and information technologies, Faculty of Electrical Engineering, University of Belgrade. Now, he is Assistant Professor at ICT College of Vocational Studies in Belgrade. Teaching areas of professor Goran Zajić are system administration, JAVA and C programming, VoIP systems, networking and signal processing.



His research interest include linear and nonlinear methods, multimedia, television and telemedicine systems, signal and image processing, video technologies, data mining, neural networks, programming and networking.

So far he has published more than 50 publications: in domestic and international journals (with and without impact factor), in domestic and international conference proceedings.

Starting from the arbitrary network topology, the proposed algorithm uses the previously described OSPF protocol functionalities to inform about the given network in terms of the number of routers, number of links and interconnection of the routers with links. For each link, OSPF retrieves the information that relates to the initially defined bandwidth, while for the purpose of retrieving information about the busyness of links, i.e., it is suggesting the use of a mobile agent [8]. By obtaining load information, for each link the Z_i parameter is calculated, normalized to the range [0-1] and finally a new link price as $NC_i = 1 - Z_i$ is defined. In this way, a link that has a lower price i.e. the NC_i parameter is "more desirable" to find the final path. On the basis of defined link costs, Kohonen's neural network is used for dynamic clustering of links in relation to their new calculated costs [9]. The number of clusters can be changed by the algorithm code to achieve a more or less fine logical division, i.e. grouping clusters by clusters. In this way, the links in a single cluster are similar in terms of the remaining bandwidth on them. In the second phase, the algorithm runs Hopfield's neural network, with the energy function [10-12]. The function is minimized it in the iterative process by looking for a set of links that can create a continuous path from source router A to destination router B, providing the path has the lowest possible cost [10 -15]. Hopfield's network first tries to find the solution starting from a cluster with links with the largest remaining free bandwidth, which increases the speed of *processing* since the number of links is reduced. In case it is impossible to form a path from the links of the first cluster, it extends the set of links with another cluster and so on. Upon completion, Hopfield's network generates a V transition matrix [11-13], which is automatically converted to a routing table that has a standardized format for the OSPF protocol. Starting from this table, OSPF continues to perform a complete packet redirection process, only that the logic and criteria that initially OSPF use, are partially changed by the proposed algorithm.

Milan (Jovan) Pavlović was born on March 29, 1978. in Zajecar. He graduated at the School of Electrical Engineering in 2004, University of Belgrade, Serbia, Department of Telecommunications,



supervisor prof. dr. Irini Reljin.

Since 2004, Milan Pavlović has been employed at the ICT College of Vocational Studies in Belgrade. As a lab assistant, he participates in work with students and in realization of numerous laboratory exercises, mostly related to computer networks. He is also a trainer at Mikrotik Academy in ICT College for MTCNA and MTCRE courses.

Milan Pavlović is currently a PhD student, School of Electrical Engineering, University of Belgrade, supervisors: prof. dr. Irini Reljin and prof. dr. Miomir Mijić. The field of research includes image segmentation, non-linear signal processing in 1D and 2D domains, multifractal analysis, room acoustics, neural networks, computer networks.

During the graduate and postgraduate studies, Milan Pavlović has published 30 scientific papers in journals and conference proceedings, among which are two papers in scientific journals with SCI index (M21, M22). He participated in the realization of 2 scientific-research projects.

3. RESULTS

For the needs of the simulation, the network topology with 17 nodes and 32 links is used, Fig.1.

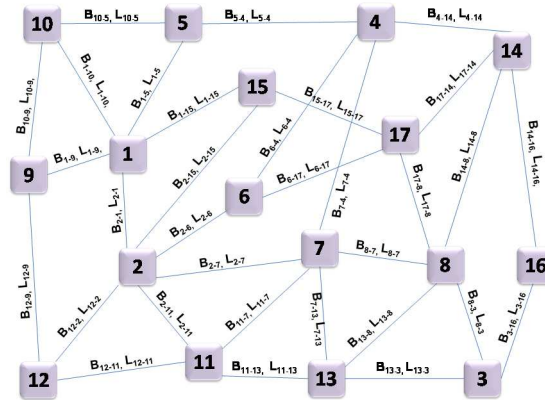


Figure 1. The used network topology.

The distribution of links between the routers, Fig. 1, was chosen randomly. The router number 9 is selected as the source router, while the router number 16 is the destination router for all simulations. All algorithm codes are written in the Matlab programming language. Table 1 shows all relevant parameters related to all links in the network, the bandwidth of the link (B), the link load (L), the available resource on the link (B-L), the link load in percent and calculated and scaled link costs according to the previously described logic.

Source node	Destination node	B [Kb/s]	L (0-255)	L [%]	B - L [Kb/s]	C (norm values)
1	2	1544	5	2.0	1513.7	0.03489
1	5	512	13	5.1	485.9	0.12426
1	9	1544	31	12.2	1356.3	0.035
1	10	256	8	3.1	248.0	0.4352
1	15	512	13	5.1	485.9	0.31766
2	6	1544	16	6.3	1447.1	0.0329
2	7	1544	138	54.1	708.4	0.10587
2	11	56	3	1.2	55.3	1
2	12	1544	8	3.1	1495.6	0.03054
2	15	1544	77	30.2	1077.8	0.03934
3	8	1544	150	58.8	635.8	0.14654
3	13	512	79	31.0	353.4	0.2499
3	16	1544	200	78.4	333.0	0.23499
4	5	1544	59	23.1	1186.8	0.03232
4	6	1544	54	21.2	1217.0	0.03132
4	7	128	13	5.1	121.5	0.43063
4	14	1544	3	1.2	1525.8	0.41552
5	10	1544	87	34.1	1017.2	0.20029
6	17	256	8	3.1	248.0	0.03432
7	8	512	3	1.2	506.0	0.10766
7	11	1544	3	1.2	1525.8	0.0382
7	13	1544	138	54.1	708.4	0.02432
8	13	1544	123	48.2	799.2	0.0348
8	14	512	3	1.2	506.0	0.03305
8	17	128	5	2.0	125.5	0.4506
9	10	1544	77	30.2	1077.8	0.03276
9	12	1544	212	83.1	260.4	0.03417
11	12	1544	205	80.4	302.7	0.38276
11	13	512	171	67.1	168.7	0.39292
14	16	1544	79	31.0	1065.7	0.09643
14	17	256	26	10.2	229.9	0.2382
15	17	1544	199	78.0	339.1	0.13365

Table 1: Relevant link parameters for the given network topology

During the simulation, the network is divided into 3, 5, 8 and 10 clusters. The results of the selected paths between the router 9 and the router 16 in all 4 cases are shown in Tables 2, 3 and 4 as well as in Fig. 2, Fig. 3 and Fig. 4. Tables 2, 3 and 4 contain the relevant link parameters that belong to the selected path, B-L [Kb/s], L [%], their old and new modified costs, and finally, the number of clusters to whom each link belongs after the cluster ranking process ended (a smaller number means better clustering of clusters). Fig. 2, 3 and 4 illustrate the selected path in the network topology between the routers 9 and 16 in the case where the network is divided into 3, 5, 8 and 10 clusters. In the case when the network is divided into 8 and 10 clusters, the same paths were selected, 9 - 10 - 5 - 1 - 15 - 2 - 7 - 13 - 8 - 3 - 16, Fig. 4. The difference is only that the final cost of the selected path is smaller when the network is dividing into 10 clusters.

Chosen links	B - L [Kb/s]	L (%)	Normalized cost values (0 - 1)	New cost	The number of cluster selected link belong to
9 – 10	1077.8	30.2	0.03276	0.01191	1
10 – 1	248.0	3.1	0.4352	0.00234	2
1 – 2	1513.7	2.0	0.03489	0.00141	1
2 – 7	708.4	54.1	0.10587	0.00150	1
7 – 13	708.4	54.1	0.02432	0.00144	2
8 – 13	799.2	48.2	0.0348	0.00141	1
8 – 14	506.0	1.2	0.03305	0.00149	1
14 – 16	1065.7	31.0	0.09643	0.00155	1
The total cost of selected path:				0.02305	

Table 2: The relevant parameters of links belonging to the selected path, the network is divided into 3 clusters.

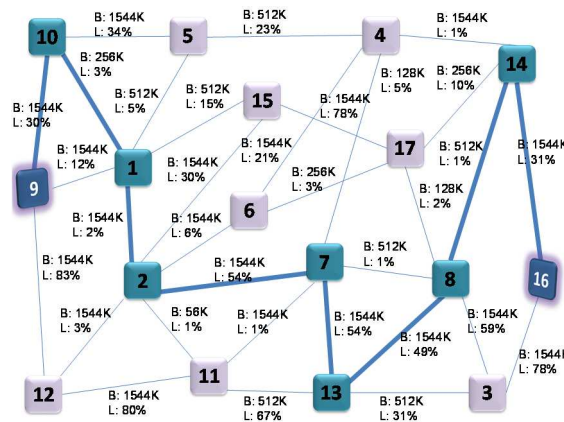


Figure 2: The selected path when the network is divided into 3 clusters

Chosen links	B - L [Kb/s]	L (%)	Normalized cost values (0 - 1)	New cost	The number of cluster selected link belong to
9 – 1	1356.3	12.2	0.035	0.00034	1
1 – 2	1513.7	2.0	0.03489	0.00159	2
2 – 7	708.4	54.1	0.10587	0.02648	3
7 – 8	506.0	1.2	0.10766	0.00249	2
8 – 3	635.8	58.8	0.14654	0.00145	2
3 – 16	333.0	48.2	0.23499	0.00033	1
The total cost of selected path:				0.03268	

Table 3: The relevant parameters of links belonging to the selected path, the network is divided into 5 clusters

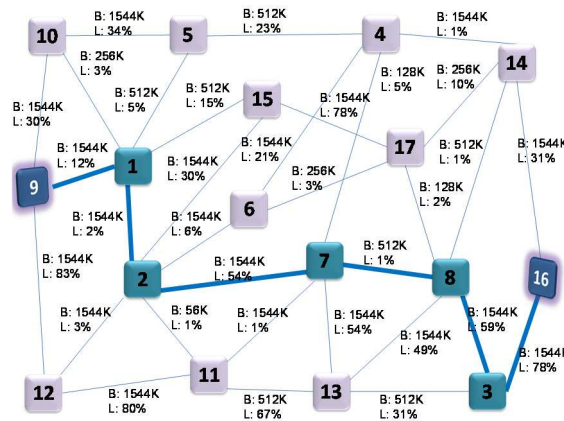


Figure 3: The selected path when the network is divided into 5 clusters

Chosen links	B - L [Kb/s]	L (%)	Normalized cost values (0 - 1)	New cost	The number of cluster selected link belong to
9 – 10	1077.8	30.2	0.03276	0.00004	1
10 – 5	1017.2	34.1	0.20029	0.00004	1
5 – 1	485.9	5.1	0.12426	0.02267	6
1 – 15	485.9	5.1	0.31766	0.00004	1
15 – 2	1077.8	30.2	0.03934	0.00236	4
2 – 7	708.4	54.1	0.10587	0.00006	1
7 – 13	708.4	54.1	0.02432	0.00105	3
13 – 8	799.2	48.2	0.0348	0.00103	3
8 – 3	635.8	58.8	0.14654	0.00004	1
3 – 16	333.0	78.4	0.23499	0.00004	1
The total cost of selected path:				0.02736	

Table 4: The relevant parameters of links belonging to the selected path, the network is divided into 10 clusters

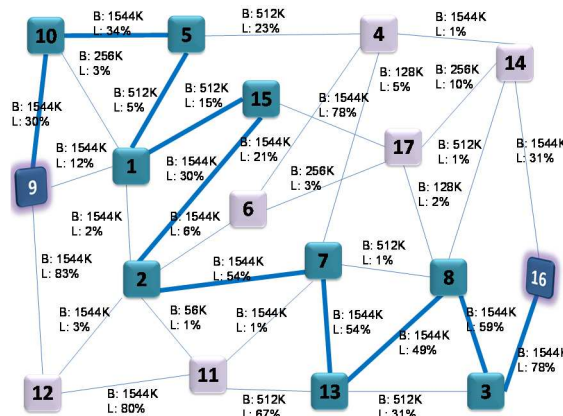


Figure 4: The selected path when the network is divided into 8 and 10 clusters

In further analysis, it was attempted to check the logic of the described algorithm and the efficiency of its operation. There are scenarios that include algorithm testing in several real network circumstances: the abolition of links or routers located in selected paths (which simulates the fall or unavailability of individual links or nodes), but also changes in the topology of the network due to the addition of links or routers.

All further cases are observed when the network was divided into 3 and 10 clusters. First, link 2 - 7 is canceled. The selected path is the same in both cases, Fig. 5. Table 5 gives an overview

of the relevant link data in the selected path for the 10 clusters. Then, the router number 2 and all the links that were connected to this router were aborted. The result is the same as for the abolition of link 2-7, Fig. 6. Interpreting this result, it should be taken of the fact that the links 8 - 17, 17 - 14, 7 - 4, 6 - 17, 11 - 13, and 3 - 13 in the network are links with poorer characteristics, these links were assigned to poorly ranked clusters in each iteration and therefore they never belong to the chosen optimal path.

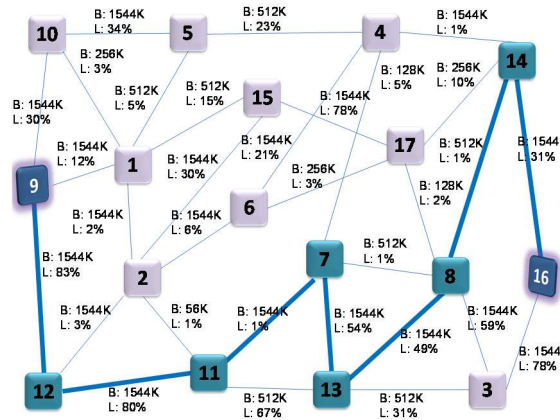


Figure 5: The selected path when the link 2-7 is turn off and network divided into 3 and 10 clusters

Chosen links	B - L [Kb/s]	L (%)	Normalized cost values (0 - 1)	New cost	The number of cluster selected link belong to
9 – 12	260.4	83.1	0.03417	0.01378	7
12 – 11	302.7	80.4	0.38276	0.01428	7
11 – 7	1525.8	1.2	0.0382	0.00004	1
7 – 13	708.4	54.1	0.10587	0.00259	4
13 – 8	799.2	48.2	0.0348	0.00249	4
8 – 14	506.0	1.2	0.03305	0.00245	4
14 – 16	1065.7	31.0	0.09643	0.01378	7
The total cost of selected path:				0.04838	

Table 5: The relevant parameters of links belonging to the selected path, the link 2-7 is turn off, the network IS divided into 10 clusters

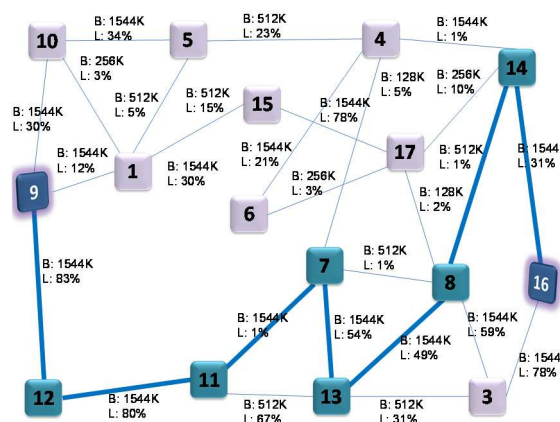


Figure 6: The selected path when the router 2 is turn off and network divided into 10 clusters

CONCLUSION

This paper describes one solution for improving the OSPF protocol in terms of extending the parameters that the protocol uses forming a routing table. For the purpose of changing the link cost, the link load as a new parameter is proposed, which provides information of the remaining real bandwidth. For the purposes of changing path computation, an integrated application of artificial neural networks is realised, Kohonen's and Hopfield's neural networks.

The aim was to analyze the theoretical bases and the justification of such changes in the simulations, checking whether the proposed solution meets the necessary conditions for routing and finding a quality route path. The testing confirmed that a satisfactory path was obtained, but the processing time was further increased. This further defines a direction in the research that goes towards optimizing the code of neural networks and approaching the initial speed of the OSPF.

Milanko Kragović received his B.Sc. and M.Sc. from the School of Electrical Engineering, University of Belgrade. His research interest networks, object-oriented programming and multimedia. He is an author of several papers. Now, he works at the ICT College of Vocational Studies in Belgrade.



REFERENCES

- [1] Computer Networking: A Top-Down Approach Featuring the Internet, *Rearson Education, Inc.*, 2013.
- [2] G. K. Srivastava, C. Bhatnagar, Trends in Networking and Communication, *Atlantic Publishers & Distributors*, 2009.
- [3] S. Shakkottai, R. Srikant, Network Optimization and Control, *Now Publishers*, 2008.
- [4] M. Pioro, M. Deepankar, Routing, Flow and Capacity Design in Communication and Computer Networks, *Elsevier Inc.*, 2004.
- [5] L. V. Fausett, Fundamentals of Neural Networks: Architectures, Algorithms and Applications, *Prentice Hal*, 1993.
- [6] T. Kohonen, Self-Organization and Associative Memory, New York, *Springer-Verlag*, 1988.
- [7] T. Kohonen, Self-Organizing Maps, New York, *Springer-Verlag*, 1997.
- [8] D. B. Johnson, D. A. Maltz, "Dynamic Source Routing in Ad Hoc Wireless Networks", *Mobile Computing*, sec. 5, pp. 153–181. *Kluwer Academic Publishers*, 1996.
- [9] N.R. Pal, J. C. Bezdec, E. C-K. Tsao, "Generalized clustering networks and Kohonen's self-organizing scheme", *IEEE Trans. Neural Networks*, vol. 4, no. 4, pp. 549- 557, 1993.
- [10] J.J. Hopfield, D. W Tank, "'Neural' computations of decision in optimization problems", *Biol. Cybern.*, Vol. 52, pp. 141-152, 1985.
- [11] M. Ali, F. Kamoun, "Neural networks for shortest path computation and routing in computer networks", *IEEE Trans. on Neural Networks*, Vol. 4, No. 6, pp. 941-953, 1993.
- [12] N. Kojic, I. Reljin, B. Reljin, "Route selection problem based on Hopfield neural network", *Radioengineering journal, Proc. of Czech and Slovak technical universities and URSI committees*, ISSN 1210-2512, Vol. 22, No. 4, pp. 1182-1193, December 2013.

SUPPLY CHAIN MODELLING AS DIGITAL ECOSYSTEM

Alexandru Averian¹⁰

Abstract: *Supply chain management integrates supply and demand management within and across companies. In last years, we can observe an emergence of a loosely coupled, self-organizing network of businesses that cooperates to provide product and service offerings. While different kinds of models are applied in modeling supply chain, it is obvious that the context awareness and social aspects are not considered. Digital ecosystems are a new type of application based on a universal digital environment populated by digital entities that form communities that evolve and interact with information exchange and who trade digital objects that are produced through the system. In this paper we introduce a vendor and technology neutral reference model of digital players participating in supply chain ecosystems and apply this model to an actual use case. The paper ends with suggestions for future research.*

Key words: *supply-chain ecosystems, digital ecosystems, digital species*

1. INTRODUCTION

New competitive environment for manufacturing and service industries has been developing during the last years and a growing number of small and medium-sized enterprises (SMEs) realized the strategic importance of designing, planning and implementing a supply chain management tool, to capture the synergy of intra and inter-organizational integration and coordination across the business ecosystem. There are a variety of supply chain management models in literature as results from a recent review [1]. Markus and Loebbecke [2] use the term ecosystem as unit of analysis in describing groupings of suppliers and distribution chains which are understood as loose sets of organizations engaged in the creation and delivery of products and services, the same term is used by Iansit and Levien in [3] describing strategy as an ecology. In this paper we introduce a new, high level, supply chain digital architecture from digital ecosystems perspective.

2. RELATED WORK

Concept of value creation is defined by Porter in his book [4] as a vertical chain extending from suppliers of resources to firms and the buyers of products and services from those firms. The value chain as a construct in this context is a set of actors, resources and processes that align with main and support activities that together represent stages of processing products and services. Porter distinguishes between primary activities and support activities. Primary activities are directly concerned with the creation or delivery of a product or service. Each of these primary activities is linked to support activities which help to improve their effectiveness. This framework was further expanded by Brandenburger and Stuart [5] into supply chain by incorporating all suppliers, intermediates and customers that together represent the value chain of the organization and the market that it operates in. The supply chain extends the internal value chain of a company to external collaboration and exchange of raw material, knowledge, products and services with other players. Christopher defined supply chain in his book [6] as: “a network of organizations that are involved through upstream and downstream linkages in

¹⁰ Politehnica University of Bucharest, Splaiul Independentei nr. 313, Sector 6, Bucharest, Romania

different processes and activities that product value in the form of products and services in the hand of the ultimate consumer”.

The emergence of digital ecosystems induces a reconfiguration of value creation, in [7] Paguri presents three types of control point constellations that represent three topology models of players: closed vertically integrated model, a loose coupled coalition model and a model of multisided platforms. A new topology model emerging around big scale players that tend to dominate global markets and disrupts cross industry boundaries. This model is formed by overlapping *Business Communities* that includes large organizations and their respective ecosystems. The global evolutionary trend towards supply chain driven by digital ecosystems can be seen in the next figure.

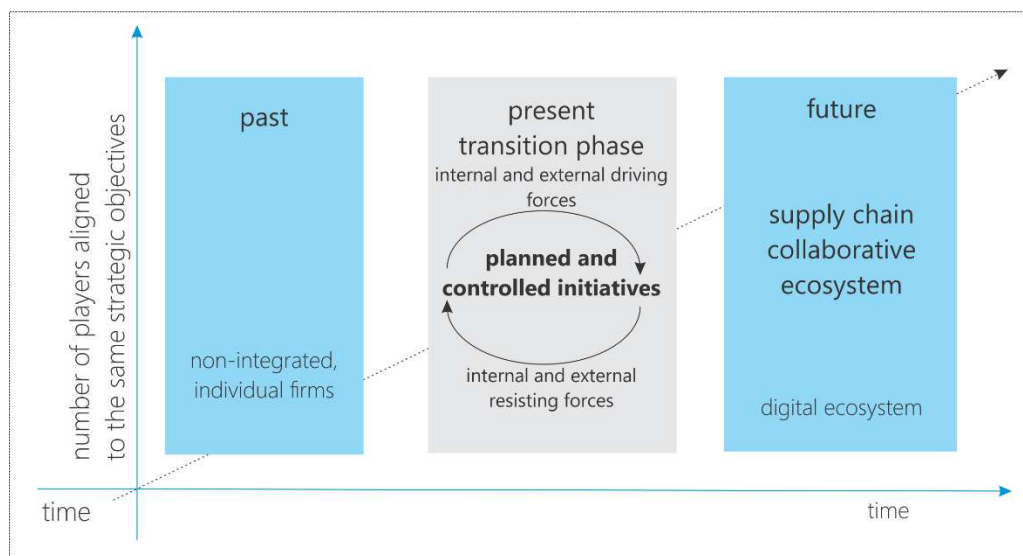


Figure 1. The evolutionary path towards supply chain ecosystems

3. SUPPLY CHAIN AS DIGITAL ECOSYSTEM

Digital ecosystems have been described by Briscoe and De Wilde [8] as “digital counterparts of biological ecosystems exploiting self-organizing properties of biological ecosystems which could include robust, self-organizing and scalable architectures that can automatically solve complex, dynamic problems”. The principles and semantics used in digital ecosystems are formulated in [9], Chang et al. continues to research digital ecosystems by broadening their scope in areas such as transport, education and healthcare [10]. In [11] the authors present the opportunity to develop a digital ecosystem for transportation and warehousing logistics. The *Virtual Collaborative Consortia*, a digital business ecosystem implemented in Australia is an

ALEXANDRU AVERIAN

Lecturer drd, Bucharest, Romania

Born: 1976

Interests: digital ecosystems, parallel and distributed computing, advanced information technologies and programming.

Details: A. Averian received his B.S. in computer science (2002) from University of Bucharest, Romania, in present he is studying digital ecosystems as PhD student at Politehnica University of Bucharest. Starting with 2002, till 2017 he has been assistant and lecturer of computer science at Spiru Haret University. His current research interests include different aspects of social and natural computing, digital ecosystems, modelling and simulation, software reliability and agile methodologies.



example, which represents a collaborative environment for all those involved in the product distribution chain. This involves building a supply chain that will facilitate the integration and collaboration of SMEs in particular, would encourage cooperation, would be an opportunity to create synergy, facilitate incubation and would bring prosperity to business [12]. In [13] an agent-based distributed supply chain model is proposed and a number of open issues are expressed. The delivery chain problem is formulated in terms of task dependency network [14], a mathematical model is proposed, and equilibrium and convergence issues are studied and an application for forming a delivery chain in the automotive realm is presented.

4. ANATOMY OF SPECIES IN SUPPLY CHAIN ECOSYSTEMS

From an ecosystem perspective every actor participating in a supply chain ecosystem is represented by its digital counterpart in digital ecosystem. An entity is part of a species if it is designed and programmed to behave in a certain specific way, to use a certain type of resources and to act according to a specific context. In this section we introduce the reference model of species participating in a digital supply chain ecosystem. The introduced model proposes a set of guidelines in designing and implementing of digital counterpart of players taking part in a supply chain ecosystem. Anatomy of species is comprised of six main layers and a security component which can also be found on every layer, as can be seen in the figure below.

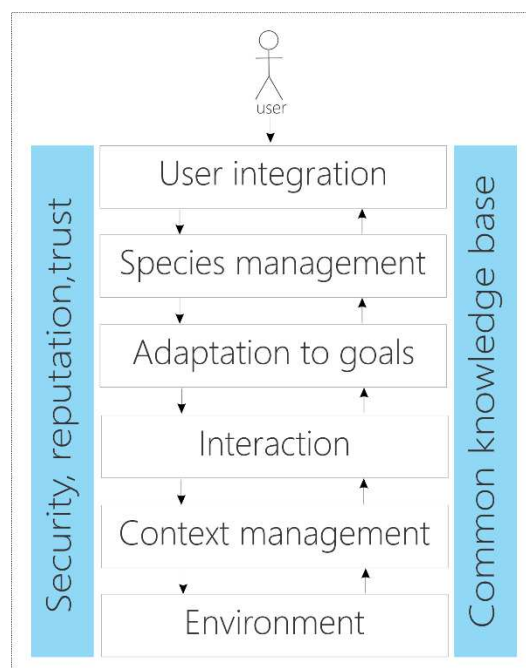


Figure 2. Anatomy of species in supply chain ecosystem

A reference model operates with components with a high degree of similarity so they can be assembled correctly and safely, resulting in complex yet scalable solutions, providing flexibility for various application scenarios.

4.1. Environment

The environment level facilitates the communication between species, it extracts the information from other entities and helps to communicate data/events in the environment. The digital environment can be a peer to peer (P2P) system that has a number of advantages over a

centralized (client/server) model. These advantages result from the network definition mode, P2P is defined as a network in which the nodes are equivalent to each other in the sense that all nodes in principle can execute the same set of functions needed for network. For a real implementation one can use a DDS (Data Distribution Service) or MQTT (Message Queue Telemetry Transport). These systems are widely used to implement IOT applications.

4.2. Context management

Contextual information is used in the interaction between the user and the application to enrich the app's data with information from the user environment or the analyzed entity. A context-aware application uses contextual information to reduce data explicitly entered by the user and to better respond to the user's requests. From [15] a context-aware applications are: “*programs that adapt to where they are used, objects and people who are nearby, and their time changes*“. Dey [16] proposes a more generic definition, it says that a system is aware of the context if “it uses the context to provide the user with relevant information and services, where relevance depends on the user's task”. The context management level contains logic for extracting and processing context data. At this level the following operations are executed:

- assessing the context situation and issuing signals to the upper layers;
- reception at the upper level of commands, actions, behavior adaptation;
- issuing events, actions, and context data to the environment describing the state of the entity.

Concrete implementation can be very varied, depending on the specificity of the application, in some cases it can be a simple set of rules that evaluates data in the form of key-value pairs, in other cases it can be given by sophisticated systems of data mining. In our previous work [17] we introduced ECONTEXT – a programming model for context used in digital ecosystems.

4.3. Interaction

The interaction level receives information about changes that happen in the context, events or messages received from other entities in the environment. The interaction model depends on the application, it can be a model with simple one-way rules, the cause-effect form, or it can be a very complex inter-relation pattern. For example, for business digital ecosystems, *ActionWorks* Business Interaction Model can be used to coordinate the interaction between a customer group and a group of providers through a four-step feed-back loop: preparation, negotiation, delivery, acceptance. For other applications, the CIS (Complexity of Interaction Sequences) model introduced in [18] can be used. This model uses interaction sequences that are defined as action steps that change the status of a system, and any problem that needs to be resolved is seen as a state to be reached as a result of executing a sequence of steps.

4.4. Adaptation to goals

Adaptability is the ability of a system to change its behavior according to new, unexpected situations [19]. The adaptive properties of an organism are closely related to the self-organizing property and the emergence phenomenon [20]. Applications from a digital ecosystem must solve concrete problems but also be computationally efficient. It will seek to establish a balance between the freedom of a system to self-organize and the constraints that apply to obtain useful solutions. The system continually assesses its own state and context in which it finds and issues decisions (and internal or external commands) that adjust the state of the system towards the

goal. At this level, an AI engine or a series of evolutionary algorithms such as genetic algorithms, bee colony optimization [13], intelligence swarm will be used.

4.5. Species integration

The concepts of species, individuals, integration and cohesion are widely debated in the literature of biology and ecology [21]. The term integration refers to the active interaction between the components of a system. Thus, the presence and action of a part of a system does not affect the activity of another part of the system, although all parts are uniformly responsible for a certain type of stimulus and behave similarly to the same process. The level of species integration allows the integration and configuration of participating entities within a species. An entity becomes part of a population and a species if it is programmed to act in a certain way specific to the species, to use a certain type of resources and to act according to a specific context to the population to which it belongs.

4.6. User integration

The user integration level integrates the users and applications with which it interacts on the last layer, the level can be viewed as a service or as a graphical interface located on the highest level of architecture. The concrete implementation of this level is dependent on the specificity of each application, actors and usage cases. At this level, setup commands and queries or commands will be launched by the ecosystem. In some cases this level will be in charge with authentication, authorization of access to resources, accounting for the use of shared resources in the system, and payment services.

4.7. Security, identity and trust

Certain areas of digital supply chain will imply a strong connection between the physical world and the digital world, for the realization of secure systems, the model should include multi-level security measures including identification and authorization of digital entities and users, data protection and authentication.

Trust is a multidimensional concept that is hard to define and difficult to measure [22]. Trust can be analyzed from the technological, economic, behavioral and organizational perspectives [23]. The technological dimension of trust expresses the subjective probability of an organization to believe that a particular infrastructure can facilitate transactions in line with its expectations. The technological dimension includes security services, mechanisms that ensure the confidentiality, authenticity, non-repudiation and integrity of transactions, as well as mechanisms that ensure identity control and access to resources. A distributed identity management system must exist in the ecosystem so that it is possible to ensure the identity of a service provider as well as consumers to control access to resources.

The economic dimension involves establishing relationships of interdependence between organizations (based on a cost-benefit analysis) and the use of IT infrastructure for trading, data transfer, know-how. The behavioral dimension of trust derives from the characteristics of interpersonal behavior, these relate to competence, predictability, honesty, good intentions. The organizational dimension of trust results from the use of good practices, quality standards, audit, risk management strategies, process management standards.

In the following section we introduce an application of supply chain model applied on a section of the Amazon retail chain. Security features were omitted in this example for simplification. It can be considered that all participating digital entities are reliable, access to the system is checked at the network level.

5. SUPPLY CHAIN ECOSYSTEM

The automation of operations in a warehouse seems to be a difficult operation, but some companies have already made great strides in this direction. Amazon is using Kiva robots (figure 4), they are simple machines that move horizontally on a 2D grid in all directions, can enter under the shelves in the warehouse, lift them and carry them to the desired destination. They are generally used to transport the shelves of objects to be shipped to the selection and packaging table. After taking over the objects, they carry the shelves back to their place. In addition, they can be used for warehouse shelving operations, for more efficient use of storage space, for sorting and ordering shelves for delivery. Robots with a mobile arm operate on packing and putting packages on the conveyor. The drones' species connects the packages on the platform and takes them to their destination.

The following table summarizes an use case of supply chain digital ecosystems on a section of the Amazon retailer delivery chain. It includes: actors, purpose, preconditions, a correct usage scenario and post-conditions.

ACTORS	<ol style="list-style-type: none"> 1. Human operator 2. Client 3. Kiwa robot species 4. Species of mobile handler robots 5. Drone species – Prime Air
GOALS	Delivery of products to recipients. Customer orders are quickly honored, delivery is done with the help of the drones in rural areas and peripheral urban areas.
PRECONDITIONS	There is a stock of products displayed on a website.
HIGH LEVEL SUCCESS SCENARIO	<ol style="list-style-type: none"> 1. The operator picks the general role for every species, and for the robot population. 2. The client makes an order in the system through the website. 3. The system checks the stock and sends a movement order of the product to the packing line. 4. Kiva Robots will bring the rack with the ordered products to the packing line. 5. Manipulating robots pack the products and place the package on the delivery line. 6. At the end of the line, another manipulating robot extracts the package from the tape and places it on a platform. 7. A Prime-Air drone picks up the package, reads the code extracts the address of the destination and performs the delivery flight. 8. The delivery is made, confirmed and the drone comes back to base.
POST CONDITIONS	The client confirms the reception of the package online, using a phone or tablet, and can use the product.

Figure 3. Use case summary

As can be seen from the following figure, the Kiva robot species, the arm robots and the drones species do not contain the user integration level, the applications used by the operator species implement the level of user integration but lack the level of adaptation to the goals. We can also see that all species integrates species management functions, at this level each species of robots can be configured, the operator can set the mode of work, the purpose. The operator performs this configuration through its own level of species management. In the following figure one can see the species configured to work in proposed supply chain ecosystem:

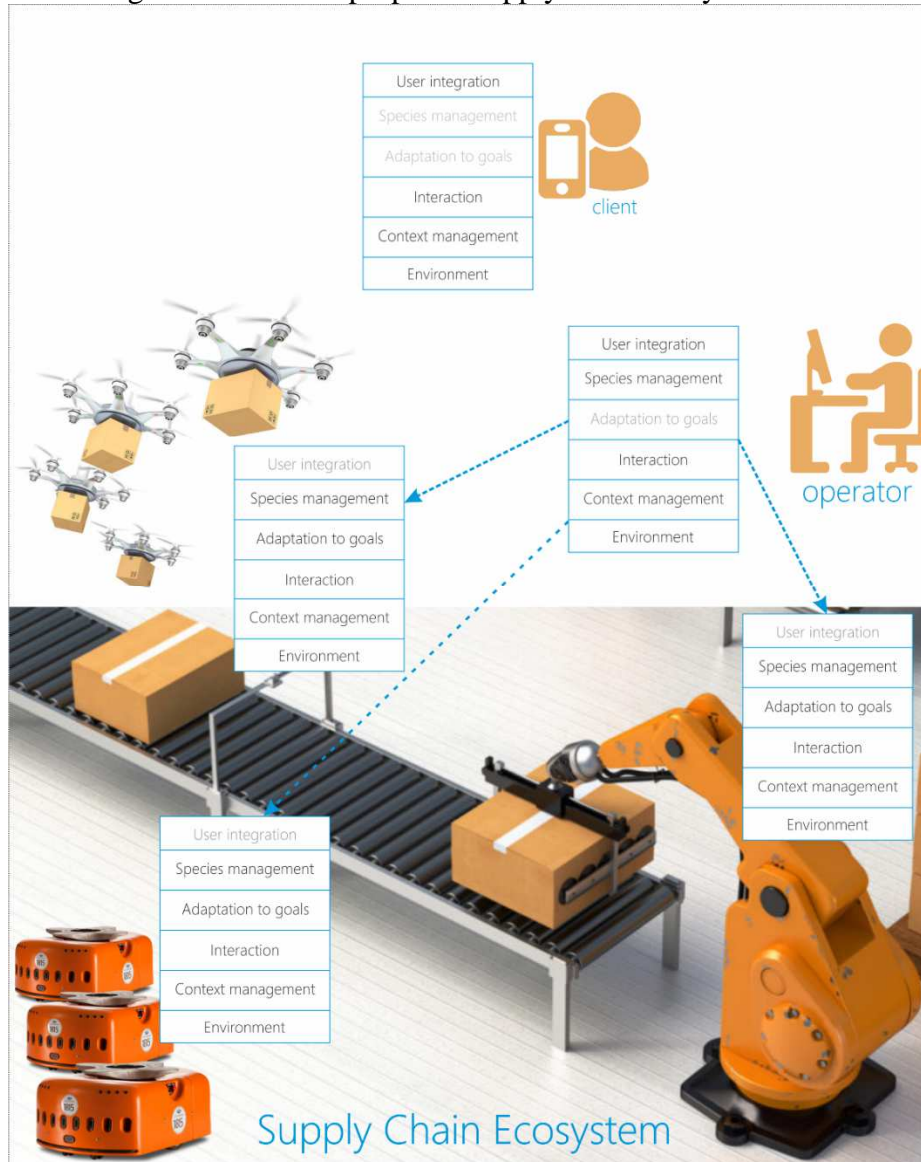


Figure 4. Species in Supply Chain Ecosystem

6. CONCLUSIONS

In this article we have presented a reference model for digital entities involved in a supply chain from an ecosystem perspective. The introduced model proposes a set of guidelines in designing and implementing digital counterpart of players in a supply chain ecosystem. First we presented the multilayer anatomy of species participating in a digital supply chain ecosystem, in the final part of the article Supply Chain Ecosystem is introduced, an application for a section of Amazon supply chain. This work follows the study conducted in [17] and continue the research that was

presented in respective papers. Future research will seek to refine the model and apply it to other, more extended, use cases.

ACKNOWLEDGEMENTS

The work has been funded by the Sectoral Operational Programme Human Resources Development 2007-2013 of the Ministry of European Funds through the Financial Agreement POSDRU/159/1.5/S/132395.

REFERENCES

- [1] S. Seuring, "A review of modeling approaches for sustainable supply chain management," *Decis. Support Syst.*, vol. 54, no. 4, pp. 1–8, 2012.
- [2] M. L. Markus and C. Loebbecke, "Commoditized digital processes and business community platforms: new opportunities and challenges for digital business strategies," *Mis Q.*, vol. 37, no. 2, pp. 649–654, 2013.
- [3] M. Iansiti and R. Levien, "Strategy as Ecology," *Harv. Bus. Rev.*, vol. 82, no. 3, pp. 68–81, 2004.
- [4] M. E. Porter, *Competitive Advantage: Creating and Sustaining Superior Performance*. New York: Free Press, 1985.
- [5] A. M. Brandenburger and H. W. J. Stuart, "Value-based business strategy," *J. Econ. Manag. Strateg.*, no. 5, pp. 2–25, 1996.
- [6] M. Christopher, *Logistics and Supply Chain Management*. Financial Times, 1992.
- [7] M. Pagani, "Digital Business Strategy and Value Creation: Framing the Dynamic Cycle of Control Points," *MIS Q.*, vol. 37, no. 2, pp. 617–632, 2013.
- [8] G. Briscoe and P. De Wilde, "Digital Ecosystems: Evolving Service-Orientated Architectures," *2006 1st Bio-Inspired Model. Network, Inf. Comput. Syst.*, 2006.
- [9] H. Boley and E. Chang, "Digital ecosystems: Principles and semantics," *Proc. 2007 Inaug. IEEE-IES Digit. Ecosyst. Technol. Conf. DEST 2007*, pp. 398–403, 2007.
- [10] E. Chang and M. West, "Digital Ecosystems and comparison to existing collaboration environment," *WSEAS Trans. Environ. Dev.*, vol. 2, no. 11, pp. 1396–1404, 2006.
- [11] E. Chang and M. West, "Digital Ecosystems A Next Generation of the Collaborative Environment," *Eight Int. Conf.*, vol. 214, pp. 3–23, 2006.
- [12] L. M. Camarinha-Matos, H. Afsarmanesh, N. Galeano, and A. Molina, "Collaborative networked organizations - Concepts and practice in manufacturing enterprises," *Comput. Ind. Eng.*, vol. 57, no. 1, pp. 46–60, 2009.
- [13] W. E. Walsh and M. P. Wellman, "Modeling Supply Chain formation in Multiagent Systems," vol. 1788, pp. 94–101, 1999.
- [14] W. E. Walsh and M. P. Wellman, "Decentralized Supply-Chain Formation : A Market Protocol and Competitive Equilibrium Analysis," *J. Artif. Intell. Res.*, vol. 19, pp. 513–567, 2003.
- [15] B. N. Schilit and M. M. Theimer, "Disseminating active map information to mobile hosts," *Network, IEEE*, vol. 8, no. 5, pp. 22–32, 1994.
- [16] A. K. Dey, "Understanding and Using Context," *Pers. Ubiquitous Comput. J.*, vol. 1, no. 5, pp. 4–7, 2001.
- [17] A. Averian, "Towards More Context-Awareness in Reactive Digital Ecosystems," in *Creativity in Intelligent Technologies and Data Science: Second Conference, CIT&DS 2017, Volgograd, Russia, September 12-14, 2017, Proceedings*, A. Kravets, M. Shcherbakov, M. Kultsova, and P. Groumpos, Eds. Cham: Springer International Publishing, 2017, pp. 640–654.

- [18] C. Appert, M. Beaudouin-Lafon, and W. E. Mackay, "Context matters: Evaluating Interaction Techniques with the CIS Model," in *People and Computers XVIII --- Design for Life: Proceedings of HCI 2004*, S. Fincher, P. Markopoulos, D. Moore, and R. Ruddle, Eds. London: Springer London, 2005, pp. 279–295.
- [19] J. S. Bradbury, J. R. Cordy, J. Dingel, and M. Wermelinger, "A survey of self-management in dynamic software architecture specifications," *WOSS '04 Proc. 1st ACM SIGSOFT Work. Self-managed Syst.*, no. November, pp. 28–33, 2004.
- [20] G. D. M. Serugendo, M.-P. Gleizes, and A. Karageorgos, *Self-organising software: From natural to artificial adaptation*. Springer Science & Business Media, 2011.
- [21] M. Lee and M. Wolsan, "Integration, individuality and species concepts," *Biol. Philos.*, vol. 17, no. 5, pp. 651–660, Nov. 2002.
- [22] L. T. Hosmer, "Trust: The Connecting Link between Organizational Theory and Philosophical Ethics," *Acad. Management Rev.*, vol. 20, no. 2, pp. 379–403, 1995.
- [23] P. Ratnasingam, "Trust in inter-organizational exchanges: A case study in business to business electronic commerce," *Decis. Support Syst.*, vol. 39, no. 3, pp. 525–544, 2005.

ROLE OF EXPERIMENTS IN SIMULATIONS MODELS

Sandrina Dimitrijević¹¹

Abstract: *With the extraordinary rise of information technology the use of computer simulation as a research methodology has significantly increased. Greater computational power enables even complex simulations to run in couple of seconds. New programming languages and simulation concepts appear. In line with that, in this paper we try to put more light on simulations as a useful tool for science research. By performing a literature review we examine the role of experiments in simulation models. We reveal that experiments can and should be used for model validation and verification, optimization and sensitivity analysis. Validation and verification come at the first phase of model design and ensure that the model represents a real-world phenomenon and that it is correctly implemented. Optimization makes the model simpler and faster without losing important information. Lastly, the sensitivity analysis of all model parameters allows the user to better understand model's inputs and outputs and to make accurate predictions.*

Key words: *computer simulation, research experiments.*

1. INTRODUCTION

Importance of simulations as a research method has been increasing in last three decades given the rise of information technology. Even though they have been known in science, simulations were used sporadically. That has changed now as there are multiple software tools for simulation modeling [1]. Computation power has increased and that makes even the complex simulations to execute in couple of seconds. Consequently, more and more scientific studies employ computer simulations in analyzing social phenomena, networks and specific system behavior.

Simulation is usually defined as a model of a system with specific inputs and resulting output that is analyzed [2]. Unlike in traditional models, there are no equations that need to be solved. Scientists simply vary values of model parameters and analyze the output.

Compared to other research methods, simulation enables better understanding of connection between individual (micro) actions and resulting macro level processes. Also, it enables analysis of non-linear dynamic processes which can be very complex to study using with traditional research approaches [7].

Main scientific purposes of simulation are its ability to predict and provide proof for specific phenomena and to discover new patterns and rules [2]. It is being used in various fields, from economics, biology, medicine and others. There are multiple simulation approaches, like discrete-events simulation, continuous simulation, agent-based simulation, etc. [14].

Main steps in the process of simulation are [20]:

- 1) model and research problem formulation,
- 2) coding and choice of a simulation platform,

¹¹ PhD student, Faculty of Economics, Belgrade, Serbia

- 3) exaction,
- 4) summary of results,
- 5) output analysis, and interpretation of results.

However, given that the science of simulation is still growing, it lacks certain methodological standards in model preparation and analysis [21]. Some studies lack the needed methodological rigor and are simply not done right, which attracts high criticism of the whole simulation science in general [10].

We tend to contribute to a challenge of developing a more unified methodological framework for simulation analysis by focusing on the role of experiments. Experiments are being used in multiple aspects of model development and are crucial for model's efficiency and effectiveness [14]. However, their application in simulation research is still not satisfactory [16]. Their full potential has still not been fully recognized.

When it comes to using experiments in modeling it is important to note that model description and experiment description should be separate. Each experiment should be properly designed and evaluated, which implies that [14]:

- 1) description of initial conditions is provided,
- 2) experiment goals are defined,
- 3) methods are explained,
- 4) observations are carefully investigated and documented.

In this paper we investigate the role simulation experiments can play in model validation, verification, optimization and sensitivity analysis.

2. MODEL VALIDATION AND VERIFICATION

Model validation means that we have built the right model which correctly represents while verification means that the mode. Both are important aspects in every simulation design. Usually are done in the research and model building phase of simulation.

The model should help us to better understand and answer questions related to the behavior of a real system it is trying to mirror. "Validation is the process of determining whether a simulation model is an accurate representation of the system, for the particular objectives of the study." [13].

There are four aspects of validation [8]:

- 1) input validation,
- 2) process validation,
- 3) descriptive output validation
- 4) predictive output validation.

Experiments are useful in each of the aspects. Their aim is to compare results of model run with existing real world or historical data. Depending on specific circumstances only specific data might exist, for example only input or process working data. Even if some data doesn't exist the simulation experiments should rely on expert knowledge [11].

Model verification refers to model being correctly coded without errors and contradictions [19]. It can be examined by experiments that refer to extreme condition tests (unlikely combinations

should still produce expected output), internal validity (multiple runs of the simulation should provide consistent results) and sub model testing (splitting the model into multiple parts and experiment with them separately) [3].

Important aspect of model verification and validation is that results can always be replicated. A model that can be replicated is more reliable [2]. Such replication can be a comparison of two models with identical set of assumptions and rules, but programmed in a different language [6]. Also, it can mean running a model for multiple time with slightly changed assumptions. For good replication it is important that a model is properly explained, documented and simple.

2. MODEL OPTIMIZATION

One of the main measures of simulation model's quality is its simplicity [7].

In an attempt to simulate a specific phenomenon realistically scientists have to involve multiple factors. However, using too many factors can make models run too long and very complex to analyze and understand. That is why it is important to focus on important set of parameters while ensuring that the model with reduced number of parameters is still useful. A certain balance is needed in achieving the correct combination [9].

For that purpose, screening experiments are performed as preliminary step in model creation. Their goal is to find an optimal combination of input factors, but eliminating those that are less important [22].

3. SENSITIVITY ANALYSIS

Sensitivity analysis measures the degree of change of model output with respect to the change of its inputs. It is an important factor of model development and examination because it provides information about its robustness and importance of individual parameters. Usually, distinction is made between local and global sensitivity measures [4]. Local or one at a time measure analyzed how the model behaves when only one parameter is changed, while global measure investigates situations when all parameters are changed.

Each model parameter or their combination can be an input of a simulation experiment. In situations when the number of parameters is high, it becomes impractical to perform a large number of experiments. A carefully designed simulation experiment approach can help in minimizing a sample of parameters that are going to be used in sensitivity analysis, all according to model needs and representativeness [18].

4. CONCLUSION

Experimentation enables us to generate a better simulation model. By using properly designed simulation experiments scientists can generate model that are correct and present a reliable representation of reality. Such models can later be used to generate new research insights.

REFERENCES

- [1] Abar, S., Theodoropoulos, G. K., Lemarinier, P., & O'Hare, G. M. (2017). Agent Based Modelling and Simulation tools: A review of the state-of-art software. *Computer Science Review*.

- [2] Axelrod, R. (1997). Advancing the art of simulation in the social sciences. In *Simulating social phenomena* (pp. 21-40). Springer Berlin Heidelberg.
- [3] Balci, O. (1994). Validation, verification, and testing techniques throughout the life cycle of a simulation study. In *Simulation Conference Proceedings, 1994. Winter* (pp. 215-220). IEEE.
- [4] Campolongo, F., Saltelli, A., & Cariboni, J. (2011). From screening to quantitative sensitivity analysis. A unified approach. *Computer Physics Communications*, 182(4), 978-988.
- [5] Ciuffo, B., & Azevedo, C. L. (2014). A sensitivity-analysis-based approach for the calibration of traffic simulation models. *IEEE Transactions on Intelligent Transportation Systems*, 15(3), 1298-1309.
- [6] Donkin, E., Dennis, P., Ustalakov, A., Warren, J., & Clare, A. (2017). Replicating complex agent based models, a formidable task. *Environmental Modelling & Software*, 92, 142-151.
- [7] Gilbert, G. N. (1996). 21 Simulation as a Research Strategy. *Social science microsimulation*.
- [8] Grabner, C. (2017). How to relate models to reality? An epistemological framework for the validation and verification of computational models. *ICAE Working Paper*, 63.
- [9] Harrison, J. R., Lin, Z., Carroll, G. R., & Carley, K. M. (2007). Simulation modeling in organizational and management research. *Academy of Management Review*, 32(4), 1229-1245.
- [10] Kelton, W. D. (2016). Methodological Expectations for Studies Using Computer Simulation. *Journal of Business Logistics*, 37(2), 82-86.
- [11] Kleijnen, J. P. (1999, December). Validation of models: statistical techniques and data availability. In *Proceedings of the 31st conference on Winter simulation: Simulation---a bridge to the future-Volume 1* (pp. 647-654). ACM.
- [12] Kleijnen, J. P. (2008). *Design and analysis of simulation experiments* (Vol. 20). New York: Springer.
- [13] Law, A. M. (2008, December). How to build valid and credible simulation models. In *Proceedings of the 40th Conference on Winter Simulation* (pp. 39-47). Winter Simulation Conference.
- [14] Law, A. M., Kelton, W. D., & Kelton, W. D. (1991). *Simulation modeling and analysis* (Vol. 2). New York: McGraw-Hill.
- [15] Leye, S., Himmelspach, J., & Uhrmacher, A. M. (2009, March). A discussion on experimental model validation. In *Computer Modelling and Simulation, 2009. UKSIM'09. 11th International Conference on* (pp. 161-167). IEEE.
- [16] Lorscheid, I., Heine, B. O., & Meyer, M. (2012). Opening the 'black box' of simulations: increased transparency and effective communication through the systematic design of experiments. *Computational & Mathematical Organization Theory*, 18(1), 22-62.
- [17] Maria, A. (1997, December). Introduction to modeling and simulation. In *Proceedings of the 29th conference on Winter simulation* (pp. 7-13). IEEE Computer Society.
- [18] Salle, I., & Yıldızoğlu, M. (2014). Efficient sampling and meta-modeling for computational economic models. *Computational Economics*, 44(4), 507-536.
- [19] Sargent, R. G. (2013). Verification and validation of simulation models. *Journal of simulation*, 7(1), 12-24.
- [20] Savory, P., & Mackulak, G. The Science of Simulation Modeling. *International Conference on Simulation in Engineering Education (ICSEE '94), Volume 26, No. 1 (ISBN: 1-56555-066-8)*.

- [21] Schulze, J., Müller, B., Groeneveld, J., & Grimm, V. (2017). Agent-Based Modelling of Social-Ecological Systems: Achievements, Challenges, and a Way Forward. *Journal of Artificial Societies and Social Simulation*, 20(2), 1-8.
- [22] Smith, D. E., & Mauro, C. A. (1984). Design of experiments in simulation. *American Journal of Mathematical and Management Sciences*, 4(3-4), 249-275.
- [23] Zeigler, B. P., Praehofer, H., & Kim, T. G. (2000). *Theory of modeling and simulation: integrating discrete event and continuous complex dynamic systems*. Academic press.

WEB CONTENT MINING IMPROVEMENT USING MULTIFRACTAL ANALYSIS

Milena Vesić¹²

Goran Zajić¹³

Nenad Kojić¹⁴

Abstract: *The algorithm for Web content mining is presented in this paper. This algorithm is based on image analysis and the use of artificial intelligence for searching and classification task. Feature selection procedure is automatized and improved with use of inverse multifractal analysis of features and ranking. By performing relevant feature selection the reduction of system dimensionality and acceleration of searching process is achieved. Low level features (color, texture, shape) are extracted from each image in database. Feature database is reduced based on analysis of sample features and relevant feature selection. Set of few high ranked feature are used for searching task. Experimentally mining and classification procedure is reduced on Corel1000 image database, and the mining efficiency of the system is tested on it. The mining efficiency test results are satisfying according to level of feature dimensionality reduction.*

Key words: *Web content, Web mining, image, feature, neural network, multifractal analysis*

1. INTRODUCTION

Last decade, the Web has become very popular and important platform for information distribution, retrieval and analysis of information. Also, today the Web is often used for large data repository containing a broad variety of data and knowledge base. The huge volume of information exists on the Web, and it is consistently growing. Getting the correct information becomes an issue for Web users, due to low precision and low recall page. For example, the information retrieving task by using Google and other search engines, provides not only Web contents which are related with desired topic, but a series of irrelevant information (“noise pages”), and it is very difficult for users to obtain necessary information. So, the extraction of relevant information from the Web becomes a challenge for researchers in this area.

Web Mining represents the use of data mining and information extraction techniques for discovering patterns and knowledge from the Web. In the literature [1], Web mining is divided into three classes:

- Web Content Mining - extraction of useful information from text, image, audio or video data in the Web.
- Web Structure Mining - analysis of the node and connection (graph) structure underlying single Web sites, as well as larger collections of interrelated sites
- Web Usage Mining - Web analytics is used for extraction of useful information from server logs and other sources detailing usage patterns.

¹² ICT College of Vocational Studies, Zdravka Čelara 16, Belgrade, Serbia

¹³ ICT College of Vocational Studies, Zdravka Čelara 16, Belgrade, Serbia

¹⁴ ICT College of Vocational Studies, Zdravka Čelara 16, Belgrade, Serbia

Web content consists of several types of data: text data, images, audio or video, structured records such as lists or tables and hyperlinks. Web content mining can be observed as the analysis of text, graphs and pictures from a Web page, in order to determine the significance of the content to the search query. Video is also important and very popular Web media content. Retrieving task in case of Web video content can be realized by using proper decoder and mining system based on image content.

Web content mining utilized numerous tools and algorithms, for example, Correlation Algorithm, Machine Learning algorithms, Cluster Hierarchy Construction Algorithm (CHCA), the Ontology based tools, Web Info Extractor (WIE), Web content extractor and their automatization are content mining tools.[2]-[4]. The Web data can be maintained in Web community such as Facebook, but the results of mining (retrieval information) can be exploited in e-banking, Web indexes, online information service, e-learning and recommendation system and personalization [2].

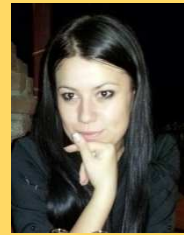
The algorithm for Web image content mining is presented in this paper. This algorithm is based on image analysis and the use of artificial intelligence for searching and classification task. Feature selection procedure is automatized and improved with use of inverse multifractal analysis of features and ranking. By performing relevant feature selection the reduction of system dimensionality and acceleration of searching process is achieved. Low level features (color, texture, shape) are extracted from each image in database. Feature database is reduced based on analysis of sample features and relevant feature selection. Experimentally mining and classification procedure is reduced on Corel1000 image database, and the mining efficiency of the system is tested on it.

The paper is organized as follow. After the Introduction, in chapter 2 Web image content mining procedure is described. Introduction to multifractal analysis and feature selection procedure is given in chapter 3. The test results are presented in chapter 4. The final remarks are given in chapter 5.

2. WEB IMAGE CONTENT MINING

The main parts of Web image mining process will be explained in this chapter. Web image content mining can be presented in two different functional phase. The first phase represents the preprocessing phase where the Web content (images) is extracted from Web structures and described with image features and indexed. Second phase represents the mining process over the image feature database.

Milena Vesić was born in Lipljan, Serbia, in 1988. She received her BC. degree in electrotechnical engineering from the ICT College of Vocational Studies, in 2009. Computer Science Specialist Degree she received in 2010., from the ICT College of Vocational Studies. Now, she is Teaching Assistant at ICT College of Vocational Studies in Belgrade. Teaching areas of Milena Vesić are WEB programming languages, HTML, PHP, ASP.NET and C#. Her research interest include multimedia, image processing, data mining, web mining and programming. So far she has published 4 publications: in domestic and international conference proceedings.



2.1 PREPROCESSING PHASE

A functional scheme of the preprocessing process is shown in Fig. 1. Each block represents a corresponding step in image information extraction process.

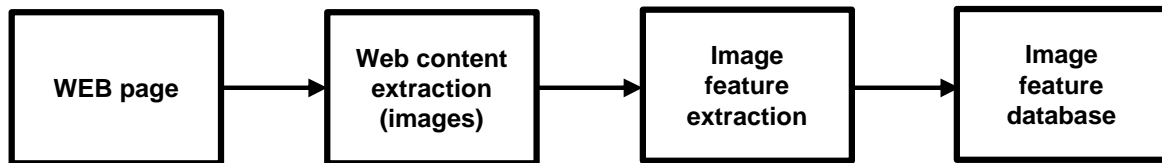


Figure 1: Functional scheme of Web image information extraction process

The images may be extracted from Web pages using different tools. They are scaled on proper ratio and processed in order to extract different image features from them. In presented experiment, following low level features are extracted from images [5]: HSV Color Histogram, Color Moments, Color Layout Descriptor, Structural Color Descriptor, Color Correlogram, Gabor Transformation, Radial Co-occurrence Matrix, Edge Histogram and Wavelet descriptor. The features are stored in image feature matrix, and normalized with column maximum value.

2.2 MINING PHASE

The mining phase of Web image mining process consists of three important parts. First part represents image feature selection process based on query content. The second part is initial search of image features database based on selected features. The third part is relevance feedback algorithm based on artificial intelligence and user assistance. The functional scheme of Web image mining process is shown in Fig. 2.

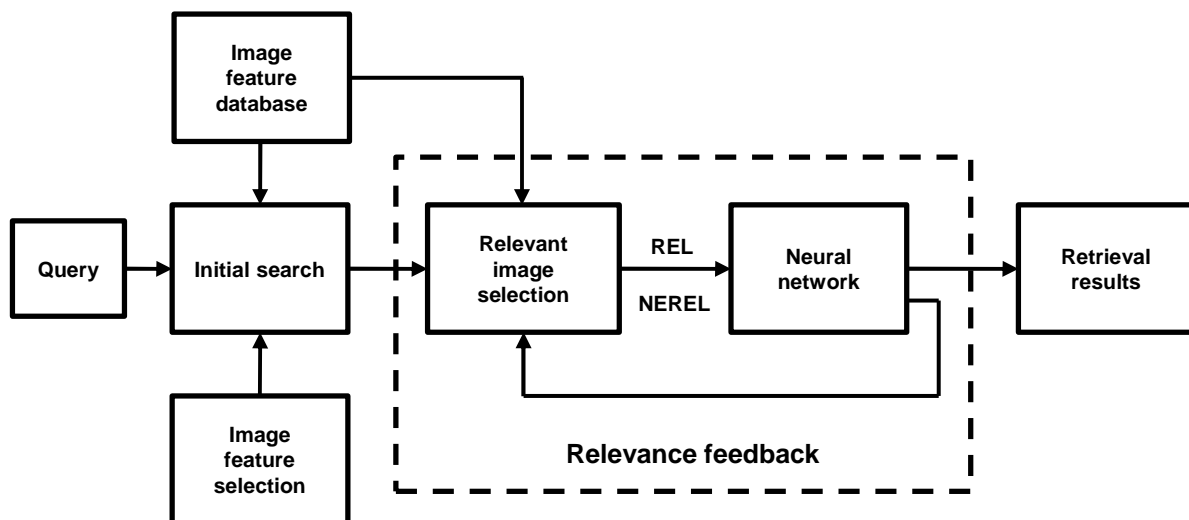


Figure 2: Functional scheme of Web image mining process

The image feature selection will be discussed in next chapter. The functional scheme of initial search part of Web image mining process is presented in Fig. 3. Two different inputs may be used as query in mining process. In the first case, query image may be selected between existed images in database and their features will be used in feature selection process. In the second case, the query image may not exist in database, so before the feature selection process, the image features have to be extracted. Selected features are concatenated and they are forming feature

vector. Image feature database is reduced based on number of columns of query feature vector. The initial search represents the calculation of the Euclidean distance between query feature vector and reduced image feature vectors from image feature database. The result of this searching process is objective similarity measurement that can be used for initial image similarity ranking.

After the initial search process, the $N = 50$ images are presented to the user for relevance feedback phase of process. The presented images are annotated by user as relevant or nonrelevant. The relevant/nonrelevant information is used for query feature vector correction. The relevance feedback algorithm is based on artificial neural network (RBF function) [6]. Next iteration of mining process is based on corrected query feature vector. As the results of this iterating feedback process can be set of images very similar to query one, or set of images that represents an image cluster which can be used for accelerating the further mining [7].

3. FEATURE SELECTION PROCEDURE

The description of automatic relevant feature selection algorithm and short introduction to multifractal analysis is given in this chapter.

3.1 MULTIFRACTAL ANALYSIS

Multifractal formalism is based on fact that system nonuniformity is result of high nonuniform probability distribution, which usually can be characterized with scalability features and self-similarity [8]. Long range dependency, structure and nonuniform probability distribution can be described by using multifractal analysis. Also, the characterization of fractal features of different kinds measurements, provided by numerous systems for data acquisitions, can be achieved with use of multifractal analysis.

By use of multifractal analysis, can be achieved the better insight of local and global irregularities of measurements, on geometrical or statistical manner [9]. Inverse multifractal analysis provides a characterization of data value with Holder exponent (α) [8], which can be used for better data description.

3.2 AUTOMATIC FEATURE SELECTION ALGORITHM

The automatic feature selection algorithm is based on implementation of inverse multifractal analysis on feature component values. The threshold T is defined which represents sum of feature α mean value and feature α standard deviation value. Next predefined parameter is P value which represents the ratio of number of feature α value that exceeds the threshold T and number of feature components. For the purpose of feature ranking, the $X = P \times Q$ parameter is defined, where Q represents the standard deviation of feature α values. This parameter describes the feature component dynamics. After the ranking phase, three features with highest X values are selected and concatenated in new feature vector. New feature vector is used for initial search process, and similarity measurement between query feature vector and feature vectors from image feature database is limited on set of selected features.

4. RESULTS

The efficiency of presented Web image mining algorithm is tested on Corel1000 [9] image database. This image represents the different types of Web content. It consists of 1000 images

classified in 10 classes, with 100 images in each class. Image classes named corresponding to the class image content and their names are: *Africa* (class1), *Beach* (class2), *Buildings* (class3), *Buses* (class4), *Dinosaurs* (class5), *Flowers* (class6), *Elephants* (class7), *Horses* (class8), *Mountains* (class9) i *Food* (class10). All images in database are tested with user assistance (1000 images). After the initial search, three relevance feedback iteration are performed for each image. In each of relevance feedback iterations the user was selected the relevance and nonrelevance ones among 50 presented images.

The result of testing is shown in Table 1. where (EfficiencyR) represents the search efficiency with selected features which is compared with searching efficiency with all used features in image feature database (Efficiency). The parameter R represents the ratio between the number of components of reduced feature vector in selection process and number of components of full feature vector.

<i>Class</i>	<i>EfficiencyR</i>	<i>Efficiency</i>	<i>R</i>
Class1	0.76	0.99	0.65
Class2	0.54	0.93	0.54
Class3	0.67	0.88	0.54
Class4	0.81	1	0.65
Class5	0.96	1	0.24
Class6	0.59	0.98	0.65
Class7	0.91	1	0.68
Class8	0.85	1	0.65
Class9	0.54	0.84	0.21
Class10	0.65	0.92	0.65

Table 1: Comparison of searching efficiency

Complex image database was used in experiment, because the homogeneity of classes in database are not the same. Classes with similar images have better efficiency results. Intuitive distribution of images in classes based on human sense of similarity (subjective) is usually large problem for machine algorithms for similarity calculation (objective), classification and clusterization. Certainly, the presented searching efficiency is very satisfying according to level of feature vector reduction. In the case of WEB Big Data, the feature component number reduction in searching procedure is very important for acceleration of minig process.

5. CONCLUSION

The algorithm for improving Web content mining is presented in this paper. It is based on multifractal analysis which is used for automatic feature selection. The mining procedure is based on reduced image feature vector, preprocessed Web data in feature database, intelligent relevance feedback algorithm with user assistance. The use of multifractal analysis provides a better description of data features (images). The proposed system has shown satisfactory search efficiency due to the reduced number of features, and reduced amount of information for similarity comparison. The biggest challenge for this algorithm is non-homogeneous classes, with pictures that only intuitively belong to certain classes. The future work will be focused on developing the algorithm for automatic relevant feature selection with efficient feature ranking procedure.

REFERENCES

- [1] Liu B. (2011) *Web Data Mining: Exploring Hyperlinks, Contents, and Usage Data*, Springer-Verlag Berlin, Heidelberg, pp. 530-533.
- [2] V. D. Martin, T. N. Ravi, "A Literature Survey on Web Content Mining", *International Journal on Recent and Innovation Trends in Computing and Communication (IJRITCC)*, Volume 4, Issue 10 , October 16 , ISSN: 2321-8169, PP: 147 - 152.
- [3] N. Parmar, V. Richhariya, J. P. Maurya, "An Exploratory Review of Web Content Mining Techniques and Methods", *International Journal of Advanced Research in Computer and Communication Engineering* Vol. 5, Issue 5, May 2016, pp. 144-148, ISSN (Online) 2278-1021 ISSN (Print) 2319 5940.
- [4] A. kumar, R. K. Singh, "A Study on Web Content Mining", *International Journal Of Engineering And Computer Science (IJECS)*, Volume 6, Issue 1, Jan 2017, 20003-20006. DOI: 10.18535/ijeecs/v6i1.29
- [5] N. Kojić, G. Zajić, S. Čabarkapa, M. Pavlović, V. Radosavljević, B. Reljin, *The Influence of the Feature Vector Content on the CBIR System Efficiency*, *TELSIKS 2009*, 9th International Conference on Telecommunications in Modern Satellite, Cable and Broadcasting Services, Nis-Serbia, 7.-9. October 2009.
- [6] S. Čabarkapa, N. Kojić, V. Radosavljević, G. Zajić, B. Reljin, *Adaptive content-based image retrieval with relevance feedback*, *Conf. EUROCON-2005*, Belgrade, Nov. 21-24, 2005.
- [7] V. Radosavljević, N. Kojić, S. Čabarkapa, G. Zajić, I. Reljin, B. Reljin, "An image retrieval system with user's relevance feedback", in *Proc. 7th Conf. WIAMIS-2006*, pp. 9-12, Seoul, Korea, 19-21, April 2006
- [8] G. Zajić, I. Reljin, B. Reljin, "Shot Boundary Detection in Video Sequence Based on Multifractal Analysis", *TELFOR*, Beograd, November. 23-25, 2010.
- [9] Chhabra B A, Meneveau C, Jensen V R, Sreenivasan R K, *Direct determination of the $f(a)$ singularity spectrum and its application to fully developed turbulence*, *Physical Review A*, Vol. 40, No. 9, Nov. 1, 1989.
- [10] Corel Gallery Magic 65000 (1999), www.corel.com.

ADVANCES OF CUSTOMER RELATIONSHIP MANAGEMENT SOLUTIONS IN ORGANIZATIONAL MARKETS

Stanislav Levičar¹⁵

Abstract: *The advances in information technology are being rapidly applied to various areas of business operations and are as a consequence fundamentally changing the business models of the entire sectors. The area that is undergoing a profound transformation is also marketing and sales function in B2C as well as B2B companies. While companies that are selling to consumers have already adopted various data mining and big data related analytics for the purposes of marketing and sales optimization several years ago, now those that operate in organizational markets are starting to follow suit. Since the sales cycle in these markets is usually longer, information technology has to support different set of activities to be helpful. Accordingly, it also has to be able to extract different kind of information from distinct set of data sources. And while the companies that sell to numerous individual consumers can relatively easily find the patterns which help them adjust their offer, since usually they have systematically collected data about their buying behaviour, the opposite can be said about the companies in the organizational markets. They tend to have much more varied contacts with their potential and existing customers, and have to deal with various number of representatives of those companies, which have different purchase process characteristics. The data sets are thus much smaller, more incomplete, and often not gathered in one place, standardized and labeled appropriately to be suitable for automatized pattern recognition. In the article we will try to identify the advances of information technology that could improve such pattern recognition for the purposes of better sales and marketing processes of the companies in organizational markets. We will explore the prerequisites that must be fulfilled for the appropriate methods such as machine learning to be successfully applied to those data and how can companies introduce such advanced techniques in their existing sales and marketing processes at various levels of their sales cycle. We will especially try to define methods and existing solutions which are suitable also for smaller and medium sized companies which lack the resources to develop their own specialized statistical and analytical solutions from scratch.*

Key words: *CRM solutions, predictive analytics, machine learning, marketing, sales*

1. INTRODUCTION

The penetration of the information technology has enabled companies to automatically collect vast amount of data which could then be analyzed for the purposes of business operations optimization. The field where those advancements were notable the most was the production, since the activities related to it were in great part under control of this company. It was therefore possible to organize deep and precise collection of the data that measured the inputs, the outputs as well as different characteristics of the production process itself. The organizations that formed a supply chain could extend such data collection and exchange it with other partners that shared the same supply chain goals. With appropriate level of trust and control the benefits of the data sharing across partnerships easily outstripped the

¹⁵ School of Economics Ljubljana, Prešernova cesta 6, SI-1000 Ljubljana, Slovenia

potential risks of data leakage to third parties or the risk of the collected data against a subset of partners involved. The situation is quite contrasting in the domain of marketing and sales. The data sources that are the most valuable for a proper demand forecasting, marketing planning, as well as execution of sales and marketing activities are usually provided by companies (or other organizations) that have opposing goals and interests, and are therefore not incentivized to share their data, since they might weaken their negotiating position against the party that would obtain such data. Companies that try to enhance and optimize their marketing and sales processes have to rely therefore on a much more incomplete and unreliable data sources. Their data is not standardized and the metadata is often missing. The utility of individual data sources is also often hard to predict without thorough evaluation, and the effort that would have to be put in testing could cancel out the added value of its data.

2. DEVELOPMENT OF CRM SOLUTIONS IN ORGANIZATIONAL MARKETS

Customer relationship management (CRM) is present in every industry where the interaction occurs between the product or service providers and its customers. CRM enables providers to adapt to the needs of its customers (including at the individual level) as well as maximize the usage of their resources. The relationships that are developed with the companies' customers are usually heavily related to sales activities and processes, which can be easily tracked and documented. The ability to analyze, generate reports and provide feedback on the performance of the various sales processes enables companies to improve them and detect possible weaknesses in their early stages [1]. According to the saying that "You can't manage what you can't measure", it is crucial for the company to gauge its performance continuously, and then use this data to gain insights into the market as well as about the internal processes that are producing such results [2].

But while the fastest adoption of the CRM solutions occurred at larger companies with B2C business models, smaller and medium enterprises did not follow as quickly. The gap is even more pronounced at companies that mostly sell to other businesses (B2B). The very nature of the B2B business models makes it more difficult to collect predictably standardized data that could be comparable, structured and sufficiently large for the effective data analysis. The incomplete data that comes in smaller sets is therefore much more difficult to examine properly.

One misconception that also hindered faster penetration of the B2B CRM solutions is the conviction that customers are companies, while in the reality the employees and other persons that represent the company (customer) in some other way should be the main focus of the CRM [3].

3. MACHINE LEARNING BASED CRM SOLUTIONS

To be able to efficiently use the data that is gathered in a company's CRM system, a model has to be build that takes into account various input variables and has embeded certain level of the company's tacit knowledge regarding processes, domain know-how, and sales process characteristics. The output of adequately configured model would provide company with actionable information on where to put its resources and which activities have the highest return on investment. But many companies, especially SME and the B2B-based lack the required level of knowledge to build such models. On the other hand the field of machine learning has emerged as possible solution to this obstacle. The main concept of machine learning algorithms is that they are able to sift through the provided data (that does not have to be complete, large or preprocessed content-wise) and search for patterns which should identify the examined items

that have the highest probability of providing the desired outcome. The algorithms of machine learning actually use advanced statistical methods for analyzing datasets. But they try not only to identify patterns, but also to solve a problem [4].

There are numerous types of machine learning algorithms, such as regression algorithms, instance-based algorithms, decision tree algorithms, regularization algorithms, Bayesian algorithms, association rule learning algorithms, clustering algorithms, artificial neural network algorithms, deep learning algorithms, dimensionality reduction algorithms, ensemble algorithms, etc.[5]. Several of the algorithms mimic natural phenomena – the artificial neural network algorithm is based on biological (cellular) neural network. Its ability to define patterns is much better in comparison to non-machine learning algorithms, but the complexity of the rules that it develops by learning from examples is often too high for humans to be easily comprehended. This is not be a problem for some of the fields of its use, but there are areas where the inability to describe the process that the algorithm itself developed to solve a problem might prevent it to be fully testable and could be thus refused by responsible agencies (i.e.: aviation, self-driving cars, medical, etc.). On the other side the machine learning has been successfully used also for tasks such as automatic processing of insurance claims, deciding which candidates to hire for the job, diagnosing illnesses, fraud detection, quality control of manufactured products, automatic translation, etc. Its usage in CRM solutions falls in the latter category, and is not subject to special certification requirements.

One of the main advantages of the machine learning algorithms is that they can be provided with the data where the internal relations can be less exactly known in advance, and since they have less strict assumptions about the input data, it is easier to use them (where the alternative would be to build statistical model from scratch, which is usually costlier). In practice this means that less data preprocessing and transformations are required when these data is fed in machine learning algorithms in comparison to other statistical models [6]. This characteristic is especially helpful when analyzing the data about the market, competitors, potential buyers and other factors affecting sales activities, where it is difficult to discern the exact relations among the data in advance.

The basic implementation of CRM systems usually focuses on collecting the information about the customers, companies and potential and obtained deals, where the main source of this information is the sales team of the company [7]. More advanced CRM systems try to get greater share of information from external sources, which may involve the data that comes from the specialized providers of such data (i.e. regarding the public procurement, tenders, etc.). While a third group of CRM systems that are being developed try to collect the data proactively – by looking for the possibly useful information automatically. The information density of the collected input data is usually quite low, and the manual examination of such data is not cost

MSc. Stanislav Levičar

Started the career in multinational company, and later on in several smaller and medium sized companies, where responsible for marketing and sales area, as well as business development. Later opened a software development company, and parallely started working for Faculty of Economics in Ljubljana, Faculty of Logistics, Faculty of Energy Technology, and various professional higher education institution. Now employed at School of Economics in Ljubljana in Slovenia.



effective. Due to the vast amount of data that is gathered this way it is necessary to analyze it in automatic way as well.

4. REQUIREMENTS AND LIMITATIONS

For the CRM to be able to automatically gather sales and market information automatically and efficiently, it has to consist of three parts. Firstly, it has to have interface to its users (in the form of desktop, mobile, or web-based software). Secondly, it has to have means of collecting the data automatically. This can be achieved by using software that is able to visit various websites, read the desired content, and store the extracted content (usually text). Such software (also known as “web-spiders”) has to be preprogrammed to know where should it look for the information (it is required to provide it with the list of starting links of the webpages) and how should it find other data source on its own [8]. It is also important to respect terms of use of the respective data sources (besides the legal terms, websites usually detail the allowed usage to such software by publishing robots.txt file) [9]. The third essential element of the described CRM consists of machine learning algorithms which are responsible for evaluating the gathered data, and providing the output in the form of information that is valuable to the users of the CRM system.

Even though the development of such customized CRM system can be costly and may demand expertise that usually not easily available to SME, there are many open source software tools that may be used relatively efficiently even for the purposes of smaller companies. There are many options of the basic CRMs on the market which enable not only the gathering of the data internally, but also provide the option of (automatic and continuous) importing of the leads, opportunities, and contact information of potential buyers. Secondly, the scraping of the content can be executed with the help of various commercial or freely available open source web crawlers (such as Apify, Scrapy, Heritrix, etc.). Before this data can be provided to machine learning algorithms part of CRM, it has to be preprocessed, and transformed. If the content is text-based then we may need to use the statistical natural language processing software (SNLP), which can evaluate certain components of the texts meaning or at least prepare it so that it can be further analyzed by machine learning algorithms in the third part. In the last step, the machine learning algorithms analyze the text trying to find the cases which meet certain criteria (i.e. with TensorFlow, SciPy, Scikit-learn, Sklearn, etc.). For example, such CRM system might try to look for and analyze the content of the websites of the thousands of various companies, analyze the content of those websites, and based on the self-descriptions of those companies identify the ones that belong to potential buyers. The contacts of those potential buyers could be then inserted into CRM and thus available to sales team to contact them [10].

5. CONCLUSIONS

Abundance of accessible data is often not translated to abundance of information, on which companies could base their decisions and optimize employment of limited resources effectively. This is especially true for smaller companies, where the economies of scale do not reach sufficient levels to justify the investments in the customized information systems that would support their specific needs. While the first versions of CRM systems were aimed at helping companies organize the data that was internally already available, they evolved into platforms which enable companies to gather market and sales data from much wider array of sources. The problem is that the data from those sources is not readily actionable, and needs to be evaluated. Since the manual assesment and processing of such data is not cost-effective nor feasible, the best option is to use the machine learning algorithms, which can be trained to

classify and identify the desired output. The proposed CRM solution can be assembled with the use of the software that is freely or cheaply available, not too complicated to configure and thus accessible to SME cost as well as knowledge wise.

REFERENCES

1. Kostojohn, S., Johnson, M., Paulen B. (2011) *Crm Fundamentals*, Springer Science+Business Media, New York, pp. 2.
2. Goldenberg, B. J. (2008) *CRM in Real Time: Empowering Customer Relationships*, Information Today, USA, pp. 283.
3. Kincaid, J. W. (2002) *Customer Relationship Management: Getting it Right!*, Prentice Hall, Upper Saddle River, New Jersey, pp. 83,
4. Lantz, B. (2015). *Machine Learning with R*. Birmingham: Packt Publishing, pp. 3.
5. Brownlee, J. (2013) A Tour of Machine Learning Algorithms. *Machine Learning Mastery*. (Date of publication: 25. 11. 2013.) Available at: <https://machinelearningmastery.com/a-tour-of-machine-learning-algorithms/> (Accessed 2. 9. 2017).
6. Tsiptsis, K. K., Chorianopoulos, A. (2009) *Data Mining Techniques in CRM: Inside Customer Segmentation*, John Willey & Sons, West Sussex, UK, pp. 62.
7. Brown, S. A. (2000) *Customer Relationship Management: A Strategic Imperative in the World of E-Business*, John Wiley & Sons, Ontario, pp. 340.
8. Juon, C., Greiling, D., Buerkle, C. (2011) *Internet Marketing Start to Finish: Drive measurable, repeatable online sales with search marketing, usability, CRM, and analytics*, Que Publishing, Indianapolis, pp. 178
9. EMC Education Services (2015) *Data Science and Big Data Analytics: Discovering, Analyzing, Visualizing and Presenting Data*, John Wiley & Sons, Indianapolis, pp. 263.
10. Borgen, P. H. (2016) *Boosting Sales With Machine Learning*, (Date of publication: 7. 6. 2016.) Available at: <https://medium.com/xeneta/boosting-sales-with-machine-learning-fbcf2e618be3> (Accessed 27. 10. 2017).

THE ATTITUDES TOWARDS ONLINE SHOPPING: THE CASE OF MACEDONIAN STUDENTS

Ana Tomovska Misoska¹⁶

Ilijana Petrovska¹⁷

Stefanija Mindova¹⁸

Abstract: *The aim of this paper is to understand factors that influence shopper behavior in online retailing where unlike the store formats, decision takes place in a virtual world and the drivers of shopping behavior are unanswered. Online shopping is an alternative way of buying goods which provides an added value to the customers, where they do not have to go to the store in a traditional way, but only to make a choice on the basis of what they see on the Internet [1], [2]. Therefore it is important for marketers to carefully analyze the consumers' attitude and behavior towards the online shopping. The most important thing for companies is to understand what are consumer wants and needs in the competitive online business environment.*

Convenience sampling was used in order to approach the respondents and collect the data on time and also to avoid low response rate. A questionnaire was distributed among one hundred students on private and state Universities in the Republic of Macedonia, using social media and face to face distribution in libraries and cafeterias. The questionnaire was adapted from a study by [3]. Regression analysis was utilized to analyze the data.

Financial risk, product risk, delivery risk, infrastructure variables of the online retailer, suggestions and experience of closest relatives and friends as well as students beliefs were identified as important factors when it comes to online shopping.

Key words: *online shopping, online shopping behavior, online shopping behavior factors, e-commerce.*

1. INTRODUCTION

The trend of e-commerce has been increased rapidly in the recent years, due to the development of the internet and easy accessibility of internet usage [4], [5], [6]. People use internet for many reasons like being informed, get connected, socialize and improve businesses etc.[7]. Furthermore online shopping has a huge tendency of growth because consumers are gaining better experience and comfort while shopping on internet [8]. Number of online shopping users according to [9], is rapidly growing, as one-third of the world population is online, 79% of online European consumers plan to purchase via the Internet in the next six months. People between the age group of 21-34 years called Millennials are the desired ones for the marketers and any industry.

The main purpose of this research is to analyse the factors influencing the consumer's attitudes and behaviors towards online shopping. Students are important target group as millenials are more online and also students are becoming more financialy independent, increasing their spending activities. In Macedonia there are not much analyzes about online behavior of this

¹⁶ University American College Skopje, Bul. Treta Makedonska Brigada br. 60, Skopje, R. of Macedonia

¹⁷ University American College Skopje, Bul. Treta Makedonska Brigada br. 60, Skopje, R. of Macedonia

¹⁸ Komercijalna Banka Skopje, ul. Orce Nikolov br.3, Skopje, R. of Macedonia

segment, therefore these findings will help marketers and it will also increase the knowledge and research in area of online shopping behavior.

2. ONLINE BUYING BEHAVIOR

E-commerce has been grown very fast because of many advantages associated with buying on internet because of lower transaction and search cost as compared to other types of shopping. There are many definitions of online shopping explained as modern way of buying goods where the consumers explore many web sites, choose, order and make payment via credit cards or bank transfer to an account for the chosen product and finally receiving the order [10]. The process of buying products or services via Internet refers to online shopping behavior [11]. The online shopping behavior has some similarities with the traditional five steps process [12], [13], but also is different from traditional buying behavior [14]. Starting from the first step with the information search, consumer is using online channels as catalogs, reviews and comments [12] for easier comparison and as a fifth step in the decision-making process [15] considers “building trust and confidence”. Finally the stage of post purchase behavior in online environment has become very important, emphasizing the role of return or exchange policy as very crucial [13].

Prof. Ana Tomovska - Misoska, PhD has been a lecturer at UACS since 2009. She became the Management Department Head at the School of Business Economics and Management in 2012. Ms. Tomovska – Misoska teaches at both undergraduate and graduate programs at UACS. So far, she has been engaged for courses such as Psychology, Consumer Behavior, Staff Training and Development, Recruitment and Selection, Human Resource Management and thus like. Ms. Ana Tomovska-Misoska is also actively engaged with the Center for Organizational Effectiveness at UACS



3. ONLINE BUYING BEHAVIOR FACTORS

Marketers have to distinguish the online consumer behavior in order to achieve a competitive advantage on the online market. It is significant to examine and recognize the factors that influence consumers attitudes to shop online. There are many studies which have categorized the factors and each study classifies the ones in different groups depending on the purpose of the study. Selecting the factors, the hypothesis for this research were developed accordingly.

According to [12] the decision process is similar for online and offline behavior. To the general model of online consumer behavior are added the main factors that influence the online buying behaviour as consumer skills, product characteristics, attitudes toward online purchasing, perceptions about control over Web environment and Web site features as new factors in the intervening variables and the clickstream behavior which is the transaction log for consumer from search engine to purchase.

Demographic factors such as age gender, education, occupation, income status and life style are significant element affecting the purchase decision process. Mostly, in all of the researches regarding online shopping young adults are the main target because of their familiarity with ITC [16]. Young people are more aware and they easily choose what they prefer [17]. Also, they are up with the technology in seeking for information and evaluating options.

The most frequently cited risks with online shopping are financial, product, convenience/time and non delivery risks. Financial risk is defined as a perception of losing money [18] and also, as a net loss of money, a concern over an financial loss that can occur due to online shopping [19], [20]. Financial loss may occur due to credit card fraud or lack of protection of the customers' credit card [20], [21]. This factor is analysed as the Hypothesis 1: Financial loss which is consequence of online purchasing will have negative effect on attitude toward online shopping.

Product risk is the risk associated with the product itself, whether the product will meet the expectations of the customers [22]. This risk results due to the poor choice of customers because of the incapability to accurately evaluate the product before purchasing (limitations considering the fact that products cannot be touched; insufficient information about quality and description of the product) [23]. According to the findings of [24] product risk is negatively related to online shopping and also hereafter is analysed as the Hypothesis 2: Product which will not meet the expectations of customers will have negative effect on attitude towards online shopping.

Consumers who are looking for excitement and joy, are more attracted by well-designed and easy to navigate web sites. Hedonic shoppers do not have a specific goal while visiting an online store compared to utilitarian shoppers that is why a retailer can inform and easily influence their choices [25]. Hypothesis 3: A user friendly website and efficient service which helps customers while online shopping, will have positive effect on attitude towards online shopping.

Delivery risk is explained as a potential loss of delivery associated with lost products, damaged products or sent to a wrong address [26]. Consumers are concerned that the purchased product will be damaged when handled and transported or will have inappropriate package during transportation [27]. Also they have fears that they might not receive at all the product [28]. This is the Hypothesis 4: Fear of not receiving the order will have negative effect on attitude towards shopping online.

Online stores are designed not just to deliver the consumer's product need but also to lead the to the process of buying and post-purchase service as logistics, after-sale evaluation and repetition for unplanned damage. After-sale services are very difficult restriction for online shopping and a lot of consumers will reject to shop online due to impossibility for them to well-enjoyed the post-purchase service [29]. Also, according to [30] trust towards online vendors and security issues are the most important in determining online purchasing pattern. Perceived risk of cybercrime has a highest impact on the avoidance of online shopping [31]. This is the Hypothesis 5: Customer service, cyber laws and low shipping fees or free shipping will have positive effect on attitude towards online shopping.

Professor Ilijana Petrovska, Ph.D. (1974) is an Associate professor lecturing several courses in Marketing at University American College Skopje, Visiting professor at Universities in Italy and Germany and marketing consultant. Since October 2013 she is promoted to Vice Dean for Education and she is head of the Marketing Department, too. Her research area is mainly in Integrated marketing communications, Social media and Quality education. Her previous professional experience as a Marketing Manager in the biggest bank in Macedonia supports all her research and academic activities.



Return policy in the online environment is described as a policy given by the e-retailer which allows consumers to reimburse their or exchange the product for free within a reasonable timeframe if they are not satisfied with the purchased product [32]. More researchers agreed that customers feel more confident when they know that there is a return policy which lead the customer to perceive less risk in making purchases online [33] - [35]. This is the Hypothesis 6: Return policy will have positive effect on attitude towards shopping online.

Stefanija Mindova, MA in Marketing, is a junior associate at Komercijalna Banka AD Skopje, Macedonia. During her university studies she has been actively involved in the Creative lab at the marketing department of the University, developing several marketing communications' campaign for the University and companies from the Business council.



3. METHODOLOGY

The research utilized quantitative approach, using questionnaire for data collection. The questionnaire was adapted from a study by [3]. The research instrument was comprised of five sections. The first one was about defining the attributes of online shopping, the second one was about perceived risks, shopping habits and shipping of online shopping, the third one was about other factors which likely influence online shopping intentions, the fourth one was about determining the online behavior of the respondents. All the questions used a 7 Point Likert. There was another section about demographic data.

Each section contained a number of questions and some of them were later combined into different constructs. Before conducting further analysis the variables constructed were tested for reliability using Cronbach Alpha. As can be seen in Table 1 all the variables have satisfactory values of the Cronbach Alpha coefficient. They are all above the recommended 0,7 [36].

Construct variable	Number of variables	Cronbach Alpha value
Attitude towards online shopping	3	.702
Online shopping behaviour	12	.884
Friends and family influence	2	.700
Cyber laws	3	.852
Product risk	3	.838
Convenience risk (user friendly web site)	6	.716
Non-delivery risk	2	.720
Return policy	2	.726
Early adopter	2	.710

Table 1: Cronbach Alpha values

The questionnaire was distributed to students from two private and one state owned university in the Republic of Macedonia. A total of 100 questionnaires were collected. The sample consisted of 35% male and 65% female students.

4. RESULTS

Prior to presenting the results of the hypothesis testing this paper will present some findings about the online behaviour of the students in the research. Most of the respondents (85%) use internet from home and out of the reasons listed for using internet most of them (30%) use the Internet because of social networks, 22.0% use it for an entertainment, 21.0% search on websites and request information, 3.0% for correspondence and 1.0% for email, blog, etc. (Table 2).

Use of internet	Number of participants	Percentage (%)
Browsing	21	21.0
Information search	21	21.0
E-mails	1	1.0
Chatting	3	3.0
Social networking	30	30.0
Blogging	1	1.0
Entertainment	22	22.0
Others	1	1.0
Total	100	100.0

Table 2: Reasons for internet use

When it comes to online shopping 33% of the respondents did not use online shopping possibilities, 17% have used it less than 3 months and 17% used it between 1 and 2 years, 12% use it more than 2 years, 13% between 6 months and a year and 9% between 3 months and 6 months. Most of the students buy clothes, shoes and accessories.

The respondents who make online purchases mostly use payment cards (50% use credit cards and 44% use debit cards) whilst a small number use wire transfer (6%). Most of the respondents also perceive themselves as skilled (51%) and knowledgeable (45%) when it comes to internet skills. This is in line with other studies which claim that young adults are the main target of online shopping because of their familiarity with ITC [16]. The main aim of this paper is to test which factors are connected to the attitudes of the students towards online shopping as well as whether the attitudes towards online shopping affect their online purchase behaviour. Therefore this next section will present the results of the Hypothesis testing. In order to test the Hypothesis 1 through 6 one regression analysis was performed. The results are given in Tables 4, 5 and 6. As it can be seen in Table 4 the model predicts only 18% of the variance of the dependant variable and that is Attitude towards online shopping. However the modes is statistically significant at 0.05 level ($F= 2.572$, $p=0.014$).

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.429 ^a	.184	.113	1.34147

Table 4. Regression analysis results – Model summary

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	37.033	8	4.629	2.572	.014 ^b
	Residual	163.757	91	1.800		
	Total	200.790	99			

Table 5. Regression analysis results – testing for significance

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.210	.654		7.962	.000
	FinancialRisk	-.328	.083	-.373	-3.974	.000
	ProductRisk	-.226	.095	-.234	-2.387	.019
	Convenience risk	.271	.056	-.436	-4.799	.000
	NonDeliveryRisk	-.631	.125	-.455	-5.055	.000
	ReturnPolicy	-.095	.099	-.097	-.962	.338
	Cyber laws	-.117	.108	-.109	-1.083	.282

Table 6. Regression analysis results – coefficients

The results of the Hypothesis testing show that Hypothesis 1 can be accepted. The results of the regression analysis show negative and significant correlation between financial loss which is consequence of online purchasing on attitude towards online shopping. The results from hypothesis 1 correspond to the results of many mentioned studies i.e. financial loss has negative impact on attitude toward online shopping [19], [20], [39]. Hypothesis 2 is also accepted as the results show weak negative relationship (statistically significant at a level 0.05) between products that will not meet the expectations of customers on attitude towards online shopping. The results of the second hypothesis coincide with previous findings in the literature review [22], [24]. The third hypothesis is accepted, as the analysis registered statistically significant correlation between the user friendly website and efficient service (convenience risk) which helps customers while online shopping and have an effect on attitude towards online shopping. This is in line with other findings that suggest that the less convenience risk users perceive or the friendlier the web site is and the easier it is to get good customer service at a point of purchase the attitudes of the consumers are more positive [40], [11]. Hypothesis 4 is accepted as there is a negative effect of fear of not receiving the order on the attitude towards shopping online in the regression analysis. The fifth hypothesis is rejected as there is no significant relationship between perception of cyber laws, low delivery fees or customer service on attitudes towards online shopping. These results coincide with the literature [2], [15], [31]. The sixth hypothesis is also rejected as there is no statistically significant connection between the return policy and the attitudes towards online shopping. The results from this hypothesis do not correspond to the findings of the literature review. [1], [33], [34], [35].

5. CONCLUSION

Technology changes fast, and online shopping does too. With the blooming of online shopping activities, it is essential to understand the customers' online shopping behavior. Also making improvement in the factors that influence consumers to shop online and working on factors that affect consumers to shop online will help marketers to gain the competitive edge over others. Therefore, the intention of this study was to investigate the specific factors affecting the buying behavior of students towards online shopping.

The results from the study point that students have fear of losing money as a consequence of purchasing a product or service through online channels. This means that their concerns regarding money loss affects their willingness to shop online. The results showed that the product risk as a factor influence negatively on students' attitude towards online shopping. In conclusion they have concerns that the product will not be the same as they ordered it. The ease of use and also the support of the web site during the process of searching and buying products through online channels positively influence students' willingness for online purchases. The findings suggest that online stores' websites should be easy to navigate and interact with, so consumers can concentrate on the purchase experience, rather than dealing with a complex system. Additionally, delivery risks affects negatively the students attitude towards online shopping. The fear of not receiving the order or getting damaged product influence the intentions for online shopping. On the other hand, factors such as, cyber laws, customer service, low shipping fees and return policy do not have an influence towards the attitude towards online shopping.

The main limitation of the present study is the small sample size and convenient sampling. However the study still provides a good starting point for exploring factors that influence the online shopping behaviour of students. As such it provides a good starting point for future study that should focus on exploring additional factors as well as utilizing a larger sample as the online purchases are likely to rise in the future and studies like this one can serve as a good starting point for companies wanting to expand their online purchases.

6. REFERENCES

- [1] Panda, R., & Swar, B. N. (2013) Online Shopping: An Exploratory Study to Identify the determinants of Shopper Buying Behaviour. *IJBIT*, 7(1), 52-59
- [2] Monsuwe, P. T., Dellaert, C. G., & Ruyter, K. (2004) What drives consumers to shop online? A literature review. *International Journal of Service Industry Management*, 102-121
- [3] Javadi, M., Dolatabadi, H., Nourbakhsh, H., Poursaeedi, A., & Asadollahi, A. (2012) An Analysis of Factors Affecting on Online Shopping Behaviour of Consumers. *International Journal of Marketing Studies*, 4(5), 81-98
- [4] Heng, M. S. (2003) Understanding Electronic Commerce from a Historical Perspective. *Communication of the Association for Information Systems*, 12, pp. 10-118
- [5] Altarifi, S., Al-Hawary, S. I., & Al Sakkal, M. E. (2015). Determinants of E-Shopping and its Effect on Consumer Purchasing Decision in Jordan. *International Journal of Business and Social Science*, 6(1), 81-92
- [6] Krishna, I. M., & Chalam, G. V. (2015). Attitude of Consumers towards Online-Marketing. *International Journal of Emerging Research in Management & Technology*, 4(7), 160-164

- [7] Mobarakabadi, H., Karami, M., Far, S. M., & Yarkarami, K. (2013). *Influence of online shopping behavior factors on e-satisfaction of customer*. Retrieved from www.jurnalteknologi.utm.my
- [8] Faqih, K. M. (2013). Exploring the Influence of Perceived Risk and Internet Self-efficacy on Consumer Online Shopping Intentions: Perspective of Technology Acceptance Model. *International Management Review*, 9(1), 67-77
- [9] Nielsen, A. (2010). *Global Trends in online shopping*. New York: AC Nielsen
- [10] Ubaid ur Rehman, M. R. (2013). E-TAM Model: A comprehensive approach to understand the adoption of electronic shopping. *Journal of Basic and Applied Scientific Research*, 178-188
- [11] Li, N., & Zhang, P. (2002). Consumer online shopping attitudes and behavior: an assessment of research. *Eighth Americas Conference on Information Systems*
- [12] Laudon, K. C., & Traver, C. G. (2010). *E-commerce business. technology. society*. (6th ed.). New Jersey: Pearson Education, Inc
- [13] Liang, T. P., & Lai, H. J. (2002). Effect of store design on consumer purchase: An empirical study of on-line bookstores. *Information & Management*, 39(6), 431-444
- [14] Katawetawarak, C., & Wang, C. L. (2011). Online Shopper Behavior: Influences of Online Shopping Decision. *Asian Journal of Business Research*, 1, 66-74
- [15] Constantinides, E. (2004). Influencing the online consumer's behavior: the Web experience. *Internet Research*, 14, 111-126
- [16] Lester, D. H., Forman, A. M., & Loyd, D. (2008). 'Internet Shopping and Buying Behaviour of College Students'. *Services Marketing Quarterly*, 27 (2), 123-238
- [17] Vasquez, D., & Xu, X. (2009). Investigating linkages between online purchase behavior variables. *Journal of Retail & Distribution Management*, 408-419
- [18] Masoud, E. Y. (2013). The Effect of Perceived Risk on Online Shopping in Jordan. *European Journal of Business and Management*, 5(6), 76-87
- [19] Sweeney, J. C., Soutar, G. N., & Johnson, L. W. (1999). The role of perceived risk in the quality-value relationship: a study in a retail environment. *J Retailing*, 75(1), 77-105
- [20] Soopramanien, D. G., Fildes, R., & Robertson, A. (2007). Consumer decision making, E-commerce and perceived risks. *Applied Economics*, 39, 2159-2166
- [21] Catarinicchia, D. (2005, November 23). Holiday Shoppers Guard Against Web Risks. *Knight Ridder Tribune Business News*, p. 1
- [22] Bhatnagar, A., Misra, S., & Rao, H. R. (2000, November). On Risk, Convenience, and Internet Shopping Behavior. *Communication of the Association for Computing Machinery*, 43(11), 98
- [23] Forsythe, S., Liu, C., Shannon, D., & Gardner, L. (2006). Development of a Scale to Measure the Perceived Benefits and Risks of Online Shopping. *Journal of Interactive Marketing*, 20(2), 55-75
- [24] Dai, B., Forsythe, S., & Kwon, W.-S. (2014). The Impact of Online Shopping Experience on Risk Perceptions and Online Purchase Intentions: Does Product Category Matter? *Journal of Electronic Commerce Research*, 13-24
- [25] DelaFrooz, N., Paim, L. H., Haron, S. A., Sidin, S. M., & Khatibi, A. (2009, May). Factors affecting students' attitude toward online shopping. *African Journal of Business Management*, 3, 200-209
- [26] Dan, Y., Taihai, D., & Ruiming, L. (2007). Study of Types. Resources and Their Influential Factors of Perceived Risks in Purchase Online. *Journal of Dalian University of Technology*, 28(2), 13-19
- [27] Iconaru, C. (2012). The Mediating Role of Perceived Risk when Buying Online. *AUDCE*, 8(5), 65-74

- [28] Naiyi, Y. (2004). Dimensions of consumer's perceived risk in online shopping. *Journal of Electronic Science and Technology of China*, 2(3), 177-182
- [29] Chen, R., & He, F. (2003). Examination of brand knowledge, perceived risk and consumers' intention to adopt an online retailer. *Total Quality Management & Business Excellence*, 677
- [30] Adnan, H. (2014). An Analysis of the Factors Affecting Online Purchasing Behavior of Pakistani Consumers. *International Journal of Marketing Studies*, 133-148
- [31] Pavlou, P. A. (2003). Consumer Acceptance of Electronic Commerce: Integrating Trust and Risk with the Technology Acceptance Model. *International Journal of Electornic Commerce*, 7(3), 69-103
- [32] Lee, P. M. (2002). Behavioral model of online purchasers in e-commerce environment. *Electornic Commerce Research*, 2, 75-85
- [33] Kang, M., & Johnson, K. (2009). Identifying characteristics of consumers who frequently return apparel. *Journal of Fashion Marketing and Management*, 37-48
- [34] Su, X. (2009). Consumer returns policies and supply chain performance. *Manufacturing & Service Operations Management*, 595-612
- [35] Yalabik, B., Petruzzi, C. N., & Chhajed, D. (2005). An integrated product returns model with logistics and marketing coordination. *European Journal of Operational Research*, 162-182
- [36] Pallant, J. (2013). *SPSS Survival Manual: A Step by Step Guide to Data Analysis Using IBM Spss*. Open Univ Pr; 5 Spi edition
- [37] Vasquez, D., & Xu, X. (2009). Investigating linkages between online purchase behavior variables. *Journal od Retail & Distribution Management*, 408-419
- [38] Kau, A. K., Tang, Y. E., & Ghose, S. (2003). Typology of online shoppers. *Journal of Consumer Marketing*, 139-156
- [39] Egel, L. S., & Joseph, J. A. (2012). Shopping Cart Abandonment in Online Shopping. *Atlantic Marketing Journal*, 1(1). Retrieved from <http://digitalcommons.kennesaw.edu/amj/vol1/iss1/1>
- [40] Ariff, M. S., Sylvester, M., Zakuan, N., Ismail, K., & Ali, K. M. (2014). Consumer Perceived Risk, Attitude and Online Shopping Behaviour; Empirical Evidence from Malaysia. *IOP Conference Series: Materials Science and Engineering*, 1-10

POSSIBLE ASPECTS OF ICT TEACHING METHODOLOGY

Nebojša Denić¹⁹
Stevica Janković²⁰

Abstract: *In this studious research work on the basis of relevant literature, theoretical foundations of the possible aspects of applying the methodology of ICT teaching in the function of improving the teaching process will be researched and evolved, in addition to the literature research with the aim of proving the set scientific hypotheses, appropriate research will be done in the educational institutions in the Republic of Serbia. The results of the research will be adequately presented with the indications of further research directions.*

Key words: *Education, teaching. methodology, ICT*

INTRODUCTION

Every day we are surrounded by a multitude of scientific information and innovations in the field of technology and IT, which encourages new understanding of education and teaching. The goal is to overcome the weaknesses of traditional teaching and, by introducing innovations into the teaching process, through original solutions in the organization and delivery of teaching, achieve the effects that are in accordance with the needs of contemporary society and students' interests.

In relevant professional literature, eminent authors use different terms for the notion of IT teaching methodology, but everyone agrees that the new approach to learning, the correct choice of methods, the forms of work and the use of possibilities of educational technology in the teaching process contribute to the adoption of permanent knowledge and the development of abilities for further learning. Modern teaching is student-oriented. The methods of active teaching imply the dominant activity of students in the process of adoption of curriculum, with the support and guidance by the teachers. Possibilities and results of applying successful didactic-methodical approaches in teaching and extracurricular activities can significantly influence the efficiency of teaching process [1].

According to the curriculum of ICT in elementary school [2], one class a week is scheduled, with contents (based on the spiral model and achieving outcome - oriented) so chosen that it is possible to correlate with other teaching subjects. The additional work of students in the ICT course is realized through free activities, according to [3]. This implies the formation of sections in which students are studying certain areas of information and computing, for which they show particular interests (programming, web design, database, robotics). Free activities of students are also organized through the development of projects or through a wider and deeper study of individual IT units during the preparation of pupils for competitions. Based on the above, we notice that the free activities of students, which are realized through the work of different sections, should be more directed towards encouraging entrepreneurship and motivation to form a students' cooperative, as an initial step towards the formation of start-up companies.

¹⁹ University of Priština, Faculty of Sciences and Mathematics, Kosovska Mitrovica, Serbia

²⁰ Faculty of Information Technologies Alfa BK University of Belgrade, Serbia

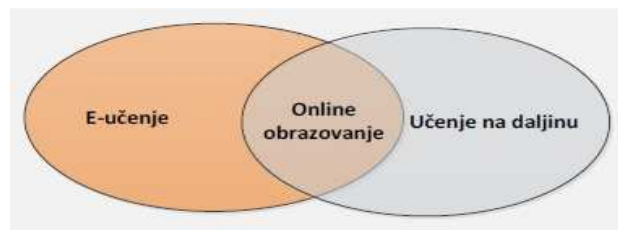
Some authors, for example, Richard Riley (1993) define the concept of education in the following way: "Education should prepare young people for jobs which do not exist yet, to use technologies that have not been invented yet and solve problems that we are not even aware of today." Bill Gates (2010) points out the following: "Learning programming is a good training for your mind, it helps you to think better and in a way that is useful in all spheres of life."

METHODOLOGY

HYBRID MODEL OF TEACHING BY THE USE OF ICT

Using Web Tools and Web Services in combination with traditional teaching, we get a hybrid learning model [4]. The problem that often arises is that textbooks are not adapted to the teaching material and current technology which is being studied, nor to the age of the students they are presented to, so, led by the idea of contemporary ICT teaching, the active use of Internet technologies in teaching is being introduced. The hybrid model of teaching consists of two or more components: traditional lectures and the use of web-based technologies. Traditional lectures and the web combine to complement each other.

The possibilities of innovating the teaching are diverse and relate to all segments of the teaching process. Contemporary flows of educational work precisely involve the introduction of innovations into the teaching process through the application of new methods, procedures, resources, adaptation of teaching contents, new role of teachers as the organizers of the entire educational work in the school, etc. It is often thought that e-learning and distance learning are the same form of education [5], which is not true. There are types of non-online e-learning, but also forms of distance learning that do not use ICT, which can be seen in the following picture.



Picture 1. Difference between e-learning and distance learning [5]

In the following table we will present a comparison of different types of teaching with the technologies used in them [5]:

Traditional teaching (f2f)	Teaching most often in the classroom	Without the use of ICT in teaching (except in the preparation of teaching)
Teaching with ICT technology	Technology is in use as a way of improving traditional teaching	Power Point presentations, Web sites with multimedia content for learning, Interactive multimedia posters (Glogsters) Quizzes for Knowledge Check (HotPotatoes) Use of e-mail, mailing lists and forums Use of blog, wikis, e-portfolio and other web tools
Hybrid or mixed teaching	Traditional teaching in the classroom with the help of ICT technologies	LMS (Learning Management Systems) and Video Conferencing

Online education	Learning takes place only with the help of ICT technology, without traditional teaching	Subjects are listened to and delivered in the form of courses using web sites or LMS, or Video conferencing
------------------	---	---

Table 1. Comparison of different types of teaching with used technologies

DIGITAL TEACHING MATERIALS

Digital educational material in electronic form must contain certain didactic solutions (parts of educational films, interactive animations, audio materials for textural animation, wider explanations of footnotes, quick search function, and other interactive functions) and should include instructions and strategies that help to memorise the content easier (application of mind maps, for example) so that learning is effective and fun for the learner. Today, led by the acquired experience, we know that educational materials in electronic form, although using innovative pedagogical solutions, also serve as a great support for frontal lectures.

When planning the application of teaching material in electronic form and the application of educational software, similar to traditional teaching materials, one must first determine educational and didactic goals in detail.

Types of educational software and educational content in digital form can be classified according to the purpose and content. We will list the following types of educational software and digital educational content [6]: digital content and software as an educational tool for independent self-learning; digital content and software as a teaching-support tool; digital content and software in the function of assessment and evaluation of learning outcomes; digital educational games ("Edutainment"); complex learning and / or teaching environments; environment for student development records; distance learning management systems.

Recommended software [7], for the production of digital teaching materials:

Interactive multimedia posters encourage creativity and participating in teamwork among students. These posters can also contain, in addition to text and images in their structure, audio and video records, animations and links. The most used programs for their production are: Glogster, Linoit, Wallwisher.

Digital comics can be created and used for all teaching subjects, and the most used programs for making and publishing on the Internet are: Toondoo, Bitstrips, Pixton.

Digital maps - Digital atlases Interactive maps of MozaMap software expand the possibilities of lessons in geography and history. Elements of different maps can be compiled arbitrarily in order to facilitate preparation for classes and work.

Creating interactive animations is very useful in teaching mathematics, physics and ICT. The most used program for this purpose is GeoGebra.

3D animations, videos and applications are available as interactive 3D models, educational videos, embedded applications and games for developing skills, making illustration and experimentation.

Digital textbooks (web courseware) are digital teaching materials, which are mostly interactive and multimedial. This type of textbook contains interactive quizzes and maps, navigation and

web design. They are most often made in the Flash program, so a plug-in is required for their use.



Picture 2. Digital textbook of the publishing house BIGZ [8]

We can create interactive quizzes for checking knowledge using the HotPotatoes programs. It contains the following programs: JCloze, JQuiz, JCross, JMix, JMatch, The Masher, Questbase, Quizstar, Equizzer, Testmoz, Classmarker, Quizegg, Quizlet.

Electronic Magazine - Through the “Learning Partner” program, Microsoft provides assistance in modernizing educational systems, programs and learning methods to enhance teaching and learning processes. Electronic magazine for teachers "Partner in Learning" is dedicated to the application of information and communication technologies in teaching by the electronic learning methods, teaching programming and digital literacy of students and teachers.

LMS AND PLE ENVIRONMENT

Today, LMS is the dominant technology in the education of developed countries, the technology of the existing LMS systems will be used in formal teaching and education for a long time. Parallel with it, for non-formal learning and some types of learning for professional competencies, the PLE environment (Personal Learning Environment, PLE) will be increasingly used. It can be expected that LMS systems will start to open their services via the PLE environment. Thus, in one period of time all three such systems or learning environments will coexist (Wilson et al., 2006).

The PLE consists of various tools that we use in everyday life for learning. Those tools and content in them have no longer to be used only in one context and for one purpose, as they are now used in most schools. Social software related to PLE, commonly described as Web 2.0 technology, offers students the possibility to search for information (Google), create and publish (Blog, Podcast, YouTube, Flickr), collaborate and share ideas (wiki, part. Usio), join Communities (MySpace, Facebook) with the possibility to create their own community. All these tools are available to students for an unlimited duration. Knowledge acquired in school, which is inert, can be thus refreshed, expanded, directed towards the students' own needs (Attwell, 2007).

RESULTS

According to research results, as well as according to PISA testing, Estonia is the leading nation in education in Europe, and the third in the world [9]. The reasons for such good results in Estonia's education lie in equality and compact education, professional teaching staff, effective management in the learning process, support for weaker students, and in paying attention to specific educational needs. By analyzing the long-term learning strategy by 2020, Estonia has 5 main goals in education [10]: change of approach to learning (learning is based on individuality, individual interests, experience and potential of each student), competent and motivated teachers and school directors, better connection of education with the needs of the labor market, a digital revolution that has introduced a lifelong learning, equal chance and increased participation in learning that must last for a lifetime.

With this long-term education strategy and the national program called "Technology and Innovation", they have the highest number of start-ups per capita in the world, they are also the leading country in the application of IT technologies and innovations in all spheres of life, led by the slogan "Education is our religion".



Picture 3. ICT teaching in Estonia [11]



Picture 4. ICT teaching in Estonia [11]

CONCLUSION

New models of learning and teaching such as individualized, problem-solving, project, mentor and exemplary teaching within active teaching require such an organization of work and the application of teaching methods from which new learning techniques emerge, and whose effects contribute to raising the quality of teaching and teaching process in general. Teaching and learning together should take advantage of E-learning tools and services so that the learning process is made pleasant and creative. A growing participation of Hybrid teaching, with the

tendency to grow into the Online form of education with the full use of digital teaching materials, is a possible aspect of the methodology of ICT teaching.

Based on all of the above-mentioned, we conclude that the didactic methodical form of the contents of teaching of ICT by the teachers must be in function not only of providing students with information that is interesting, but also motivating. In such a way, the teacher encourages them to further independently explore and discover new possibilities of acquiring knowledge applicable in further learning and work.

REFERENCES

- [1] Dragana Radosavljević, Faculty of Technical Sciences, Čačak, "Possibilities of didactic-methodical design of IT teaching and computer science"
- [2] Curriculum and program for elementary schools published in the Official Gazette of the Educational Gazette (Prosvetni gasnik) No. 11/26/26/2016
- [3] Regulations on Amendments to the Regulations of Curriculum for the second cycle of elementary education and the curriculum for the fifth grade of elementary education and training. Official Gazette of the Republic of Serbia, no. 72/09, 52/11, 55/13, 35/15 available at: <http://www.pravno-informacionisistem.rs/SlGlasnikPortal/slglrs/PG2010/overview>
- [4] Dejan Stanković, Leonid Stoimenov, Faculty of Electrical Engineering Niš, "Hybrid model of teaching with the application of the latest information and communication technologies" Telecommunication forum TELFOR 2010
- [5] ICT Edu - module 3 Development of digital competence and multimedia in teaching, Digital teaching materials, CARNet, Agency for education, Ministry of Science, Education and Sports.
- [6] The School of Future within the "Partner in Learning" Program, Microsoft Software LTD, available at: https://www.microsoft.com/serbia/obrazovanje/pil/skola_buducnosti/default.aspx
- [7] Mosaic Digital Education, available at: https://www.mozaweb.com/en/lexikon.php?cmd=getlist&let=7&active_menu=3d
- [8] Mirjana Miloradović, Nikola Klem, Goran Limić Multimedia Disk of ICT for 5th grade, Bigz schooling d.o. 2009
- [9] Program for International Student Assessment, available at: <http://www.oecd.org/pisa/>
- [10] ProgreTiger Education Program in Estonia, available at: <http://www.blic.rs/it/djaci-u-estoniji-ce-od-prvog-osnovne-uciti-da-programiraju/r192fz3>
- [11] ICT in Education Countries (USA, Estonia), available at: <http://nastavnikinformatike.com/index.php/racunarski-sistemi-osnovni-pojmovi>

TECHNOLOGY USE IN EDUCATION SECTOR; NOT 'WHEN' BUT 'HOW'.

Misbah Saboohi²¹

Abstract: *The use of technology and internet based resources has encompassed all aspects of lives of people across the globe. Even from the remote village of Africa someone will send us email enquiring about possibility of admission at our university or applying for a job. There are more Facebook friends than real in physical sense. In all truth, there are now Online degrees offered to all the students known as “distance learning”. The new debate is should these online degrees be recognized as quality education or not? Until now very few university distance learning programs are recognized by the education ministries in the world, for career purposes. The teaching method for such degrees is total digital and online resources. Teachers meet their student only through video chats. So what are the pitfalls of technology use for the education? The article shall look into problems, challenges of technology use by the teachers and patterns of students in such environment. Now no one can stay away from digital life style. But there needs to be some discipline and rules for this aspect. The article shall give not only the problems if education sector but also offer some new insight about good use of technology in classes.*

Key words: *digital classroom, digital resources, online teaching, teacher training, online ethics, apps and tools*

Today's student is born in technology age. Smart phones and computers are lifestyle nowadays. No more letters or paper cards! Its e-mails and e-cards now. Younger generation in higher education institutions and universities has a positive outlook towards use of technology in education sector. But do teachers also share same views? A survey was conducted by the university of Illinois in 2016 for analysis of technology use by the teachers at university level. Professors surveyed were from colleges of Education, Business, Arts, Engineering, Applied Health Sciences, Information Sciences and Media. The results were:

TABLE 1:

Question	Response
On a typical class day, what technology do you use	35% laptop 32% PC in the offices and classes
How does your teaching benefit from the use of the technology in the classroom?	35% integrated technology into their teaching 21% for student attention 21% convenience 19% use multimedia for classes 4% used it for complicated visuals
Do you feel you have had	Majority showed satisfaction about training provided.

²¹Ms Misbah is a senior lecturer in law at College of Law of Prince Sultan University, Riyadh. Kingdom of Saudi Arabia. She also worked as Coordinator for English law courses and as Accreditation team coordinator for Law program of Prince Sultan University.

adequate training on the technology you use in your assigned classrooms?	
How well did Classroom Technologies help you to resolve issues with classroom technology or over the phone?	86% were satisfied with in-class support 66% were more comfortable with mobile phone use
Challenges?	46% had Unreliable equipment 9% had issues with wireless 8% reported broken equipment 5% lacked personal knowledge of technology use 3% room issues
Additional needs?	Hardware problems need better, quicker solutions. better maintenance needed in class rooms Antivirus ,Auto save & auto uploads features needed Way to switch off Wi-Fi for students in class Speed issues

Source: 2015-2016 Instructor Survey: Technology Enhanced Classroom. University of Illinois.²

Now all agree that technology use in education sector is important, but what should be the extent of it is still being researched around the world. Asia, Africa have different dimensions of their population and their needs, than Europe and North America. Many agree that technology has helped to connect global student and teaching communities and has helped in creating global learning environment. Benefits of technology-based education are many ranging from large storage capacity and connections to all devices simultaneously. Even face to face class room is now possible over the internet (Roberts,2004)³. Now the online degrees (though online courses, video conferencing) are also on the rise with some accreditations too provided by the Ministries of education in different countries. This helps reduce cost of travelling to other countries. Working class or mid career executives now have got a chance to enhance their knowledge to get better opportunities of work. Roberts also argues that research culture is changing with introduction of technology in higher education. Now sophisticated software and digital library facilities have revolutionized the research methods also. But the boggling problems mentioned by those who are at the receiving end of this new life style have many problems to solve. some will be examined here.

RESEARCH VS TECHNOLOGY:

It is now a trend of information rather than education. Internet and world wide Web (WWW) has become like an oxygen for students without which they suffocate. Everything is now digitized. Libraries are now called 'media centers' or 'information centers' due to all digital portals and tech-based gadgets installed therein to access information. Research is becoming weak as a skill amongst students (Shanon.2010)⁴, because no one really cares for authoritative sources now. She rightly points out that WIKIPEDIA research is everywhere. Critical thinking and assessments are now becoming hard to learn by students who want quick or instant results (McLure&Clink et al.2009)⁵. Even teacher and student face to face contact is now minimum, due to communications through the computers like MOODLE .There was a time when all students had to learn and practice conventional techniques of using different types of research

resources, and then evaluating them. The quality of education has lowered ever since students are being encouraged to use technology without any regulation by the teachers (BL & JISC Report.2008)6. Everything is now about grades! Plagiarism is on rise and open source resource usage is everywhere. Libraries are empty from students now. Focused learning sequence has diminished in research quality.

A lot of duties to check plagiarism in research have been shifted to the busy professors due to Learning management systems (LMS) for student work submission. LMS now needs features added to it to help reduce the teacher burden. Many soft wares like Rubrics, turnitin are adding to the cost and budget of institution's management yet many teachers are not using them effectively to train or check the students to be ready for research oriented technology. Work for professors has increased .The way students have to defend their research is also changed over the years. The Faculty members have a heavy ethical responsibility to check their students in this age for showing them importance of what resources they are using. Discipline needs to be introduced amongst students for research ethics. The teachers have to train these researchers how to search only defendable, authoritative sources. Many students only can do Google search which is not up to quality for lifelong learning. Fast mode research is priority of students which actually is not useful for learning.

KNOWLEDGE VS EDUCATION:

Reading habit is main casualty in technology based education (Readers of books still do not want to go digital in their life styles). 94% of teen students have all gone online for reading needs but their teachers have not. If we see authors of books in these years, we may not find any young writers because they prefer to read blogs or social media websites rather than printed newspapers (Groenke &Maples 2010)7. They all access newspapers all across globe now on the internet. So why the

Misbah Saboohi teaches Law at Prince Sultan University, Riyadh Saudi Arabia. (subjects: International Law and statehood, International Trade ,Law of the Sea, Introduction to Law, Human Rights ,Intellectual property law of copyrights, trademarks, patents, Contract and Banking, legal drafting and documentation in English language ,Company law, International Environment law, Humanitarian law).

DISTINCTIONS AND AWARDS:

1. *BEST TEACHER AWARD (twice) for PSU Law college from Prince Sultan University Riyadh in 2010 and then in 2015 .*
2. *RESEARCH ACHIEVEMENT Award for Law College Prince Sultan University Riyadh (2014 and 2015).*
3. *Merit Certificate in Matric for extra curricular activities.*
4. *3rd position in Federal Board in FA finals. Merit scholarship from Federal Board Pakistan .*
5. *First Position throughout 4 year LLB course at International Islamic University, Islamabad Pakistan . Merit Scholarship through out in LLB.*
6. *Cambridge Commonwealth Scholarship from UK to study for LLM at the Cambridge University.*
7. *Sergeant and Moore scholarship from Trinity College, Cambridge.*
8. *Pegasus scholarship from Inner Temple Bar training , London.*
9. *Gold Medal, Distinction Certificate and Position Certificate in the first ever convocation in International Islamic University in 1993.*
10. *Certificate of Appreciation by National Accountability Academy. Islamabad.*

PAPERS PUBLISHED :

2012: Published in Islamabad Law review, International Islamic university Islamabad. On topic of "Article 209 of constitution of Pakistan; a dilemma or possible explanation" ILR Journal of Law ,International Islamic university Islamabad.

2007: DIGITAL EVIDENCE IN CYBER CRIMES. Paper in Supreme Court International Judicial Conference official proceedings .

Published by Law and Justice Commission of Pakistan. "PUBLIC INTEREST LITIGATION AND JUDICIAL ACTIVISM AS A TOOL FOR POLICY CHANGES".

Paper for International Conference in Malaysia, on "GENDER PERSPECTIVES-2007" .Topic was "Empowerment of Pakistani women through Legislation" Accepted by PLJ .copies requested by Sind High Court.

Paper "Gender Justice in Muslim Countries" International Conference Pakistan at Iqbal Institute. Study reports For media NGO in Islamabad ,INTERMEDIA : PEMRA Ordinance of Pakistan. And Freedom of Information Ordinance of Pakistan.

students are so addicted to the technology for education needs? One reason is that young students prefer online system of education due to its highly active participation feature. They have inquisitive minds and they all want to explore new avenues to find the truth. Jenkins, a researcher of online readings called such students “young adults” (Jenkins.2006)⁸. They are ahead of their teachers in getting information. Second reason is the students are impatient for results.

There are some forums developed for various student activities. E.g. website named ‘Gallery’ is for posting sketches or graphic images through art work tools. Another website ‘Debate club’ is for exchange of views and build a community of similar ideas. Some students have online newspapers or blogs for expressing opinions and ideas. All of these student forums help to foster convergence of learning and sharing the information. Computers have become very strong connection for students across cultures and social systems. Lot of help is available for some struggling students too through these online forums. These forums have become sites for student negotiations, self expressions and exchange of ideas. There is new student community—‘virtual community’. it helps students sometimes to take out their fears also by showing their anger or frustrations. Student helpline may be of use now to many students under stress and prevent suicides. They ensure anonymity. This is now termed as ‘virtual intelligence’. The teachers are not yet aware how the students are using so many forums available. Teachers are worried more for syllabus and course work management and reports. Student look at these forums as sources of deep connectivity and knowledge. Smart phones have created a discipline problem also. Cheating, bullying, sexting is on the rise.

READING BOOKS VS ONLINE SURFING

As mentioned earlier that reading habit is the main casualty of online resources. Carmen shows concern that students are drifting away from reading and just want online material (Jasics.2010)⁹. A research was conducted in 2004 by American National endowment of Arts (NEA). The report (Bradshaw&Nichols.2004)¹⁰ results showed that a very serious steep decline is seen in history of American public’s engagement in reading and comprehending the literary texts and of books among young pupils. ‘Online reading’ is fast overtaking due to short concentration periods required and passive participation of the reader. Neuro-scientists also worry for the decline of ‘Reading Brain’ in the current fast-pace technology driven society (Wolf.2007)¹¹. They are of opinion that some things need slow pace or slow movements, like music or poetry, for complete comprehension. Technology-based reading is negatively affecting the brain cells and their reflective capacity. It is also affecting insights into reflections of pain, joy, wisdom in oral or written languages and phrases. The effects of internet can be seen by new glossary terms, like “digi-novels”, or VOOKs (video books)! Students no longer rely on their imagination capacities while reading digital texts. It cannot transfer values from any good novel. Mistakes are on increase in such students’ writings. Author Walter Mosley stated “Our cognitive abilities actually go backwards when we’re watching television or doing stuff on computers” (qtd. in Rich, 2009).¹²

TEACHERS VS STUDENTS:

Students are changing the game in education. They are masters of use of technology and new tools.(Alice.2014)¹³ There is a war between tech-savvy students and the traditional class room teachers who are still struggling with technology. Student feels ‘important’ in guiding the teachers in the classes about how to use the technology. Teachers do not know how to inculcate “strategic habit” of reading. Technology has also lowered class room attendance by the student

because many can access teaching material online and prefer to stay home without any real contact with the classes. Students do not have pens anymore! In short, technology is transforming students into explorers and teachers into just guides.

According to results of PEW survey done in 2013 for advanced for Advance placement and teachers writing project (PEW.2013)¹⁴, older and younger teachers show difference of attitudes towards use of technology in classrooms. The result further showed:

TABLE 2

Age group of teachers	Findings
Under 35 years	<ul style="list-style-type: none"> • Very confident in using technology in classes • Develop or share work on a website • Participate in online discussions
Over 55 years	<ul style="list-style-type: none"> <input type="checkbox"/> Discuss with their colleagues about how to use technology in lessons <input type="checkbox"/> Students more knowledgeable about technology than these teachers <input type="checkbox"/> Only 34% such teachers are using websites for work <input type="checkbox"/> Only 13 to 16% are discussing technology for variety uses

Despite the above, the report has following views too:

- Even though teachers may know technology use, they are not in favor of using it for classes.
- They do not support over reliance by students on these smart deices in the class room to write research assignments.
- The students use the search engines without ability to judge the quality of information they find online.
- These tools do not give solutions to knowledge; they still have to guide and coach the weak students in all traditional ways.
- Also there are slower students in all classes who may not finish the work fast even with technology.

The PEW SURVEY shows that there is still need for traditional classroom system of delivery of lessons. Teachers need to struggle now to catch student attention in the classes. Teachers have to innovate ways now to keep the student engaged in the learning in the class, and not be lost in “wired” classroom.(Alice.2014)¹⁵ Many institutions have expensive gadgets installed but hardly used by the teaches .when technology is left unused, then desired outcomes cannot be achieved too(Salend.2009).¹⁶

RICH VS THE POOR

Digital divide is also increasing rich-poor divide. This digital divide is now showing how opportunities differ for those who can access technology easily and those who cannot. The rich student can buy online software made for their courses to make fast pace learning in short time, whereas the poor kids depend only on schools technology which may be offering only basic reading features. Marketers are making money also from the students and yet it is showing economic divide in the society. Spending on and consumption of educational apps online have increased economic divide in the world. Schools have to tread a fine line for this sensitive issue while promoting technology in the institutions. Value of ‘Responsibility’ has to be developed

amongst the students by control on spending on technology by young students. Education should not be turned into consumerism.

Technology at educational institutions will come at a price tag. Who will take budget burden to provide these laptops to the students? Administration or parents? Not all students have their smart phones. Teachers worry about the psychological pressure the new environment is creating for the poorer students. Any internet technology will be useless without proper bandwidth. In 2015, main bandwidth required for educational institutions is 100Mbps for every 1000 student and staff. Speed reliability is critical in effective teaching via technology. All this needs money. Rural areas suffer most in this regard. IT budgets have risen and so has cost of education for families.

EMPLOYABILITY VS QUALITY TEACHERS

It is no more easy for well qualified people to get employed at education sector without knowhow of technology-use in the teaching. Now finding a job with standards for online teaching methods is a new criterion for the teachers. In many parts it is mandatory, many states now demand that teachers come with some sort certificating of online teaching trainings. So the competition has been made stricter for the teachers who are only trained in classroom instructions (Quillen.2010).¹⁷ All education ministries in the world now have programs to train the teachers in online classroom teaching. The problem is the frequency of these trainings and the limited number of teachers they can train in a year. Nevertheless such skills are now mandatory everywhere for the teachers. One research showed that 90% of teaching is still going on in traditional style. Another problem is that some teachers do well in interviews and show basic technology use experience, but when it comes to actual work they show very limited ability to integrate technology in the classes. Mr Neugent (Anon.2012).¹⁸ said that they have serious concern that there are teachers who show good interview skills, but have little or no formal training in use of classroom technology later. But can technology really replace a good teacher?¹⁹

SMARTNESS VS PREPARATION

Use of technology is on the rise now and all the institutions are encouraging technology based testing systems. Now no one can enter education profession without knowing technology skills of teaching or testing. The new trend is also to have quick, online, in the class assessments by the teachers. E.g. one teacher asked her students to use their ipads and smart phones to do in class online assessment of some poetic songs and poems. The students responded in class by true/false clicks and she had her quiz result while in the class itself. This is a revolution of technology now (Salend.2009).²⁰ Main concern is: whether technology will compromise the quality of learning in a traditional classroom instruction system, or will it enhance process? writing skills are being effected seriously after students just prefer to type, not write with pens. The schools with less resources cannot provide the tech based environment to their students which can create negative competition in the society and effect the societal divide too in the long run. Government interventions are seriously needed in many countries to stop widening of this gaps, funds must be allocated by the governments to help schools in poorer areas. Training need are huge for the teachers to fully integrate technology in the classes.

BENEFITS VS THE RISK:

It generally greed now that technology use in education has more benefits and it outweighs the risks involved. when it is used in a way it is supposed to be used then it has benefits. Students do not like boring lectures and they need to be interactive in the class. Technology helps to get this feature in classrooms. students have found new ways to do old things. They are exchanging topics, creating websites and inventing video games, apps, building libraries of music or movie collection. Some slow learners are befitting beneficiaries of the technology-based learning. Shy students also respond better online with their professors. Anonymity of online user also has promoted reluctant students to use online knowledge resources (Carol.2007)²¹. But the parent need to play a very important role at home to keep checks on their children about the time spent and sites they are accessing. No doubt, parents and education institutions need to have technology ethics as meeting agenda point now. Parents need to monitor what their child is upto. Some institutions report inappropriate use of social networking on campus.

PEW survey (Report 2013) mentioned, despite all the problems, digital classroom instructions are important.

TABLE 3

#	PEW Findings
1	96% agreed that digital technology helps sharing the knowledge at wider land varied audience level.
2	79% agreed technology helps in collaborative education among the students
3	78% agreed that technology helped student's personal expression and creativity.

Source: PEW 2013 survey .²²

SOME SOLUTIONS TO THE PROBLEMS:

As it is now it is proven that technology use in the education sector is not going away, and it is matter only "how" not "when". The education sector must adapt to the new reality faster than is presently doing. But the main duty is on teachers rather than students to be more flexible and ready. Students are already out smarting the teachers in using digital uses for classes. The problems mentioned above can be seen with a solution too.

1. ONLINE EXAMS ARE NOT THAT BAD:

Use f technology is on the rise now and all the institutions are encouraging technology based testing systems. Now no one can enter education profession without knowing technology skills of teaching or testing. In all honesty, tech-based exam has made life of teachers very comfortable when they have to aggregate their results and make lengthy reports with complicated data. Now all higher education institutions have the online rubrics and testing methods for formative assessments and there are apps for assessing the course learning outcomes. Technology based 'performance' assessments also can be made more interactive where students can show their creativity and imaginations in more interesting ways than mere writing long essays on papers. Teachers can help students integrate videos or images in their answers or presentations to improve their answers.

Since all teachers have to compile a compulsory report for end of term, learning measurements are now needed. The strategies are to be spread throughout the term in order to keep a satisfactory rate for the courses. Many software are available by digital industry to help the teachers in this regard. Teachers should accept the fact that these are helpful in monitoring learning of the students and how to improve any shortcomings in very short time.²³ These tools are actually saving times of teachers from manually making these technical reports. ‘Clickers’ (classroom response systems) is the new system being introduced by some teachers for monitoring the learning of the students .It can be used for online quizzes and responses, and for survey feedback by the students . Clicker system helps some hesitant students to express themselves more openly and with ease. Quick feedback can be sent by teachers which can be checked even in middle of night. ‘Digital diaries’ is another educational tool which helps to add audio video tool to classroom learning. ‘Camtasia’ is another tool technology which allows teachers to leave their lecture contents as recorded files and students can access it whenever they want throughout the term. This is very effective interactive tool for testing the students.

2. ONLINE ETHICS MUST BE DEVELOPED:

The educational institutions should be careful in introducing technology in the subjects, it should be gradual, not at same time to prevent society divide. Safeguarding the work should be priority. Students too should first be trained to be responsible digital citizens. The teachers have to accept the duty to train the students about ethics of technology use. It must not be a tool for cheating, bullying or wasting time. Before any student posts the material online for viewing, teachers can use the following rules:

TABLE 4

#	Rule
1	Obtain permission/license from school and the student to post the work online
2	Delete any confidential information or identity of student
3	Ensure privacy by asking students not to reveal real names or ID numbers
4	No photos of students
5	Vetting for deleting any inappropriate material for the public
6	Encouraging password use
7	Limiting access to the work only by parents

3. READING HABIT CAN STILL FOSTERED:

We can analyze AMANDA PROJECT²⁴ which experimented how to improve reading habit of the students who are mostly on digital work habit. The project is also known as Digi-Novel series. It has based its product on the psychological pattern of youngsters who want constant feeling of participation. It is based on convergence of reading and knowledge. The readers have to read 30 to 40 pages from the book first and then they are taken to movie part, which they watch to complete the story line. If student changes the order, he cannot understand the novel. This compels the reader to go on reading first and then go to the visual tool. The structure has to be respected by the reader to complete the story. It motivated the student to read passages in expectation of watching the video. It is a multimedia approach to foster book reading habit. Teachers can use such paper and technology approach to encourage students to read. It connects paper and technology so that a balance can be brought in the reading of the students and they don't forget paper connection to education.

4. COST –REALLY? :

Many tools are free and cost effective for asynchronous online communications. They require minimum hardware so educational institutions can easily adopt them. DropBox, Cloud, Google drive have large data storage capacity the free storage of course contents for student to access anywhere. Internet based sharing is free and easy to access anywhere. All students can reach the teaching material and make sense of what teacher wants to teach them. Now it is possible to use many apps for educational communications such as blogs, email listing, Facebook, Twitter, WhatsApp groups. All these communication tools are free and help teachers to connect to almost all students even if not in same place. Only need is to make rules of their use very clear to students from the beginning, e.g.:

1. Limit the tools of communication. Do not use many forums to communicate.
2. Use only that much technology as is needed for course learning.
3. Setting personal guidelines. No need to use technology for the sake of showing it.

Some universities have “rent-to-own” options for the students who may have financial constraints for buying the expensive devices.

5. RESEARCH ETHICS ARE A MUST:

Students must be taught the research skills especially not to just copy-paste the content. They must be trained about searching authentic digital libraries only. Patience is one thing that is being lost due to technology. The students must be told to persevere until they find credible sources for their work. The course of ‘research methodology’ must be introduced from high school level so when they reach universities, they know the ethical writing.

6. TEACHER CAN STILL CONTROL:

Now is some tech based classes, teacher are using some apps to control the students.

TABLE 5

App	Use
NearPod	helps the teacher to control the student activity through the company’s built in app . Students receive content on their mobile devices and can submit answers , but the teacher monitors classroom activity, controls the pace of the lesson, and measures student results on an individual and aggregate basis
LanSchool	It helps teachers curb abuse and distractions. It has the ability : <ul style="list-style-type: none"> • to blackout distracting or offensive screens limit what students can and cannot do • send messages to students • allow silent, individualized help sessions • take quick polls, • some students fear mobile devices surrender
Gomel	turns the student smartphone into a computer and enable teachers to synchronize lesson creation, management, and delivery with students' devices

CONCLUSION:

We should no longer deny that technology use is inevitable in 21st century. Both parents and educationists have to accept that smartphones or digital devices are part of daily living of any student now, so we have to change our own outlook towards their uses. We have to develop methods which can give engaging and empowering knowledge to our students. Now teachers should learn how and what to teach through technology so that students learn what they need to know, how and where they can learn efficiently. But nothing can be successful unless teacher training programs are launched with vigor. International organizations have to increase their efforts in teacher training initiatives to help the teachers to take advantage of online class management skill. No doubt we have many good teachers who are falling behind only because they cannot use the computers or devices for education. Such teachers must not be lost or left behind. Having said that, we also have to put students at the center of this digital revolution and give flexible systems of class management which enhances knowledge, not discourage it.²⁵

REFERENCES

1. https://techservices.illinois.edu/sites/techservices.illinois.edu/files/ClassTechReport_2015_2016.pdf Accessed:3 may 2017
2. Roberts, L. G. (2004). *Harnessing Information Technology For International Education*. Phi Delta Kappan,(3), p 225.
3. Shannon, B. (2010). *A School-Wide Instructional Framework for Evaluating Sources*. Knowledge Quest, (3), p 72. Retrieved 1st may 2017
4. McClure, Randall , and Kellian Clink. (2009). *"How Do You Know That? An Investigation of Student Research Practices in the Digital Age*. Libraries and the Academy 9, no. 1 , p 115-32.
5. British Library and Joint Information Systems Committee. 2008. *Information Behaviour of the Researcher of the Future*. University College London.
6. Groenke, S. L., & Maples, J. (2010). *Young Adult Literature Goes Digital: Will Teen Reading Ever Be the Same?*. ALAN Review, (3), P 38
7. Jenkins, H. (2006). *Convergence culture: Where old and new media collide*. New York: NYU Press.
8. Jasics, E. (Host). (2010). Interview with Patrick Carman and Jeffery Townsend. Scholastic radio interview, Transcript retrieved 1 may 2017.
10. Bradshaw, I, & Nichols, B. (2004). *Reading at risk: A survey of literary reading in America (Research Division Report No. 46)*. Washington, DC: National Endowment for the Arts.
11. Wolf, M. (2007). *Proust and the squid: The story and science of the reading brain*. New York: Harper Perennial.
12. Rich, M. (2009). *Curling up with hybrid books, videos included*. New York Times. Retrieved on 8 may 2017, <http://www.nytimes.com>.
13. Alice, A. (2014). *Technology in the Classroom: It's Not a Matter of 'If,' but 'When' and 'How'*. Education Digest, (5), p 39
14. PEW Report (july 2013)*The Impact of Digital Tools on Student Writingand HowWriting Taught in Schools*. <http://pewinternet.org/Reports/2013/Teachers-technology-and-writing>. retrieved 8 may 2017
15. above Note 15. Alice ,(2014).
16. Salend, S. J. (2009,). *Technology-Based Classroom Assessments: Alternatives to Testing*. Teaching Exceptional Children, (6), p.48
17. Quillen, I., & Davis, M. R. (2010). *States Eye Standards for Virtual Educators*. Education Week, (4), p 3.retrieved 1 may 2017

18. Lan Neugent, Virginia's Assistant Superintendent for technology.(2010)
19. It still debated that nothing can replace a good teacher and effective face to face teaching even with introduction of technology .
20. Supra note 15 .Salend. (2009)
21. Carol, B. (2007). *Minding MySpace: Balancing the Benefits and Risks of Students' Online Social Networks*. The Education Digest, (2), accessed 2 may 2017 .<http://elibrary.bigchalk.com>
22. Supra note 13.PEW 2013
23. Chappuls, S., & Chappuis, J. (2008). *The best value in formative assessment*. Educational Leadership, 65(4), 1418.
24. Lennon, S., & Kantor, M. (2009). *The Amanda project: invisible i (book 1)*. New York: HarperCollins
25. President Obama's National Education Technology Plan,(2010) available at <https://www.ed.gov/sites/default/files/netp2010.pdf>

BASECAMP AND FLIPBOARD IN TERTIARY EDUCATION BUSINESS ENGLISH COURSE

Igor Rižnar²²

Abstract: *The article discusses the use of Basecamp 3 and Flipboard in a higher education institution for teaching business English to graduate students at the Faculty of Management, University of Primorska.*

First, Basecamp 3, the latest iteration of the project management software used by many businesses, is presented and its use in an educational setting explained. In addition, short-term and long-term business English projects are discussed and main features (to-do lists, milestone management, messaging, file-sharing and time tracking) in the language learning context analysed.

Second, Flipboard, news, social network and website aggregation software is presented and its many uses highlighted (keeping up with current events, creating class project magazine, creating a resource guide on a single topic, curating relevant reading materials, encouraging collaboration on a magazine, etc.).

Our previous research showed that Flipboard is helpful when encouraging students to read, summarize and speak about what their foreign language teacher considers important for the development of different language skills. Our current research on Basecamp showed that project management software can be used in a postgraduate context as a platform for instant chatting, task assignment and planning, as a repository of documents as well as a tool for developing students' personal time management and goal setting skills.

Third, student's attitudes regarding the use of both Flipboard and Basecamp are discussed.

Key words: *business English, computer assisted language learning, Flipboard, Basecamp, higher education*

INTRODUCTION

The purpose of this paper is to explore the use of two applications, namely Basecamp 3 and Flipboard in the higher education context. Basecamp 3 is used to manage projects, Flipboard enables the curation of digital content into digital magazines. Both applications were used in order to encourage students to engage actively in language learning activities.

Students attending undergraduate courses at the Faculty of management in Koper study in the blended learning environment in which some activities are carried out during face-to-face sessions while a part of the activities is done in e-Lecture rooms. As the blended language learning endeavours have been explained in much detail elsewhere (Marquis 2004, Rižnar 2009a, Rižnar 2009b), we shall focus in this paper only on benefits offered by Basecamp 3 and Flipboard. One of the purposes of using the two applications in our courses was to rethink our teaching practice in order to make learning business English an engaging experience by encouraging a more learner-centred paradigm of learning, in which students are more motivated and, consequently, courses more successful. In addition, we firmly believe that learning in general should also involve activities related to learning to learn, which are too often excluded from language learning textbooks. On the other hand, our research on Basecamp and Flipboard

²² University of Primorska, Faculty of Management, Cankarjeva 5, 5000 Koper, Slovenia

was encouraged by the fact that there are only few studies available about the use of Flipboard in educational settings (Caverly 2013, Green and Green 2014, Hornik, deNoyelles and Chen 2016) and even fewer about the application of Basecamp in education. Project management software for successful planning and managing of projects is discussed by many authors (Ahmad and Laplante 2006, Cicibas, Unal and Demir 2010, Margea and Margea 2011, Stoshikj, Kryvinska and Strauss 2014), with only a few concentrating on the use of such software packages in education (Fishburn 2017, Henrikson and Bishop 2017).

Assist. prof. dr. Igor Rižnar is a lecturer in Business English at the Faculty of Management, University of Primorska in Koper. He received his doctoral degree from the Faculty of Arts of the University of Ljubljana. He is a member of European Society of Translation Studies and Modern Language Association of America. His research interests include English for specific purposes, translation studies, e-learning/teaching and company language strategies.



BASECAMP 3

Basecamp 3 (first release in 2004) is one of the many project management and team communication software (other tools being Zoho Projects, Confluence, Teamwork Projects, Procore, Freshdesk, Wrike, Trello, Microsoft PPM, MeisterTask, Asana, Apptivo Projects, Timely, Bitrix24, ProProfs Project, ActiveCollab, Atlassian JIRA, Proworkflow, Mavenlink, Podio, Zenkit, Orangescrum, Freedcamp, StakePoint, GanttProject, Wimi, to name but a few).

Some project management tools mentioned above are free, others are at or below Basecamp price range (\$ 99 per month for unlimited projects and users), and they offer similar usability. Basecamp's 285.000 customers, 15 million users, and a myriad of completed projects make it one of the most popular project management software, also due to its simplicity and collaborative approach to managing projects. On the other hand, customers like Tesla, Dropbox and Uber use Asana, while customers like NASA, Twitter and Pandora prefer Atlassian JIRA, or stick to Freedcamp (Enavu, Google, PayPal and Airbnb).

The purpose of this article is not to give pros and cons of different project management applications, but to concisely explain how Basecamp 3 can be used in (language) teaching context. In a nutshell, Basecamp helps you organise your communication, projects and clients so that you have a central platform for all your projects. As with the majority of similar tools, Basecamp brings everything together, so that people know what to do and where things stand. The six core tools are: to-dos (for tracking work), a message board (for posting announcements and updates), a Campfire (for chatting with the team members), a schedule (for posting deadlines and milestones), docs and files (for organising all the assets and notes) and automatic check-ins (for getting insight from the team on a regular basis).

By using Basecamp's discussion boards, users need not dig through their inboxes in order to get information from received emails. By using to-dos, every member of the group is kept on track, because to-dos help you organise the work, set due dates and assign responsibility. Automatic check-ins ask people to write up what they worked on during a certain period of time (every day, last week, during the previous month...).

Basecamp reports summarise key activities, e.g. what is overdue, what is coming up or due soon, what is new to-do and what is to-done, what is on someone's plate and what has someone been up to.

In addition, Basecamp has group chat and instant messaging built right in. Whenever someone has got a question for the group, a question can be popped in the Campfire a response provided quickly. If a project manager (or a teacher, in our case) wants to ask project members a question regarding their plans for the next week, automatic check-in can be used (e.g. »What will you be working on this week?«, »Anything inspired you lately?« can become a question asked every Monday).

Documents and files can be uploaded and accessed through Docs and Files. Project schedules display all dated to-dos and events for a particular project, so that everyone on the project can see it (events can be added with dates, times and date ranges, Google Calendar, iCal or Outlook can be subscribed with; people can be notified when things change, etc.).

I used Basecamp during the academic year 2016/17 with a small group (14 students and myself) of B2 students in a course on Localisation at the University of Primorska, Slovenia. The home page of this Basecamp can be seen below:



Figure 1: Basecamp 3 project home page

Campfire was used for instant chatting, the Message Board for longer announcements, To-dos for tasks, Docs and Files for materials that have to be studied during a set period of time, Pings for messages, and Automatic check-ins for automated questions. The course was held during a two month's period of time, during which students had to read one book on translation studies, write a summary and give a 20 minute presentation. Among other tasks assigned to individual team members was reading three scientific articles on localisation and giving a five to ten minute presentation in due time. Needless to say, that both me and students became more deadline-oriented and that reports helped us all keep a day-by-day record of student activities.

At the end of the course, a second Basecamp team was set up, because two of the students expressed their wish to write a scientific article on the topic of translation memory. The home page of this Basecamp project can be seen below:

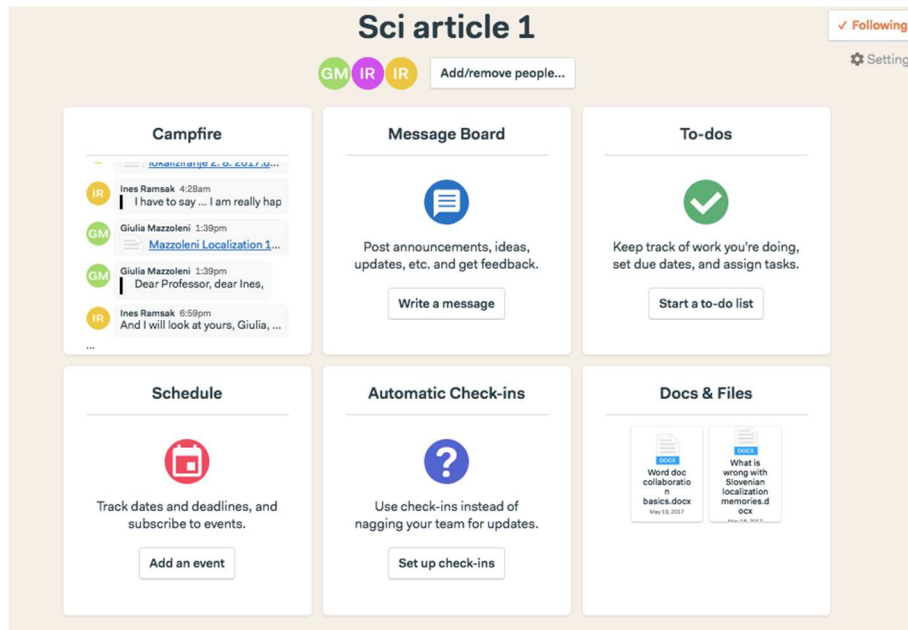


Figure 2: Basecamp 3 project

Unfortunately, the project resulted in a manuscript that was unacceptable for publication. On the other hand, and on a more positive note, all students learned a great deal about how to work independently and collaboratively and improved their personal time management and goal setting skills. In addition, they learned to work on a project management platform they might one day use when working for an employer.

As this was our first time using the application in a learning context, communication tools were not used as frequently as they should be in order to improve team building, which, of course, was something the teacher should encourage. When using the application with future teams, I will also require regular posting from all team members and include regular report analyses in which all members will have to participate.

In Slovenian higher education system, teaching is a priority, despite the fact that many teachers conduct research. In my future endeavours, I will try to include more students into research activities, as I believe that Basecamp is a great tool for organising student research, my only suspicion being that instead of using Basecamp's docs and files, Mendeley may be a better tool, especially when they start using the programme for citations.

Using to-dos and milestones in Basecamp is a great way to help students organise their work in terms of good personal time and resource management skills. At the beginning, it is necessary to enter to-dos for students working on a project, but over time they should become able to enter their own to-dos and milestones and become more independent, while the job of the teacher is only to monitor their progress and give advice when needed.

Among other uses in which Basecamp can be useful, the following should be mentioned:

1. it can be used as a project plan to organise teacher lectures,
2. it can be used for projects assigned to different student groups,
3. it can be used to create projects for different classes,
4. it can be used for administrative tasks,
5. it can be used to create projects related to committee work.

FLIPBOARD

Flipboard is a social-network aggregation, a software initially released in 2010, which enables collecting content from websites and presenting them in a magazine format. Developed by Flipboard Inc., the software works on the following platforms: Android, Blackberry OS, iOS, Windows, Mac OS and on Windows phones. First the application was launched for the iPad, and was later updated to add support for the iPhone and iPod Touch. From 2012, Flipboard was released for some Android phones and in 2013 for Windows 8. In the early 2015, Flipboard became available on the web. The application's user interface (UI) enables intuitive flipping through content.

On the application website (flipboard.com) a reader who is signed in sees Cover stories, which represents the highlights from everything one follows. The second item on the menu is Following where one sees individual magazines one follows and which open once a user clicks on them. The last item on the menu is Explore, which brings into view all magazines curated on the Flipboard by all users arranged in a number of sections (New & Noteworthy, By Our Readers, News, Business, Tech & Science, Sports, Photos & Design, etc.).

On the right side of the menu one can search for articles by typing in sources, people or topics and check who has reflippled/liked/commented on a topic posted. By clicking on the circle (with or without a photo of the signed in user) on the far right side of the menu a new window opens with data of the magazine curator. Data includes the number of magazines curated, the number of flipped articles, the number of followers and the number of likes. This is also the page where a new magazine can be created and where all curators' magazines are presented. By clicking on one of them, the magazine opens and by scrolling down the content can be seen. When the page opens, you can also see the number of viewers for the particular magazine, the number of followers for that magazine and the number of articles in the magazine.

Let's go through two of the terms frequently used on Flipboard:
 flip means add what you like into your magazine to read later or to share with others;
 share can mean share via email, via Twitter or via Facebook;

If you click on the Edit tab in the far right bottom corner of the magazine a new window opens, where you can invite others to contribute to your magazine. On the same page, you can determine if the magazine is locked or if everyone can see it. On this page, you can delete the magazine if you want and, by clicking on Stats on the left side see the most important analytics (what was most viewed during a certain period of time, the number of viewers by day and page flips by day).

According to The Wall Street Journal (2015) Flipboard has 80 million active users, but the competition is fierce (Apple launched its own news aggregation application, Apple News).

Some of the ideas how Flipboard can be helpful for teachers/students can be found on Flipboard for educators (<https://about.flipboard.com/inside-flipboard/flipboard-for-educators/>) where you can learn about various uses of Flipboard in teaching and learning. Among the many possible uses let us mention the following:

- for keeping up on the current events,
- for creating a class syllabus,
- for creating a class-project magazine,
- for creating a resource guide on a single topic,

for curating relevant reading materials,
for collaboration by inviting other educators to collaborate on a magazine,
for keeping parents informed,
for flipping school posts into a magazine.

The basic tutorials can be found on <https://about.flipboard.com/tutorials>, the most important tools can be downloaded from <https://about.flipboard.com/tools>, help and feedback are available here: <https://about.flipboard.com/help-center>, and job updates here: <https://about.flipboard.com/careers>.

In order to collect and share valuable information with my students I created my own magazine entitled Teaching with brain in mind a couple of years ago.

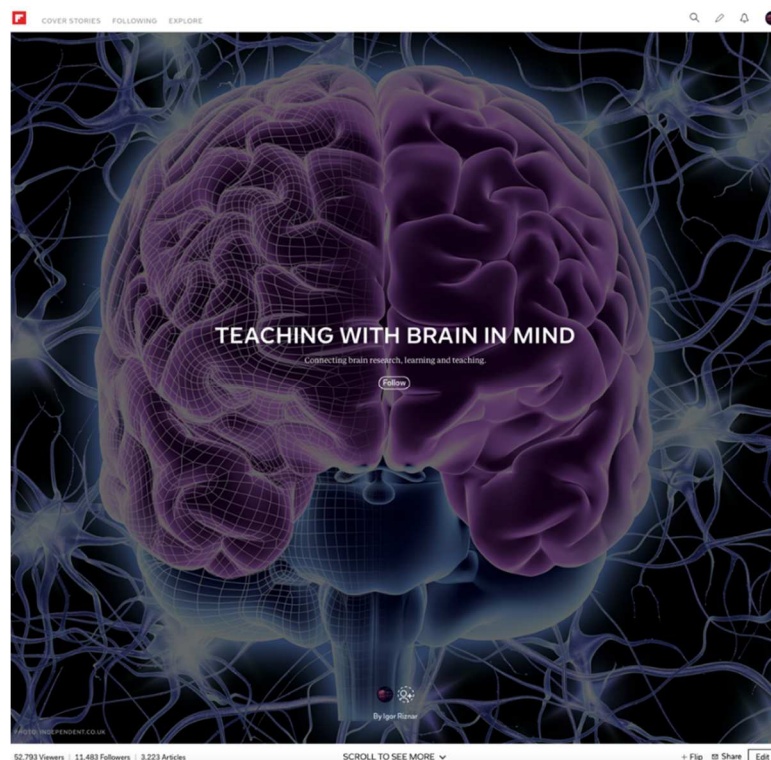



Figure 3: Flipboard magazine *Teaching with Brain in Mind*

The curated magazine has so far attracted around 53.000 viewers, has more than 11.500 followers and includes more than 3.000 articles, which were flipped by other Flipboard users 800.000 times. Simply put, the magazine aims at presenting articles from the following interrelated topics: brain research, learning, teaching, learning about learning in general and learning in the age of digital distraction, language learning, what being bilingual does to one's brain, the benefits of exercises to cognition, the importance of sleep in memory formation, damaging effects of multitasking, learning myths and neuroplasticity, creativity, education and critical thinking skills, to name but a few topics.

The sources for flipped articles were, among others: the Scientific American Mind, The Dana Foundation, Neuroscience News, Always be Curious (a Flipboard magazine curated by Aly Juma), Human Brain Project, Brain, Neuroscience, Cognitive Science, Higher Education, Flipboard for Educators (curated by FlipEDU), MIT Technology Review, etc.

In order to make it easier for the students to grasp the possible uses of Flipboard the following poster was prepared:




Flipboard is a social-network aggregation, a software initially released in 2010, which enables collecting content from websites and presenting them in a magazine format.

Flip means add what you like into your magazine to read later or to share with others.

The application website flipboard.com

Why Flipboard?

- 14 magazines
- 1 million flips
- 12.400 followers
- 6000 articles
- A variety of topics
- Up-to-date research
- Student involvement!




Teacher's tasks: direct students to resources, make recommendations, help interpret resources, monitor progress, give feedback, boost confidence and, last but not least, maintain motivation

Keywords
language learning, computer assisted language learning, Flipboard, tertiary education, pseudo teaching, bloodletting


Other possible uses:

2. for creating a class syllabus
3. for creating a class-project magazine
4. for creating a resource guide on a single topic
5. for curating relevant reading materials
6. for collaboration by inviting other educators to collaborate on a magazine
7. for keeping students informed
8. for flipping your school's posts into a magazine.

Igor Riznar
igor.riznar@fm-klp.si
University of Primorska, Faculty of management



Teaching with brain in mind - Why Flipboard matters?



Main purpose of the magazine:

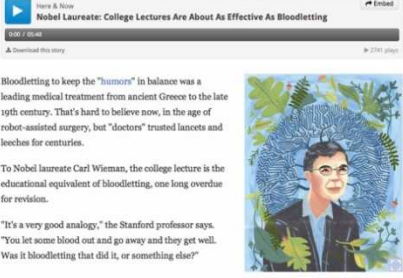
- to increase students' language awareness: the explicit knowledge about language with the emphasis on language learning and teaching as well as language use (ALA, 2012)
- to increase students' brain awareness: awareness of the progress and benefits of brain research
- to debunk learning myths: misconceptions about learning styles, left/right brain hypothesis, male/female brain, 10 % brain usage etc.

Content curation application

1. for keeping up on the current events
2. for creating a resource guide on a single topic
3. for under- and postgraduate students

Sample magazine available at:

<https://flipboard.com/@edirrr/teaching-with-brain-in-mind-4lotc0tez>



Articles can be flipped in Flipboard magazines

The basic tutorials can be found on <https://about.flipboard.com/tutorials>, the most important tools can be downloaded from <https://about.flipboard.com/tools>, help and feedback are available here: <https://about.flipboard.com/help-center>, and, for those interested, job updates here: <https://about.flipboard.com/careers>.

Figure 4: Flipboard poster

The full-time students attending English courses – both compulsory and elective courses – during their studies at the Faculty of management get six ECTS credits for each course, which means that they have to work between 150 to 180 hours for each course. In addition to other weekly home assignments (writing a summary of an article), students have to read two articles posted to the Flipboard magazine *Teaching with brain in mind*. Each session starts with presentations (not more than five minutes long) given by students on the topic/topics mentioned in the article. It is not difficult to imagine the lively and often enthusiastic discussions that develop during the initial 30 minutes of our weekly sessions. To make a rather long story short, let me only add that before the appearance of the Flipboard magazines I have rarely experienced students who would be so willing to participate actively in discussions.

Some of the possible uses of Flipboard magazines were mentioned above, but I have to add another way of using the application with postgraduate students. When a student embarks on writing a thesis about a certain topic that I could mentor, I immediately open a new Flipboard magazine and start flipping in the articles that may be of some interest for the student. To summarize, Flipboard application is a customizable information aggregators or personal magazine application that can be used in lecture-rooms to actively engage students. With the application, students can create their own magazines, and decide what web content to include in it. Our findings are in agreement with Jones-Kavalier and Flannigan (2006) who state that digital literacy: «includes the ability to read and interpret media (text, sound, images), to reproduce data and images through digital manipulation, and to evaluate and apply new knowledge gained from digital environments» (ibid. 9).

CONCLUSION

Our study provides empirical insight into the use of a social-network aggregation application Flipboard, and project management application Basecamp in higher education. The findings regarding Flipboard application show that the majority of participants agreed that both the content and related classroom activities were useful, that the students increased the amount of time devoted to reading and in-class discussions and that they believed that they improved their speaking and reading skills considerably due to the application use.

On the other hand, our concept of using the Flipboard in business English lectures needs some rethinking. First, in future students should be encouraged to contribute their own resources towards the Flipboard magazine, because consuming articles is much less active than curating them. Second, the number of the articles in our magazine should be reduced to a manageable size, because students rarely if at all managed to get past the last 50 articles flipped within a week's time, which means that a great deal of articles worth reading remained unread. We should perhaps start a new magazine for each semester and not keep adding content to one resource. In addition, it often happened that two or three students reported in class about the same article. Third, no matter how experienced the second-year students were, we should occasionally remind them about the benefits of curating their own magazine in order to increase the number of those who may be willing to start their own magazine.

Our recent research on using Basecamp in education setting showed that the software can be used in a variety of ways: as a tool for developing students' personal time management and goal setting skills, for keeping them on track when working on a project, for setting deadlines and milestones, posting task-related announcements, for improving team-work skills, etc. Needless to say, that both teachers and students became more deadline-oriented and that reports helped us all keep a day-by-day record of our activities.

The main limitation of our research is a small number of respondents and the fact that the data was collected only in three courses (two undergraduate and one postgraduate) at two faculties (Faculty of Management and Faculty of Humanities) for only two subjects (business English and localisation). Future research calls for additional endeavours in this area as well as into many other ways of using the two applications.

REFERENCES

- Ahmad, N., & Laplante, P. A. 2006. Software project management tools: making a practical decision using AHP. In *Software Engineering Workshop, 2006. SEW'06. 30th Annual IEEE/NASA* (pp. 76-84). IEEE.
- Caverly, D.C. 2013. Techtalk: mobile learning and literacy development. *Journal of Developmental Education*. 37:1: 30-31.
- Cicibas, H., Unal, O., & Demir, K. A. 2010. A Comparison of Project Management Software Tools (PMST). In *Software Engineering Research and Practice* (pp. 560-565).
- Fishburn, J. A. 2017. Keeping on Track: Using Basecamp to Manage a Classroom-As-Game-Studio. Presentation given at Blended learning in the Liberal Arts Conference 2017. https://repository.brynmawr.edu/blended_learning/2017/2017/29/ 10 October 2017
- Green, J. and Green, T. 2014. Techspotting: curating the web. *Tech Trends: Linking Research & Practice to Improve Learning*. 58:1:11-12.
- Henrikson, R., & Bishop, D. 2017. Text Analysis of a Cloud-Based Educator Collaboration Tool. In *Society for Information Technology & Teacher Education International Conference* (pp. 870-876). Association for the Advancement of Computing in Education (AACE).
- Hornik, S., deNoyelles, A. and Chen, B. 2016. Exploring Flipboard to Support Coursework: Student Beliefs, Attitudes, Engagement, and Device Choice. *Tech Trends: Linking Research & Practice to Improve Learning*. 60: 503-509.
- Jones-Kavalier, B.R. and Flannigan, S.L. 2006. Connecting the Digital Dots: Literacy of the 21st Century. <http://net.educause.edu/ir/library/pdf/EQM0621.pdf> 10 September 2017
- Margea, R., & Margea, C. 2011. Open source approach to project management tools. *Informatica Economica*, 15(1), 196.
- Marquis, C (2004). WebCT survey discovers a blend of online learning and classroom-based teaching is the most effective form of learning today. *WebCT.com*. <http://www.webct.com/service/ViewContent?contentID=19295938> September 3, 2017
- Rižnar, I. 2009a. Corpus-based approach to teaching English tenses in Slovenian tertiary education, *Int. J. Management in Education*, 3:2: 135–148.
- Rižnar, I. 2009b. Blended language learning in tertiary education, *Int. J. Innovation and Learning*, 6:4: 377–386.
- Stoshikj, M., Kryvinska, N., & Strauss, C. 2014. Efficient managing of complex programs with project management services. *Global Journal of Flexible Systems Management*, 15(1), 25-38.

MODEL OF THE ETL PROCESS AUTOMATION FOR THE SUBJECT SALE IN A PRODUCTION BUSINESS SYSTEM

Milena Kukrić²³
Milan N. Drašković²⁴
Ivica Stanković²⁵

Abstract: *Decision makers in the business system need fast-reaching data and information presented in the form of simply conceived reports. Operational data generated in everyday processing are detailed, extensive, often placed on multiple dislocated servers, they have a slow response, so they are useless in the original form for the needs of middle and top managers. Even if they were used for analysis and decision-making purposes, processing of operational data would be complex and could also slow down and obstruct processing planned for operational tasks.*

The solution to this problem was sought by extracting data in completely separate software systems that were designed to provide ready reports for possible queries. Operational data are analyzed, processed and compressed, and then stored in specialized databases - data warehouses, in order to be available in an almost final form for business analysis and business decision making.

Data warehouses are special databases optimized for fast execution of a large number of simple and complex queries over a time constant set of data, designed to meet the needs of analysts and managers of the business system. The process of designing a data warehouse begins by determining the business goal that needs to satisfy the realized data warehouse, selecting the business process (subject) of the data warehouse and defining a fact table and dimension tables, that characterized multidimensional data modeling. This process ends with the implementation of the ETL (Extract Transform Load) process, which includes the extraction, transformation and loading transformed data into a data warehouse.

The paper deals with the subject Sale, of the production systems and presented procedures that automate the ETL process for a given example.

Key words: *management, decision making, data warehouse, ETL process, multi-dimensional data modeling*

1. INTRODUCTION

The performance of each production system is measured by the percentage of realization of the planned goal, the quality of the final products and the achievement of the highest profit. The success of the production system is influenced by numerous factors: system organization, application of new technological solutions, such as supply chain management and customer relationship management. Our time is characterized by almost everyday occurrence of numerous innovations in the field of information and communication technologies and rapid changes in operating conditions. Therefore, the systems that are more successful are those in which new knowledge and technological advancements are adopted and

²³ Faculty for Strategic and Operational management, Staro sajmište 29, Belgrade, Serbia

²⁴ Higher Business School of the professional studies "Čačak", Gradski park, Zemun, Belgrade, Serbia

²⁵ Faculty for Strategic and Operational management, Staro sajmište 29, Belgrade, Serbia

applied more quickly and use the advantages offered by information and communication technology.

For successful business of a business system, managers at tactical and strategic level are responsible, those who manage the system and make decisions [1]. The necessary support to their activities is a good information system, which with well-organized databases has the ability to quickly deliver simple and complex queries and reports.

In this paper, the focus is on data, their organization and optimization for the needs of decision makers. Through the example of tracking the data warehouse design for the Sales, it will be shown that a large number of operational data makes selection and data compression, which, along with the automated ETL process procedures, are stored in the data warehouse and provide quality reports and information for the needs of the management.

2. PRODUCTION SYSTEM

The production system is a subsystem of the complex dynamic business system. It includes activities that create a usable product at the system exit through a series of transformations during the production process from the different input resources. In general terms, the basic functions of the production system are: *Contracting, Planning, Purchasing, Transport, Production, Finances, Management and Logistics*, as shown in Figure 1.

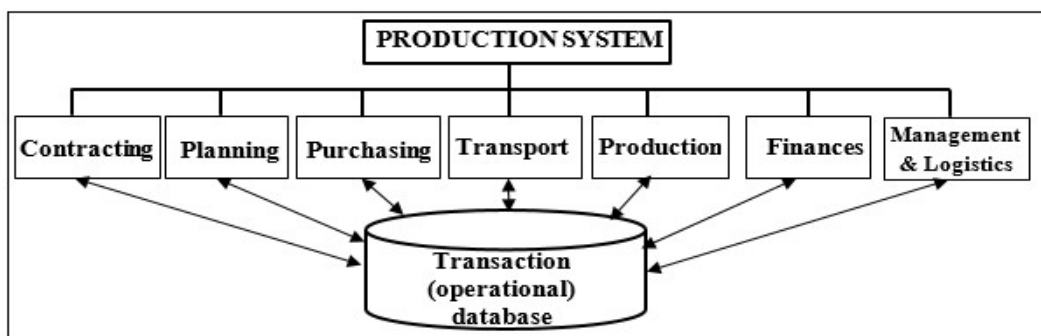


Figure 1. Transaction database of the production system contains the data generated during daily processing

Milena Kukrić, PhD, docent works at the Faculty for strategic and operational management, Union University - Nikola Tesla in Belgrade, Serbia, as a docent-professor in information technology subjects. PhD dissertation topic: *Data warehouse model as basis for business decision making* (University Business Academy, Novi Sad, Faculty of Management of Small and Medium Enterprises, Belgrade, 2012), Master Thesis: *“Applying of The Production Information System To Support Management In The Decision Making Process”* (Faculty of Small and Medium Sized Enterprises, Belgrade, 2008). Base education is Bachelor of Science (Electrical Engineer), University of Sarajevo, Dept. of Information Systems, B&H, 1976. Key qualifications: Senior level progressive experience in system analysis, design and implementation of financial and other information systems, fifteen years experience in teaching information technology subjects. She also has published scientific papers. Professional experience: system analyst and programmer in several banks, Energoinvest IRIS, Genex, Independent System Consultant, analyst and test developer at the project “Online testing for ECDL certificate”, teaching at Faculty for Small and Medium Enterprises, Belgrade, Lincoln University, Oakland, CA, USA (department in Belgrade, Serbia) and Faculty for strategic and operational management, Belgrade.

Each of the presented functions of the system during the daily process produces certain data that are stored in the operational (transactional) database(s).

3. USING OF DATA

Operational data collected in the operational databases were originally planned to provide IT support to all employees. However, huge and detailed operational databases are useful to employees at the operational level, but have proved ineffective to provide specific information needed by decision-makers. Even if they were used for analysis and decision-making, the processing of operational data would be complex and could only slow down and hinder the conduct of operational tasks. Since the method of access to operational databases is largely adapted to day-to-day operational tasks, and not to managers who most often analyze data and make decisions, it came to the idea that it would be useful for decision makers to extract and prepare from a huge amount of operational data, the data for aggregate, concise reports as they are needed, which would provide real support for decision makers.

4. DATA WAREHOUSE

The idea of extracting data for the needs of business analysis and support to the decision-making process resulted in the creation of a concept of specialized databases - data warehouses (DW).

The founders of the data warehouse are B. Inmon (William H. Inmon) and R. Kimball (Ralph Kimball). In the period 1992-1996, they first set the principles for designing a data warehouse and gave definitions and guidelines that are still valid.

According to B. Inmon, "the data warehouse is defined as a large, unique, integrated, flexible, elastic and secure data warehouse, which provides the infrastructure basis for information software applications in the business system. It contains, user-readily available, consistent data, subject to analysis and manipulation, in order to support the decision-making process in the management of the business system and its processes. "[2]

Inmon defines the data warehouse as a specially conceived and structured database format, in which data is organized around functional areas (subjects), with always the same response to the query (as opposed to variable operating databases). It takes care of consistency both in the way of storage and in the mode of presenting the same type of data, and it is characterized by

Milan N. Drašković, PhD-full professor
Milan works at the Higher School of Professional Business Studies "Čačak" in Belgrade, as a professor of Business Informatics, Management Information Systems, Quantitative models. PhD: University of Novi Sad, Faculty of Economics, "Franchising system-organizational model of production and distribution of food", 1998, Master: University of Belgrade, Faculty of Organizational Sciences, "Methods and models of business forecasting", 1993, BS from University of Belgrade, Faculty of Organizational Sciences. Executive International MBA Program, 1992, Manhattan Institute of Management, New York, USA, International Business Management Program, 1994, CCIBDM, Niagara Falls, Ontario, Canada, International Business Management Program, 1991, Manhattan Institute of Management, New York, USA. Over 30 years experience in teaching and a lot of published scientific papers, textbooks, books.

a time determination, because historical data are filled in the data warehouse, which allows predicting future events, trends, processes...

The data warehouse is often divided into a so-called Data Marts (smaller warehouses), each of which is oriented to a particular subject, e.g. Sale.

4.1. Realization of the data warehouse

The process of designing a data warehouse involves several phases: determining the business goal which should meet the implemented data warehouse, the choice of business process (subject) data warehouses, define the level of detail, identifying the size and the fact the realization of ETL process, the process of extraction, transformation and loading of data in the warehouse, Figure 2.

According to C. Todman, "business goals can be presented with sentences: We need to increase our market share. We need to bring in the new customers ... In the next five years, we need to increase customer loyalty by one percent per year. Such an approach could be said to represent a real business goal. It is: measurable, time-bound and customer-oriented. "[6]

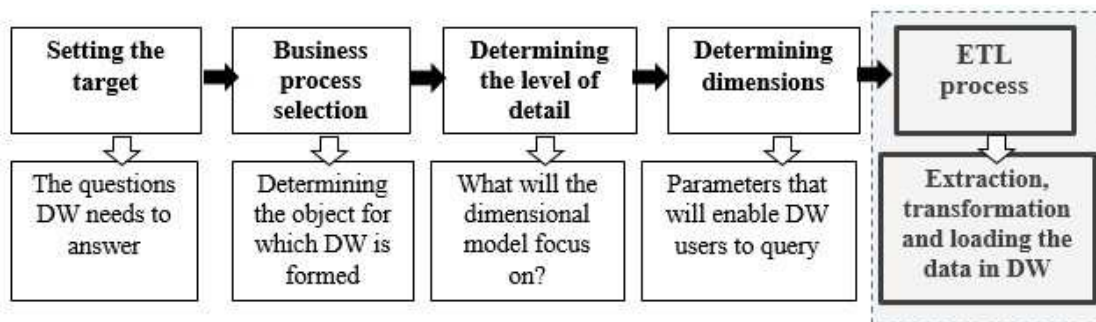


Figure 2. Phases in the design of the data warehouse

For the realization of the data warehouse database, dimensional data modeling is recommended. It involves creating a fact table and multiple dimension tables.

5. MODEL OF THE ETL PROCESS AUTOMATION FOR THE SUBJECT SALE IN A PRODUCTION BUSINESS SYSTEM

The ETL process automation involves the realization of a set of software solutions, which allows the extraction of adequate data from the operating bases, which are then purified and then transformed into complex form and content to fill the predicted dimensional structure of the data warehouse. In the case of the automation of the ETL process in the production system, the process- subject Sale was selected. Figure 3 shows the ETL scheme for this example.

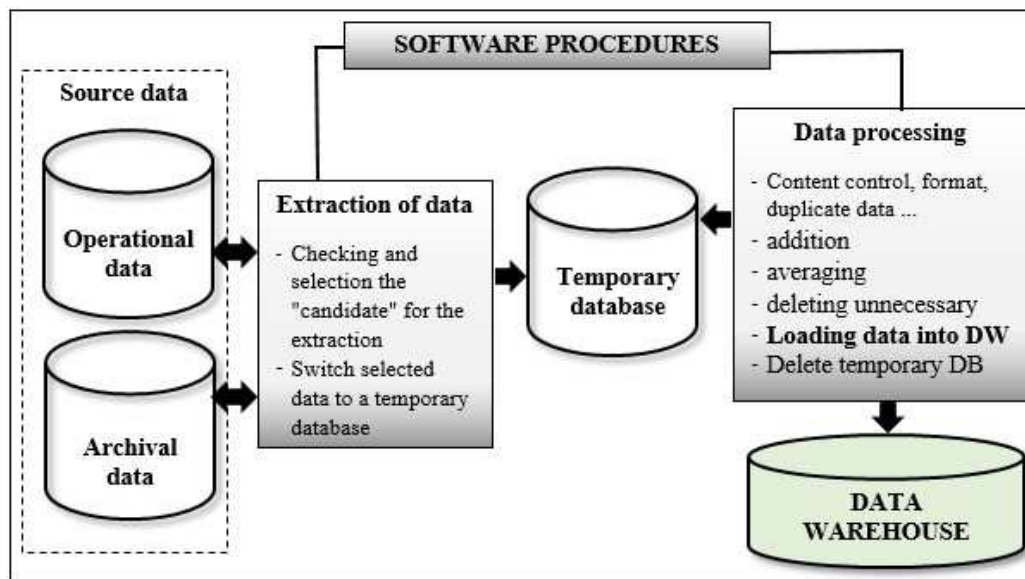


Figure 3. Extraction, preparation and loading data into the data warehouse production system

Operational - actual and archive data are first placed in a temporary base, where they are controlled and processed, and after successful processing, they are filled into a real data warehouse.

Processing of selected data means control of content and data format. In case of disagreement of certain data, usually due to the format, intervention programs are anticipated, attempting correction, and the data that do not pass the control are ejected. The database is filled both with the initial state data and the data that update the existing data. Control programs prevent the filling of duplicate data, for which there is an additional table in the temporary database, which stores the identifications of the latest data transferred to the data warehouse, e.g. invoice numbers already processed.

For the subject Sale, a business goal is set before the data warehouse: sales tracking so that the data warehouse provides answers to some of the following issues: cost reduction options per item, analysis of claims, which items are generated the largest/ lowest earnings, how to keep the existing and get the new customers ... For a subject Sale, there are important data about the buyer, the product, the tracking period, etc. All data for dimension tables are downloaded from the multiple operating database tables.

The data in the Sales table, as well as the *Customers*, *Products*, *Producers*, *Periods* for the subject Sale, are shown in Figure 4.

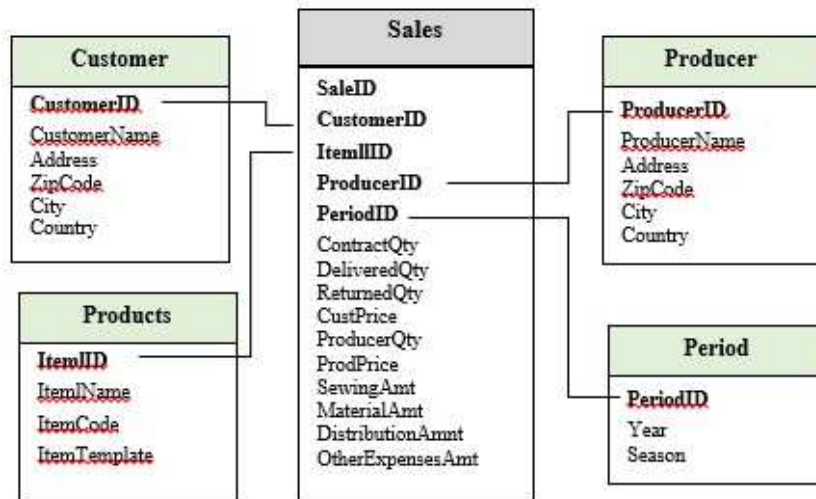


Figure 4. The data in the dimensional structure tables for the subject Sale

Filling dimension tables, Figure 5, is done by taking data from multiple tables of the operating database. For example, the dimension table *Customers* is filled with data from the *Countries* and *Partners* table.

Software procedures for filling consist of the numerous Insert and Update SQL statements. They also perform more processing of the same data, in order to perform their compression, calculation of average values or some other calculations.

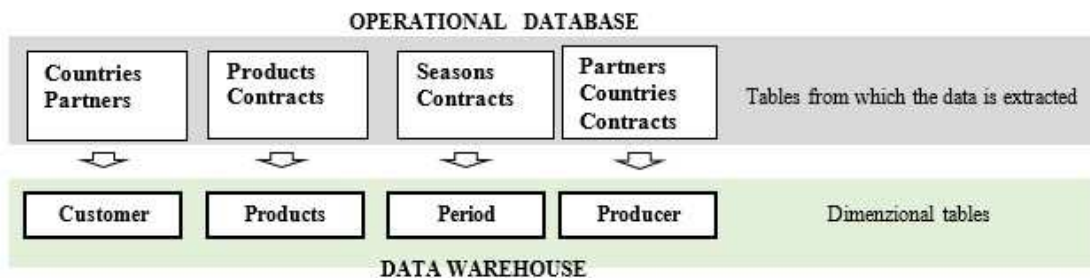


Figure 5. ETL process: loading data into data warehouse tables for subject Sale with data from the operational database tables

Figure 6 shows an example of the SQL statement through which the data from an operational database are transferred to the dimension table *Customers*.

```
INSERT INTO Customers ( CustomerID, CustomerName, Address, ZipCode, City, Country)
SELECT Partners.PartnerID, Partners.Partner, Partners.Address, Partners.ZipCode,
Partners.City, Countries.Country
FROM Countries INNER JOIN (CustomerContracts INNER JOIN Partners ON
CustomerContracts.PartnerID = Partners.PartnerID) ON Countries.CountryID =
Partners.CountryID;
```

Figure 6. SQL statement - the data is transferred to the dimension table *Customers*

Similarly, according to the Figure 5, other dimension tables: *Products*, *Periods*, *Producers* are filled.

Filling the fact table, which, in addition to the keys, also contains values that in the operational data of a different level of conciseness are preceded by several procedures for preparing the

data for loading, by using different calculations and data synthesis. For example, a specific item for *ContractQty* (a contracted quantity of a particular item) is a unique data, but the *DeliveredQty* (delivered quantity) data must be collected from the invoices for that item. It is clear that information, for report *Contracted-Delivered by the item*, ready for immediate response, because the data is pre-prepared.

Figure 7 shows the SQL statement which performs the initial filling fact table *Sales*.

```

INSERT INTO Sales (SaleID, PeriodID, CustomerID, ItemID, ProducerID, ContractQty,
DeliveredQty, ReturnedQty, CustPrice, ProdPrice, ProducerQty, SewingAmt, MaterialAmt,
DistributionAmt OtherExpenses.Amt )
SELECT DISTINCT Val([SeasonYear] & [SeasonID]) & CustomerContracts.PartnerID &
CustomerModels.CustomerModelID & IncomingInvoices.PartnerID & [SeasonYear] &
OutgoingInvoices.ValuteID) AS Key, Val([SeasonYear] & [SeasonID]) AS PeriodID,
CustomerContracts.PartnerID, CustomerModels.CustomerModelID,
IncomingInvoices.PartnerID, Val([SeasonYear] & OutgoingInvoices.ValuteID) AS ValutaID,
CustomerModels.CustomerQuantity, Sum(OutgoingInvoiceModels.OutgoingQuantity) AS
SumOfOutgoingQuantity, Sum(OutgoingInvoiceModels.Reklamacija) AS SumOfReklamacija,
CustomerModels.CostPrice, FactoryInvoiceModels.FactoryPrice,
Sum(FactoryInvoiceModels.DeliveredQuantity) AS SumOfDeliveredQuantity,
Sum(FactoryInvoiceModels.CMAmount) AS SumOfCMAmount,
Sum(CustomerModels.CustomerQuantity*CustomerModels.CostPrice) AS ContractAmt,
Sum(OutgoingInvoiceModels.OutgoingQuantity*CustomerModels.CostPrice) AS DeliveredAmt
FROM CustomerContracts INNER JOIN (((CustomerModels INNER JOIN (FactoryModels
INNER JOIN (FactoryInvoiceModels INNER JOIN OutgoingInvoiceModels ON
(FactoryInvoiceModels.FactoryInvoiceModelID =
OutgoingInvoiceModels.FactoryInvoiceModelID) AND
(FactoryInvoiceModels.FactoryInvoiceModelID =
OutgoingInvoiceModels.FactoryInvoiceModelID)) ON (FactoryModels.FactoryModelID =
FactoryInvoiceModels.FactoryModelID) AND (FactoryModels.FactoryModelID =
FactoryInvoiceModels.FactoryModelID)) ON (CustomerModels.CustomerModelID =
FactoryModels.CustomerModelID) AND (CustomerModels.CustomerModelID =
FactoryModels.CustomerModelID)) INNER JOIN IncomingInvoices ON
FactoryInvoiceModels.IncomingInvoiceID = IncomingInvoices.IncomingInvoiceID) INNER
JOIN OutgoingInvoices ON OutgoingInvoiceModels.OutgoingInvoiceID =
OutgoingInvoices.OutgoingInvoiceID) INNER JOIN FactoryContracts ON
(FactoryContracts.FactoryContractID = FactoryModels.FactoryContractID) AND
(FactoryContracts.FactoryContractID = FactoryModels.FactoryContractID) AND
(IncomingInvoices.FactoryContractID = FactoryContracts.FactoryContractID) AND
(CustomerModels.CustomerContractID = FactoryContracts.CustomerContractID)) ON
(CustomerContracts.CustomerContractID = CustomerModels.CustomerContractID) AND
(CustomerContracts.CustomerContractID = CustomerModels.CustomerContractID) AND
(CustomerContracts.CustomerContractID = FactoryContracts.CustomerContractID)
GROUP BY Val([SeasonYear] & [SeasonID]) & CustomerContracts.PartnerID &
CustomerModels.CustomerModelID & IncomingInvoices.PartnerID & [SeasonYear] &
OutgoingInvoices.ValuteID), Val([SeasonYear] & [SeasonID]), CustomerContracts.PartnerID,
CustomerModels.CustomerModelID, IncomingInvoices.PartnerID, Val([SeasonYear] &
OutgoingInvoices.ValuteID), CustomerModels.CustomerQuantity, CustomerModels.CostPrice,
FactoryInvoiceModels.FactoryPrice;

```

Figure 7 The SQL statement - initial loading into the fact table *Sales*

The analysis of the performance of the data warehouse model shows that for a particular process from the operating database, 63421 records were extracted, and as a result of processing and compression, the data warehouse was filled with 1101 records. The response time of the operating database for a particular report lasts up to 10 seconds, while a similar report is obtained from the data warehouse almost instantly, in 2 seconds. [3]

6. CONCLUSION

In the production system, the daily processes generate numerous data, which are stored in the operational database of the information system. Although initially they were designed to provide IT support to all employees, it turned out that operational databases are only useful to employees at the operational level, while they are detailed, extensive, with slow response and ineffective to provide specific information for decision makers at higher levels.

The solution was found in the creation of a specialized database - data warehouse that would contain only well-selected data organized in a manner that allows current and quality reporting, to be able to make optimal decisions that make the whole system more successful and competitive in their industry.

In the example of the ETL process automation for the subject (process) Sale in the production system, the phases of creating a data warehouse are presented as well as an automation example of extracting, processing and loading the data into the data warehouse. The example demonstrates how complex processing of the extracted data can be, in order to obtain optimized data for fulfilling the set goal in the first phase of the data warehouse design.

Justification of the introduction of the data warehouse and the automation of the ETL process is reflected in relieving operational processing and operational database, as well as quickly obtaining query responses and forming quality management reports. In order to obtain the response to the queries, pre-prepared and concise data is used, so the response time for the same query is much shorter than when accessing operational data.

REFERENCES

- [1] Drašković, M, (2007) *Strateško odlučivanje*. Belgrade, FSOM.
- [2] Kimball, R, Ross M, Thornthwaite W, Mundy J, (2008) *The Data Warehouse Lifecycle Toolkit: Expert Methods for Designing, Developing, and Deploying Data Warehouses* (2nd edition), Wiley, ISBN: 978-0-470-14977-5
- [3] Kukrić, M, (2012) *Data warehouse model as information basis for business decision making*, doctoral thesis, Belgrade, FMMSP.
- [4] Kukrić M, Smiljić S, Drasković M, (2014) *Dimensional data model for a business process export in the production system for finishing*, 4th International Conference „Application of New Technologies in Management and Economy“ ANTiM 2014, Belgrade
- [5] Rainer, R. K, Turban E. Jr, (2009) *Uvod u informacione sisteme*, Beograd: Datastatus, ISBN: 978-86-7478-076-3
- [6] Todman, C, (2001) *Projektovanje skladišta podataka*, Beograd: CET, ISBN: 86-7991-131-3
- [7] Varga, M. (2012) *Upravljanje podacima*, Element, Zagreb ISBN: 978-953-197-639-8

Ivica Stankovic, PhD student, Senior secure software developer

Ivica is PhD student, studying business and project management at the School of Law and Business, Economics, at Union University - Nikola Tesla in Belgrade, Serbia. He has two masters degrees: the first one acquired from the department of Metallurgy, at the School of Technology - University of Belgrade, Belgrade, Serbia and the second one acquired from the department of Information Security, at the School of Information Technology, at Metropolitan University, Belgrade, Serbia. He worked as a Lead Engineer and a Software Process Development Engineer in the field of informatics, chemistry and metallurgy. Moreover, he worked as a consultant for the firm IT Systems, Brooklyn, NY, USA. He has more than five years of experience in teaching information technology, mathematics and statistics. He is currently working as a Teaching Assistant at the School of Law and Business Economics, at Union University - Nikola Tesla, Belgrade, Serbia. The key subjects that he teaches are: information technology, computer security, web design and programming, multimedia systems, mathematics, discrete mathematics, statistics. As a lecturer and teaching assistant at Lincoln University, Oakland, CA, USA (department in Belgrade, Serbia) he has taught: college mathematics, finite mathematics, information technology and databases. His areas of interest are: information security, software development, UML systems analysis, mathematical analysis, mathematical modelling and systems optimization, as well as information security. He is actively participating in writing projects in the framework of Horizon 2020 funded by the European Union. Moreover, he has published several scientific and technical papers.

FIGHT AGAINST COMPUTER CRIMES IN SERBIA

Miodrag N. Simović²⁶
Dragan Jovašević²⁷

Abstract: *Criminal Legislation of the Republic of Serbia, which started applying as of 1 January 2006, provides for criminal responsibility and punishment for several criminal offences against safety of computer data. Those are computer criminal offences which a perpetrator (who obviously has unique, special knowledge of information, compute technology – IT sector) commits by abuse of computers, computer systems or network, thereby causing material or non-material damage to other natural or legal persons, as well as a whole social community. The basis of those incriminations are European standards established under the Budapest Convention on Cyber Criminal and Additional Protocol to this Convention, as well as many other European documents. The paper analyses basic characteristics of computer criminal offences in Serbia and the degree of their compatibility with European standards.*

Key words: *computer abuse, european standards, crime, responsibility, sanction*

1. INTRODUCTION

When adopting the Convention on Cybercrime, ETS 188 of 23 November 2001 the Council of Europe tried to set up basis of a unique European system of substantial and procedural criminal law in the field of necessary cooperation of State members in fighting various forms and kinds of cyber crime. The Convention itself (Articles 2-13) stipulated five such crimes directed against security, entirety and availability of computer data and computer systems. Hereby, basis for some national legislations have been set more precisely in term of determining features and characteristics of individual computer crimes, their basic, minor and more severe forms, and prescribing criminal sanctions for their perpetrators (natural and legal persons).

An additional Protocol on criminalisation of acts of a racist and xenophobic nature committed through computer systems has been adopted with this Convention. In Articles 3-7 this Protocol stipulates criminal responsibility and penalties for abuse of computers in committing crimes out of racial and xenophobic impulses (motives).

By accepting the above mentioned Convention, and amending the Criminal Code of the Republic of Serbia in April 2003, numerous computer crimes have been introduced into the criminal and legal system in Chapter 16a, under title „Crimes against security of computer data“. The same crimes were introduced into the 2003 Criminal Code of Montenegro in Chapter 28 with the same title.

²⁶ Constitutional Court of Bosnia and Herzegovina, R. Dž. Čauševića 6/III, 71 000 Sarajevo, BH; Full Professor of the Faculty of Law of Banja Luka; Corresponding Member of the Academy of Sciences and Art of Bosnia and Herzegovina; Foreign Member of the Russian Academy of Natural Sciences; Active Member of the European Academy of Sciences and Arts

²⁷ Full Professor of the Faculty of Law, University of Niš, Trg kralja Aleksandra Ujedinitelja 11, 18 000 Niš, Srbija

2. GENERAL CHARACTERISTICS OF CRIMINAL AND LEGAL PROTECTION OF COMPUTER DATA

Object of protection of these crimes is security of computer data and systems, that is of computer network. The legislator uses for it the term computer crime. But, aside from this term, the legislation of the Republic of Serbia uses the term of hi-tech crime for crimes being systemized here.

Article 112 of the 2005 Criminal Code of the Republic of Serbia (hereinafter: the Criminal Code) determines the term and characteristics of: computer data, computer network, computer programme, computer virus, computer and computer system in term of object of attack in case of these crimes. The term computer crime understands all various shapes, kinds and forms of expression of illegal behaviors directed against security of computer and information systems as a whole or some of their parts, in different ways and with different means, with intention to gain the benefit for himself or the other person (of material or non-material nature) or to cause damage to other person. Characteristic of a computer crime is huge dynamics and extreme variety of its appearance forms and kinds and manifestation forms.

Perpetrators of these crimes are in a specific category of persons. They are mostly non-delinquents and socially adjustable, non-violent persons. They must have certain special, expert and practical knowledge and skills in the domain of information and computer techniques and technologies.

In practice, there is a greater or lesser time difference between the action taken and the moment when the consequences occur. These crimes are difficult to detect and even harder to prove, , they remain practically undiscovered for a long time, until the damaged person suffers harm in the domain of information and computer data or systems.

3. INDIVIDUAL COMPUTER CRIMES

1) Damaging computer data and programmes

Crime under Article 298 understands unauthorized deletion, alteration, damage, concealment or otherwise making unusable a computer data or programme.

Object of protection is security of computer data or computer programmes, and object of attack is computer data or programme.

Computer data is every representation of facts, information or concepts in a form suitable for processing in a computer system, including appropriate computer software necessary for the functioning of the computer system. A computer programme is a regulated set of orders serving to control computer operations, as well as solving specific tasks by means of a computer.

Consequence of this crime is violation of protected good – computer data or programme belonging to natural or legal persons in term of its usability or usefulness in general, or for a specific time, at a specific place or for specific purpose.

The perpetrator of the crime may be any person, and the guilt requires intent.

A fine or sentence of imprisonment of up to one year is prescribed for this crime. The court shall obligatory impose on the perpetrator a security measure of seizure of equipment and devices if the following two conditions are fulfilled: 1) the equipment and devices were used for commission of the crimes and 2) the equipment and devices are the property of the perpetrator.

This crime has two heavier forms. The first form of this crime exists if the action taken in the execution of the basic crime caused damage amounting to over RSD 450,000. The amount of material damage caused at the time of the commission of the crime in the amount established under the law constitutes a qualifying circumstance. A sentence of three months to three years of imprisonment is prescribed for this crime. The second form of this offence, for which a sentence of three months to five years of imprisonment is prescribed, exists if the action taken in the execution of the basic crime caused material damage amounting to over RSD 1.500.000.

2) Computer sabotage

This crime set out in Article 299 of the Criminal Code is committed by whoever enters, destroys, deletes, alters, damages, conceals or otherwise makes unusable computer data or programme or damages or destroys a computer or other device for electronic processing and transfer of data, with intent to prevent or considerably disrupt the procedure of electronic processing and transfer of data that are of importance for government authorities, public service, institution, enterprise or other entities.

The entry is entering or storing of a new, previously non-existing data or alteration of already existing computer or other data in the computer programme. Destroying is a complete and permanent destruction of a substance or form of a specific object so it cannot be used for any purpose or previous intention it was used for. Deletion is removing of computer data or programme in its entirety or a part of it, often by use of mechanical or other means. Alternation is partial change of existing data in term of its substance, place of its whereabouts or nature, or entering of other untrue data into computer system. Damage is temporary, partial or short-term disability of a computer data, programme, computer or other device to serve its regular purpose. Concealment is removing of data or object from the place where it was, the place known to everyone, and its transfer to another, mostly hidden place where other persons cannot be introduced to its content in general or for a certain period of time. Making unusable computer data or programme is any action which, to a greater or lesser extent, affects the usability of computer data or programme.

The perpetrator of the crime may be any person, and the guilt requires a direct intent characterized by mentioned intention. A sentence of imprisonment of six months to five years is prescribed for this offence.

3) Generating and introducing computer viruses

A specific crime set out in Article 300 of the Criminal Code consists of generating computer virus with intention of its introduction or its introduction into somebody else's computer or computer network.

Object of protection is security of a computer and computer network from viruses of different kinds and nature, and object of attack is a computer virus. That is a computer programme or some other set of commands introduced into the computer or computer network generated to

multiply itself and affect other programmes or data in the computer or computer network by adding of that programme or set of commands to one or more computer programmes or data.

Perpetrator of the crime may be any person, and in practice those are persons having special knowledge in the scope of computers and informatic technologies. As to the guilt a direct intent characterized by mentioned intention is necessary.

A fine or sentence of imprisonment of up to six months are prescribed for this crime. Equipment and devices for commission of this crime are obligatory seized when applying security measure of seizure of object.

Heavier form of this crime, for which a fine or sentence of imprisonment of up to two years is prescribed, exists if damage is caused by a virus generated in this way and introduced into somebody else's computer or computer network. For the existence of crime it is important that the perpetrator is aware and knows that, during the time of committing a crime – work on a computer, he thereby introduces a computer virus into somebody else's computer or computer network. Damage caused thereby may be of material or non-material character. It is important that a damage caused is a result of commission of a basic crime and that the perpetrator acts with negligence in relation to it.

4) Computer fraud

Computer fraud set out in Article 301 of the Criminal Code consists of entering incorrect data, failure to enter correct data or otherwise concealing or falsely representing data, thereby affecting the results of electronic processing and transfer of data with intent to acquire for himself or another unlawful material gain and thus causing material damage to another person.

Object of protection is securing of computer systems from entering incorrect and false data and trust in those systems.

Concealing is failure to enter a data by a person who is obliged to enter it into computer or a computer network. It may involve any data. False representing of computer data exists when false data (be it entirely or partially false) is represented, published, entered or used in the computer network. Both actions have to be taken in relation to the data which is, by its significance, nature, character and time of entering or use, capable of affecting the result (course and procedure) of electronic processing and transfer of data in computer system.

All the actions in term of commission of this crime have to be taken with certain intent – intent of the perpetrator to acquire for himself or another unlawful material gain. The perpetrator has to have that intent in time of commission of the crime, but does not have to be acquired in the concrete case. A result of this crime is violation causing material damage to another person.

Perpetrator of the crime may be any person, and as to the guilt a direct intent characterized by mentioned intention is necessary.

A fine or sentence of imprisonment of up to three years is prescribed for this crime.

Lighter form of crime exists when a perpetrator committed a crime – hiding or false presentation of data in the computer or computer network in a legally prescribed manner with intention to cause damage to another person, that is to cause damage to another natural or legal person.

Malicious intention of the perpetrator to cause material or non-material damage to another person is a privileged circumstance for which a fine or sentence of imprisonment of up to six months is prescribed under the law.

This crime has two heavier forms. The first one, for which a sentence of imprisonment of one to eight years of imprisonment is prescribed, exists when material gain (for perpetrator or another person) is acquired by committed basic crime in the amount of over RSD 450,000. The amount of acquired material gain is a qualifying circumstance. It has to be in cause-and-effect connection with commission of the crime. The second form of heavier crime exists if a perpetrator acquired illegal material gain by committing the crime in the amount of over RSD 1,500,000. Sentence of imprisonment of two to ten years is prescribed for this crime.

5) Unauthorised Access to Protected Computers, Computer Networks and Electronic Data Processing

This crime set out in Article 302 of the Criminal Code consists of accesses to a computer or computer network without authorisation, or accesses to electronic data processing without authorisation by breaching of protection measures.

Object of protection is security of a computer or computer network, or system of electronic data processing protected by a special technical and other protection measures.

Perpetrator of the crime may be any person having specific knowledge in the field of protection of computers or computer systems. As to the guilt a direct intent is necessary.

A fine or sentence of imprisonment of up to six months is prescribed for this crime.

This crime has two heavier forms. The first one exists in case of recording or use of computer data, obtained by accessing somebody else's computer or computer network or system of electronic data processing without authorization, given that it was done by breaching of protection measures. A fine or sentence of imprisonment for up to two years is prescribed for this crime. It has no significance which purpose or intention such obtained (recorded) computer data was used for. The second heavier form of this crime, for which a fine or sentence of imprisonment of up to three years is prescribed, exists if computer data (one or more) is obtained by accessing somebody else's computer or computer network or somebody else's system of electronic data processing without authorization by breaching protection measures, and is subsequently used which results in suspension or serious malfunction in electronic processing and transfer of data or of the network, or other serious consequences have occurred for another (natural or legal) person.

6) Preventing or Restricting Access to Public Computer Networks

A crime prescribed under Article 303 of the Criminal Code consists of preventing or hindering access to a public computer network without authorization.

Object of protection is public computer network and its free access to individually undefined number of persons. Motive of this incrimination is prevention of monopol for using of public computer network.

Prevention is unabling another person to access public computer network completely, permanently or for certain shorter period of time. It may be done by physical prevention, setting

of some requirements or obstacles, or requesting fulfillment of certain assumptions. Hindering means partial complication, making difficult or inaccessible, or conditioning another person to access or use public computer network without disturbances and freely, at its own discretion.

Perpetrator of the crime may be any person, and as to the guilt a direct intent is necessary.

A fine or sentence of imprisonment of up to one year is prescribed for this crime.

Heavier form of this crime, for which a sentence of imprisonment for up to three years is prescribed, exists if the crime is committed by an official in discharge of duty.

7) Unauthorised Use of Computer or Computer Networks

A crime prescribed under Article 304 of the Criminal Code consists of use of computer services or computer networks without authorization and with intent to acquire unlawful material gain for himself or another person.

Object of protection is legality and conscientiousness in use of computer systems – services or networks, of all forms of abuse and negligence.

There has to be an intent of the perpetrator at a time of commission of the crime, but it does not have to be realized in the concrete case.

A perpetrator of crime may be any person, and as to the guilt a direct intent characterized by mentioned intent is necessary.

A fine or sentence of imprisonment for up to three months is prescribed for this crime.

8) Manufacture, Procurement and Provision to others Means for the Committing Criminal Offences against the Security of Computer Data

This is a new computer crime (Article 304a of the Criminal Code) introduced into the Criminal Code by novelty from 2009. Actually, these are punishable preparation acts for commission of a computer crime. The crime itself consists of possession, manufacture, procurement, sale or giving to another person for his use of computer, computer system, computer data or programme intended for committing of crimes against security of computer data. Prescribed sentence for this crime is imprisonment for six months to three years, while the objects of commission of the crime shall be seized from the perpetrator by use of a special security measure of seizure of object.

Object of protection in this case is also a security of computer systems and data, which is applied in a specific manner – just before the commission of a crime.

4. CONCLUSION

When accepting provisions of numerous relevant European documents finally inaugurated by adoption of the Convention on Cyber Criminal, state members of the Council of Europe created in their national legislations legal basis for introduction of a specific kind of „computer“ crimes, with the aim to provide performance of various tasks and services by use of a computer with confidence and in an efficient, quality, lawful and secure manner. Accordingly, in Republic of

Serbia many crimes of this kind have been introduced into its criminal and legal system and the legislator, having respect for established European standards, provided criminal sanctions for some forms and kinds of prescribed computer crimes. Thereby, with appropriate process requirements (establishing of special organs for fighting hi-tech crime within the police, public prosecution and the court), basis for efficient fight of our state with this modern forms and kinds of criminality knowing no boundaries between the states have been created.

LITERATURE

- [1] Brvar, B. (1982) *Pojavne oblike zlorabe računalnika*, Revija za kriminalistiko in kriminologijo, Ljubljana, broj 2.
- [2] Vodinec, V. (1990) *Metodika otkrivanja, razjašnjenja i dokazivanja računarskog kriminaliteta*, Priručnik, Zagreb, broj 4.
- [3] Jovašević, D. (2003) *Komentar Krivičnog zakona Republike Srbije sa sudskom praksom*, Beograd.
- [4] Đokić, Z., Živanović, S. (2005) *Kompjuterski kriminal kao obeležje progresivnog kriminaliteta*, Zbornik radova, Kazneno zakonodavstvo – progresivna ili regresivna rešenja, Beograd.
- [5] Jovašević, D. (2003) *Krivičnopravna zaštita bezbednosti računarskih podataka*, Pravni informator, Beograd, broj 6.
- [6] Jovašević, D. (1998) *Obelježja kompjuterskog kriminaliteta*, Pravni informator, Beograd, broj 3.
- [7] Jovašević, D. (2017) *Krivično pravo*, Posebni dio, Beograd.
- [8] Kareklas, S. E. (2009) *Priručnik za krivično pravo Evropske unije*, Beograd.
- [9] Kitarović, N. (1998) *Kompjuterski kriminalitet*, Bilten sudske prakse Vrhovnog suda Srbije, Beograd, broj 2-3.
- [10] Petrović, S. (1994) *Kompjuterski kriminalitet*, Bezbjednost, Beograd, broj 1.

IMPLEMENTATION ALBERTO DIFFUSO MODEL FOR SUSTAINABLE TOURIST DEVELOPMENT ON ELAPHITI ISLANDS IN CROATIA²⁸

Sanja Tišma²⁹
Anamarija Farkaš³⁰
Anamarija Pisarović³¹

Abstract: *Alberto Diffuso model in integrated tourism development is based on innovative approach in enhancing tourism activities in rural areas by restoring valuable cultural and historical heritage. With fostering touristic revival of the rural areas, this model also allows achievement of multifold economic, social and environmental benefits for local communities.*

The scope of this paper is to present possibility of implementing Alberto Diffuso model in the area of three populated Elaphiti islands – Koločep, Lopud and Šipan in Croatia. The methodological framework includes extensive desk analysis of touristic potentials on the Elaphiti islands and in-depth interviews conducted with the local stakeholders. SWOT analysis summarizes and highlights key internal strengths and weaknesses and external threats and opportunities for applying Alberto Diffuso model on the Elaphiti islands.

The main findings of desk research and conducted interviews have shown that the Elaphiti islands possess most of the necessary prerequisites for implementing the model, i.e. rich but underutilized natural, historical and cultural heritage, a reasonable number of accommodation capacities and long touristic tradition.

The paper summarized solutions and proposals list of improvements in order to prolong tourism season and attract wider groups of tourists. Improvements are slow due to insufficient educational activities, financial resources and low cooperation among the stakeholders. Successful implementation of Alberto Diffuso model would inevitably require changes of the current system in terms that systematic and coordinated cooperation will have to be set up among the relevant stakeholders on all the levels of governance. International experience shows that financial and institutional support from the national levels of governance is crucial for sustainability of the model.

Key words: *Alberto Diffuso hotels, Elaphiti islands, sustainable tourism development, SWOT analysis*

1. INTRODUCTION

The purpose of the paper is to examine possibility of implementing Alberto Diffuso (AD) model in the area of three populated Elaphiti islands – Koločep, Lopud and Šipan with a rich history that can be seen in sacral and secular architecture.

²⁸ This paper is part of EU project “Sustainable tourist development-From Herzegovina trails to Dubrovnik Elaphiti islands”

²⁹ Institute for Development and International Relations - IRMO, Vukotinovićeva 2, 10000 Zagreb, Croatia

³⁰ Institute for Development and International Relations - IRMO, Vukotinovićeva 2, 10000 Zagreb, Croatia

³¹ Institute for Development and International Relations - IRMO, Vukotinovićeva 2, 10000 Zagreb, Croatia

The AD model has been firstly developed in the 1980s in Carnia in the Italian region Friuli Venezia Giulia as an innovative approach in enhancing tourism activities in rural areas by restoring valuable cultural and historical heritage.

The AD model is a diffuse hotel that operates on the basis of a network of accommodation facilities built in the vicinity of historic center of a rural area. The central point includes the main building with the reception desk, concierge and other related services. The diffuse hotel is partly a house and partly a hotel. The main advantages of diffuse hotels are respecting culture and authenticity, environment and creating experience with local people [1]. It offers tourists the opportunity to become temporary residents of the rural area by taking part in the local community social life and enjoying the comfort of the standard hotel service at the same time. Consequently, the local community benefits in economic, social and environmental way.

Positive effects of AD model have also been recognized by prominent international organizations (2) which highlighted that the model is an important example of rural tourism while United Nations' Development Programme (UNDP) has granted it with the best innovation prize in 2008. In the context of European Union (EU), with its multifold benefits the model is also valuable in terms of supporting the Union's goals for smart, sustainable and inclusive growth.

In Croatia, there are real but insufficiently explored possibilities of implementation and development of cultural heritage content in terms of sustainable tourism development. It is therefore necessary to determine the elements that influence the possibility of inclusion of cultural heritage in tourism flows in order for effective marketing management of cultural heritage to influence the overall tourism development in certain tourist destinations [3].

Sanja Tišma, Scientific Advisor, obtained the Ph.D. in Economics at the Faculty of Economics, University of Zagreb with a thesis "Methodological appropriateness and practical use of the method of cost-benefit analysis in eco-forestry economy of the Republic of Croatia" in 1997. Since 1989 she has been working in the Institute for Development and International Relations (IRMO). Since 2001 she has been the Head of the Resource Economics, Environmental Policy and Regional Development Department and in 2009 was appointed the Director of IRMO. Her research interests include sustainable development, environmental and nature protection, good governance and public administration. Her scientific bibliography consists of some fifty scientific papers published in Croatian and international journals, five authored books and three edited books. In the last twenty years she coordinated or participated in international research projects for the European Commission, the World Bank, UNDP, etc. in Croatia and abroad. She is also the evaluator of development programs and projects. She is the lecturer at the post graduate study "Economy of the European Union", Faculty of Economics, University of Zagreb, subject "Regional development and project management" and at the Business Academy Experta, Zagreb, study: "Project Manager". She is the member of the Croatian department of the European Association for Regional Research, European Association of Development Research and Training Institutes – EADI and International Society for Ecological Economics – ISEE. Since 2009 she has been a member of the New York Academy of Sciences, and since 2010 a member of the Scientific Council for Transport and Environment and the Scientific Council for Peace and Human Rights of the Croatian Academy of Sciences and Arts.



In other Mediterranean countries, such as Portugal the number of diffuse hotels in the last decade increased for almost 50% [4].

Critical part of touristic offer on islands is accommodation. This type of hotel suits a new typology of tourists, who are more prone to get into contact with the local residents than with fellow tourist and who love more native hospitality. Diffuse hotel is thought to represent a special form for the evaluation of historical centers or provinces of historical and architectonic interests [5]. Traditional houses, that need to be restored could be renovated into accommodation spaces. Since each building is too small to function like a hotel in itself, a collection of renovated buildings could collectively achieve the capacity of a hotel [6].

2. METHODOLOGY

The paper emerged from an extensive desk research of relevant sources (statistical databases, tourism board information as well as previously conducted scientific research) of touristic potentials on the Elaphiti islands and in-depth interviews conducted with the relevant stakeholders from tourist sector.

The ancient Greeks named the islands (“elaphos” means deer) and it is believed that they were the first inhabitants. Koločep, Lopud and Šipán are the biggest and due to tourism intensity and economic activity most developed islands of the Elaphiti region. They are as well inhabited throughout the year.

The islands are under the city of Dubrovnik jurisdiction and Dubrovnik Neretva County. The total area covers 90 km², of which 27 km² relates to islands. The main characteristic of the Elaphiti region is insular area rich in Mediterranean and subtropical vegetation, however diminished with the strong urban influence of the city of Dubrovnik.

SWOT analysis summarizes all benefits and vulnerability for applying the AD model on the Elaphiti islands. It is a helpful tool which stresses the existing strengths and raises awareness of threats and opportunities in order to eliminate or minimize threats and weaknesses. For the

Anamarija Pisarović

graduated in 1993 from the University of Zagreb, Natural Sciences Faculty at the Department for Ecology-Biology. In 1996 she obtained a Master's degree in Oceanology, Marine Biology



from the University of Zagreb, Faculty of Sciences. In 2001 Anamarija Pisarović obtained PhD in Biology-Ecology from the University of Zagreb, Faculty of Agriculture. She spent two years at the Institute "Ruđer Bošković", Center for Marine Research in Rovinj, Croatia working on the international project "Effect of anoxia on benthic marine systems" in collaboration with the University of Vienna. She gained broad fieldwork experience in benthos protection and ecological hotspots of the northern Adriatic Sea working in the Laboratory for ecology and benthos systematics. The same year she joined UNIDO, Industrial Sectors and Environmental Division in Vienna, as an intern for three months where she experienced teamwork in multicultural environment. Since 1997 Anamarija Pisarović has been working as researcher at the Institute for Development and International Relations in the Department for Resource Economics, Environmental Protection and Regional Development and her activities are focused on ecology, environmental policy and environmental engineering. Since then she has been working on several international projects like "Investigation of the Effectiveness of Special Natural Substrates on the Improvement of Degraded Soils in Tyrol Austria", "Karst Ecosystem Conservation Network", "European Forest Ecosystem Research Network EFERN" as well as on national project "Ecological and Economical Utilization of the Natural Mineral Zeolite in the Environmental Protection". She is the author of scientific papers and studies from multidisciplinary fields. In her professional career she attended various international conferences and seminars. She fluently speaks English, German and Italian language.

purpose of SWOT analyses the internal environment representing strength and weaknesses of the current tourist offer and external environment representing threats and opportunities for further development of tourist offer have been examined.

3. RESULTS AND DISCUSSION

The results of desk research and conducted interviews have shown that the Elaphiti islands possess most of the necessary prerequisites for implementing the model, i.e. rich but underutilized natural, historical and cultural heritage, a reasonable number of accommodation capacities and long touristic tradition (Table 1).

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Willingness of the local tourist stakeholders to participate in implementation of AD model 	<ul style="list-style-type: none"> • Outdated basic infrastructure (sewage and electricity supply systems)
<ul style="list-style-type: none"> • Elaphiti islands fulfill necessary prerequisites for implementing the model (natural, cultural and historical heritage, accommodation facilities and accompanying services etc.) 	<ul style="list-style-type: none"> • Undiversified tourist supply disables creation of a unique tourist product that would contribute to de-seasoning of the tourism
<ul style="list-style-type: none"> • Growing tourist traffic improves recognizability of the Elaphiti islands as an attractive touristic destination 	<ul style="list-style-type: none"> • Complicated and unsolved ownership structure of the land parcels
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • Rising demand on the global touristic market for touristic products and services based on network of local resources 	<ul style="list-style-type: none"> • Cross-border marine pollution
<ul style="list-style-type: none"> • Possibility to use international financial resources for implementation of sustainable tourism projects (e.g. EU funds) 	<ul style="list-style-type: none"> • Lack of financial support to local tourist projects from the national budget
<ul style="list-style-type: none"> • Replication of the good tourism development model implemented by Italy 	<ul style="list-style-type: none"> • Lack of cooperation and communication among the decision makers on all the levels of governance
<ul style="list-style-type: none"> • Developing tourism policy based on joint participation and partnership of all the relevant stakeholders to allow sustainability and ownership 	

Table 1. SWOT analysis

Identification of the following strengths of the current tourist offer on the Elaphiti islands is given hereafter. The abundant natural, cultural and historical heritage is the basis of touristic development of the Elaphiti islands. There are more than one hundred different protected cultural properties on the islands and six natural sites that are either protected or proposed for protection [7]. Tradition of producing local agricultural and food products (e.g. olive oil, wine, liquors, citrus etc.) represents a valuable supplement of the tourist offer and gives ability to develop a unique tourist product. Accommodation facilities are diverse and their quality is being continually adapted to best satisfy tourists' requirements. The accommodation facilities range from smaller family owned facilities to high quality hotels such as Lafodia hotel resort,

Kalamota island resort etc. There is a rising trend of tourist traffic on all the three islands, especially from Norway, France, UK, Germany, USA, which proves that Elaphiti islands are becoming a recognized tourist destination on the world tourist market.

Analysis of the current state of tourism development on the islands has also revealed certain weaknesses which present obstacles in improving current tourist offer on the Elaphiti islands. Finding solutions for these weaknesses is a prerequisite for developing and implementing AD model on the islands. The key identified limiting factors in improving tourism on the Elaphiti islands are: outdated basic infrastructure, which mainly includes obsolete sewage system and electric power system which poses limitation for tourism related investment activities. Furthermore, the existing touristic contents are disconnected and incoherent which causes undiversified tourist offer and lack of a unique tourist product due to insufficient knowledge and cooperation among the key tourist stakeholders. Implementing AD model would thus be useful in bringing the key local tourist stakeholders together - accommodation facilities' owners, travel agencies, agricultural producers, associations and local tourism policy decision makers. Stronger cooperation and exchange of knowledge would be beneficial in terms of developing a sustainable and unique touristic product that would help in overcoming seasonality as the key feature of tourism on the Elaphiti islands; unsolved ownership of the land parcels is hampering local stakeholders to expand their tourism activities. Thus, the AD may be conceived as a tool to prevent depopulation of small rural towns and recover abandoned villages [8].

Tourism is a sector that is strongly dependent on external environment. For the Elaphiti islands, most common threats from the external environment include: Cross-border marine waste flows from neighboring countries such as Albania and Montenegro; Insufficient financial support from decision makers on the national level; Lack of vertical and horizontal cooperation in the tourism sector etc.

Threats could be minimized or avoided by exploiting opportunities which arise from the external environment. Replicating AD model as a successful Italian practice is already an opportunity itself. Adequately utilized opportunities from the external environment that could further support implementation of the model are related to: Increase in demand on the global tourist market for authentic and unique touristic experience based on a network of local tourist supply; Possibility to use EU and other international funding resources which support sustainable tourism development and serve as a solution to the problem of stringent public budgets; Information and experience exchange with Italian tourism sector stakeholders in implementing AD model and replicating the model in Croatia; Participatory and holistic approach in developing and delivering public policies which ensures creation of tourism policy adjusted to local specificities and its implementation in partnership with all the relevant local stakeholders.

The umbrella strategic document for tourism development in Croatia is the National Tourism Development Strategy for the period until 2020 (NN 55/13) [9] that predicts diffuse hotels as a form of tourist offer in Croatia. [10] found significant discrepancy between the initial idea and aims of diffuse and integrated hotels and the actual implementation in Croatian tourism practice in terms of number and management characteristics of registered diffuse and integrated hotels. Namely, the key needs in the area of the family accommodation include necessity to improve its quality and setting up preconditions to transform family accommodation in various forms of collective accommodation facilities, e.g. diffuse hotels, integrated hotels). For the purpose of achieving set objectives the Government has proposed development and implementation of six specific action programmes in line with the identified strategic touristic products for tourism

development in Croatia. One of the proposed action programmes is the National programme for improving family accommodation [11] which provides detailed guidelines and activities for enabling transformation of family accommodation facilities towards diffuse hotels. Necessity to put more efforts in improving quality of the family accommodation has also been recognized and incorporated in the Tourism Development Strategy of Dubrovnik Neretva County for the period from 2012 until 2022 [12]. According to [13] it is visible that the AD model can be considered and accepted as a suitable form of accommodation facility in the future tourism development in the area of Dubrovnik-Neretva County. Moreover, the AD may be conceived.

Changes of the relevant national legal documents have also been made in order to support development of AD model. In 2014, Bylaw on classification, categorization and special standards of catering facilities and hotels [14] has been amended by defining necessary preconditions for setting up a diffuse hotel.

4. CONCLUSIONS

On the basis of the insight into the current tourism offer on the Elaphiti islands the following arguments for establishment of AD model arise:

- Undiversified tourism offer leads to uniform tourist products and services. There is no full exploitation of abundant touristic potentials on the Elaphiti islands which is a cause of seasonality of tourism and “sea and sun” being the key drivers of the tourist traffic.
- Comparative advantages of the islands are underutilized. Tangible and intangible cultural heritage, traditional and unique crafts and production of indigenous agricultural and food products is insufficiently incorporated in the tourism offer.
- Low level of cooperation among the providers of tourist products and services on the one side and tourism policy decision makers on the other one, hinders understanding and creation of a unique and recognizable tourist products with added value.
- Lack of entrepreneurial activity creates unfavorable socioeconomic conditions on the islands which manifest themselves in insufficient level of quality of life, lack of jobs and negative demographic trends (depopulation, demographic aging, deagrarianization, low birth rates etc.). Creating favorable business environment is a prerequisite for improving tourist offer, quality of life and strengthening revenues generated from tourism and tourism supporting activities.
- Rising competition on the side of tourism market supply poses an imperative for constant improvements in the quality and competitiveness of tourism offer.

In the short run, Albergo Diffuso model has been proven to spur innovation, generate added value and bring novelty to the current tourism offer while in the long run it generates wider socioeconomic benefits for the local community (e.g. new jobs, increase of revenues, better life quality, halting of negative demographic trends). It does not require significant investments, since it is based on utilization of already existing local capacities and Its implementation poses no threat to environment, but contributes to its preservation as it relies on sustainable use of natural heritage. In the longer run, expected increase in tourist traffic will also be beneficial for local public budgets as it will generate additional revenues from fees, taxes and charges.

5. REFERENCES:

- [1] Dragičević, M., Letunić, S. (2015) *Procedia Economics and Finance*, 32, Elsevier, pp. 437-441.
- [2] OECD (2009). *OECD Rural Policy Reviews: Italy*. Paris: Organization for Economic Cooperation and Development
- [3] Demonja, D., Gredičak, T. (2015) *Eastern European Countryside*, The Journal of Nicolaus Copernicus University, De Gruyter, Torun, pp.137-151.
- [4] Cavuta, G., di Matteo, D. (2013) *A Case Study of Tourism Region, Economic Recession*, Loffredo Editore University Press, 1, n. 6, pp. 105-130.
- [5] Licaj, B. (2014) *Online International Interdisciplinary Research Journal* 4, n. 3., Maharashtra, India, pp. 84-91.
- [6] Presenza, A., Yucelen, M., Camillo, A. (2015) XXVII Convegno annuale di Sinergie, Conference Proceeding, Università degli Studi del Molise-sede di Termoli, pp. 457-470.
- [7] Registar kulturnih dobara RH: <http://www.min-kulture.hr/default.aspx?id=31>
- [8] De Montis, A., Serra, V., Ledda, A., Ganciu, A., (2014) *Recovery of rural centres and "Albergo Diffuso": a case study in Sardinia, Italy*. Proceedings Int.Conf.of Agriculture and Engineering, Zuerich, 06.-10.07.2014. – www.eurageng
- [9] Ministry of Tourism of the Republic of Croatia (2013). *Tourism Development Strategy of the Republic of Croatia until 2020*, NN (55/13), available at: <http://www.mint.hr/UserDocsImages/130426-Strategija-turizam-2020.pdf>
- [10] Đurkin, J., Kolarić, M. (2016) *Diffuse and integrated hotels as innovative form of accommodation: Review of the concept and its implementation in Croatia*. Tourism and Hospitality Industry 2016, Congress Proceedings, pp. 26-38.
- [11] Institute for Tourism (2013). *National Programme for improving family accommodation*, available at: http://www.iztg.hr/UserFiles/file/novosti/2013/Akcijски-plan_NACIONALNI-PROGRAM-UNAPRE%20ENJA-OBITELJSKOG-SMJE%20TAJA.pdf
- [12] Dubrovnik Neretva County, *Tourism Development Strategy 2012-2022*; 2013, available at: http://www.edubrovnik.org/01_SRTDNZ_za_WEB-1.pdf
- [13] Dragičević, M., Pisarović, A., Tišma, S., Jurinić, M. (2015) *Diffuse hotels as innovative form of accommodation facilities*. SGEM 2015 Conference Proceedings, pp.187-194.
- [14] *Bylaw on classification, categorization and special standards of catering facilities and hotels* (2014) OG 33/14. Available at: https://narodne-novine.nn.hr/clanci/sluzbeni/2014_03_33_602.html

THE ROLE AND IMPORTANCE OF LOGISTICS ON THE DEVELOPMENT OF TOURIST DESTINATIONS IN THE REPUBLIC OF CROATIA

Željko Sudarić³²
Katarina Vučko³³
Marko Eljuga³⁴

Abstract: *Today, tourism as a quickly growing trend has become ever more rapidly evolving because it connects people without any prejudices and it demands that the other branches that make it a whole shall take a large leap forward in their development and improvements. In recent times, logistics with its development in the field of service delivery can offer a better results, mostly due to the rapid flow and exchange of information's, which at the same time and every year leads to a faster adaptation to even better informed guests. The development of the technology introduces changes in logistics, and in tourism plays an important role when it comes to location, and it also must have functional characteristics, together with the well - organized logistic chain. Under the pressure of ever - increasing competition and the struggle for the marketplace niche, the providers enter into vertical and horizontal integrations, what enables them to compete on the grounds of both price and the quality of given services. Namely, in tourism the price is not so prominent such as the quality that is always and perpetually attracting, but also retains guests. When logistics was applied to a particular place, in a situation where many people are involved, for example, in the area of a tourist destination that is very important when the prices are being formed, but also offers a variety of offers and quality of services, then it enables optimal organization of all flow of activities in the given destination. Because of the dynamics of logistics in tourism, it has to be approached to it on a special way that will satisfy both the providers and the consumers. In this paper, we will present how the logistics acquire the great importance for the development of a tourist destination.*

Key words: *Tourism, logistics, economic development*

1. INTRODUCTION

This paper will show you goals and importance of logistics on the development of tourism in Republic of Croatia. First part contains definition of tourism and logistics which will permeate through whole paper and the main goals that define logistical dimension of tourism will be explained. Second part summarizes essential parts of organization structure without whom logistics can't satisfy the needs of today's increasingly demanding tourism. Third and the most important part of this paper speaks about destination management, primarily about its definition and what it can do in the present time and what are the possibilities for further development because today this kind of innovations have an increasingly important role because of the need to satisfy all the activities that are provided to guests. Forth part is about traffic, its evolution in future trough different technologies demanded by today's tourists. Fifth

³² College of Applied Sciences "Lavoslav Ružička, Vukovar – Croatia

³³ College of Applied Sciences "Lavoslav Ružička, Vukovar – Croatia

³⁴ Hongoldonia Osijek, Vukovarska 432a, Osijek – Croatia

part deals with the topic of the most common goals in our destinations, sets out the same goals and all the instruments we need in order to achieve them.

2. LOGISTIC GOALS IN TOURISM

Logistics is an activity that deals with overcoming space and time with the least cost. Logistics is a science discipline that deals with finding methods of optimizing streams of material, goods, information, energy (and people) with the aim of achieving the greatest economic effect. In the realization of its mission, logistic uses scientific instruments and scientific knowledge of numerous scientific disciplines so it should be considered as an interdisciplinary and multidisciplinary area [1]. Logistic in tourism is a space-based and time-considered management to provide the best possible service at all destination to all guests at the lowest possible cost of the service. The logistic goal is to achieve the economic effect that will satisfy both the bidder and the consumer in order to achieve this aligns the flows of people who, with well-analyzed information, procure and prepare the materials to be provided by particular service. Logistic in tourism is the spatial-time transformation of materials, people, information, energy, knowledge, capital, waste (and water) with the aim of achieving quality tourism services at minimal cost. Logistic objectives in tourism are optimization of the flow of goods, people, information, energy, knowledge, capital, waste (and water) to produce tourist service to the satisfaction of the user [2].

Željko Sudarić holds a PhD from the scientific field of Economy, branch management and he's senior lecturer at the Lavoslav Ružička Polytechnic in Vukovar. Sudarić serves as a head of a Student business incubator Vukovar; also he is the author of several scientific and professional papers at International Conferences, President of the Publishing Committee, and editor of the textbooks Basics of the Labour Law (Osnove radnog prava) and Administrative Law - General Part (Upravno pravo – opći dio). He is the member of the program and scientific board of the international conferences and several times he has been the member of the organizing committee of the International Conferences on "The Development of Public Administration" in Vukovar. He has successfully completed several professional developments that were related to the finance and marketing and he also participated in the implementation of EU projects related to employability and strengthening of social dialogue. He broadened his expert knowledge in the course of ten years of accumulated working experience in practice



Today, manufacturers are increasingly relying on a good marketing strategy, and the goal they want to achieve is reducing production costs by pre-planned resource use. That is why logistics in first place deals with and her goal is optimizing the flows of goods, which are semi-products, the materials needed for production, but also the information that is key to at the right time to come to the key product of the tourist market that is constantly being transmission. All of these harmonized goods should result in a product and service at the lowest cost. Price Role is one of the most important roles when choosing a way to choose a product or a destination, but in tourism, it also takes into account other elements such as quality at a long-term level to satisfy the consumer and provide confidence in the bidders. Business logistic is logistics is applied to the company, which is mostly related to the production and sales function, which is the backbone of products, so our caterers increasingly have their products to tourists and makes them recognizable, but they also have good business logistics which at any moment offers the expansion in this area, as well as good advertising for potential guests.

3. LOGISTIC IN TOURIST ORGANIZATION

Due to the complexity and dynamism of appearance, the openness to the environment and the large spatial coverage, tourism is advisable to explore systematically. Provided the increasing application of logistical principles in tourism, regarding the attempts to organize tourist companies on the basis of integrated logistics, the structure of the tourist-logistics system would include [2] :

- support subsystems,
- touristic-agency subsystems,
- traffic subsystems
- subsystems of tourist attractions,
- subsystem of organization and destination management.

Development strategies are implemented by appropriate decisions. Deciding as a process of selecting the optimal approach and the process for achieving a business goal under certain business conditions is based on decision-making models. The decision-making process seeks to objectify through the use of operational research methods, and subjective methods are retained to the extent that it represents a qualitative contribution to the decision-making process or if the objective methods do not have an answer to the problem [2].

Logistics is applied in the destination:

- In the organization of flows,
- in the establishment of supply chains,
- in organizing logistic networks,
- in the organizational structures of business systems from the function of logistics to integral logistics, and some tourist products are not existible without logistic (tourism event) [2].

In each function of destination management there is also logistics :

- Planning - takes into account the spatial distribution of tourist and other facilities according to the criteria of rational use of the available space and the optimal distance between the expected logistic flows in the destination;
- Organizing - the organizational structure of the destination is based on destination management, organizations and companies that through the logistics network are connected with business systems to the production and placement of tourist services;
- Control - is reduced to the quality of the tourism product, which is at the same time the goal of logistics [2]

4. DESTINATION MANAGMENT

Destination management is a growing trend that is occurring more and more in modern tourism, as tourists are increasingly attracting attractive tourist destinations. Permanent mobility of tourists demands constant attention with all the elements of planning and organization. In addition to the activities of destination management organizations in co-ordination and management of various tourist system entities, successful destination management also includes

Katarina Vučko is a student of the second year of undergraduate study at the College of applied sciences Lavoslav Ružička in Vukovar. Secondary school education ended in May 2016 in Zagreb with logistics and freightage.



the activities of destination management companies in the development of complex tourism products which include additional reasons for the arrival of tourists, especially in low demand periods [3] for example business tourism in the field of team building or conference. Because of the complexity of the tourist experience with tourist orientation most tourist products become the experience of every tourist. Today, due to the large exposure to changes in the new attractive tourist destinations with modern tourism, destination management is trying to meet all tourist needs, but in a special way.

The needs of modern tourist demand are constantly changing, and all this is accompanied by the technology and the social awareness of those who come because they are more informed and are coming up with some information about the experience there. To the growing competition and to the increasingly demanding guests, the tourist offers makers try to respond by creating new, innovative and interesting tourist products. In order for them to be successful, all aspects of the offer need to be adapted to the demands of new tourists, with the main goal being the destination in which the offer is created and consumed, leaving a lasting impression that tourists will pass on to the review. Therefore, it is necessary to establish a quality destination management based on the cooperation of all those who are in the public and private sector destination and in a different way enable and contribute to the creation of an attractive tourist experience of tourists.



Figure 1: Tourist destination Source: Mrnjavac, E. (2010): *Logistic Management in Tourism, Faculty of Tourism Management and catering, Opatija*, p. 240th

Holders of Destination Management are organizations that through their activities create the basic preconditions for product quality while the destination management of companies form these products and concrete forms on the market. It is important to know contemporary trends, to recognize the possibilities and to respond to the demands of tourists, to ensure the quality and tangibility (accommodation, catering, content, etc.) and intangible (ambience, decoration, destination ambience) elements that make this product / experience successful [4].

5. THE INTERDEPENDENCE OF TRANSPORT AND TOURISM IN THE REPUBLIC OF CROATIA

Tourist destinations require good traffic connectivity, this is the basic way some destination will be better or worse utilized, and logistics streams optimized. The comfort and the price of the trip with the traffic link are two key items because without a tourist experience during the trip the tourists will not get the feeling that this is an attractive offer they want, so it is desirable along the roads leading to the destination to advertise the historical contents, nature, etc. Today's fast traffic development makes it possible to get to places far from cities, so the tourist product becomes places that are untouched by the hand of the modern world. Traffic development also carries negative elements, such as negative environmental impacts can be a big problem, but more recently, more is mentioned and applied in practice, sustainable tourism development, which seeks to mitigate the negative side of tourism development. In the Republic of Croatia, traffic accessibility to the tourist destinations

on the coast is very good, as tourists rely heavily on the use of their own or hired vehicles, which can even be translated into islands. Locations where the facilities are visited by a large number of people in some targeted areas of the day are crowded with a large number of cars, and there is a lack of parking spaces, and narrow streets become overcrowded, creating problems with trucks supplying the necessary food and stuff. Other transport branches such as the arrival of tourists by rail or aircraft are not so much represented, but by building a new railway infrastructure, it is trying to introduce more lines and speed up the train's journey, as well as building new but smaller airports trying to improve air travel, so airports are being built in the islands and major cities to reduce the interruption because it greatly affects the decision of tourists to travel. The traffic logistic subsystem in the tourism system is reflected in the optimization of goods and tourists. Managing events in the area of a tourist destination is a subsystem that is the key to attracting tourists. Optimization of logistics flow enables tourists to try out all the offers of this tourist destination. The assumption for the functional linkage of all those who participate in tourism offer as a unique product is the linkage of all logistic flows in that area [5].

6. THE MOST COMMON GOALS OF TOURISM DEVELOPMENT AND LOGISTICS AT DESTINATIONS IN THE REPUBLIC OF CROATIA

Tourism has an increasingly important role in the Croatian economy, and its further growth depends on the coordinated and systematic development and adaptation of products to contemporary market trends, where various forms of tourism of special interest are increasingly important. Destination is the reason for traveling, and tourist goods in it cause the need. At the same time, because of the irresistible nature of tourist spending, it is bought where the vacation

Marko Eljuga received a master's degree in science at the Faculty of Economics in Osijek. For over 15 years he worked at Belje d.d., where he visited almost all business processes within the company, while he was working on various functions such as: plan analyst, salesman manager, commercial manager, co-operation manager and, ultimately, assistant director for economic and financial affairs. He is currently employed in private company Hongoldonia d.o.o. Osijek as sales manager. Regarding his education, he attended various professional trainings and seminars ("Effective Negotiation", "Team Leadership", "Organizational Abilities", "Situational Leadership" and "Business English - V Degree"). He speaks and writes in English actively. In a scientific career, he has shown interest in the methodological aspects of scientific-research work.



offer is made. The destination comes under considerable pressure from the guests, focusing both on time and on specific locations. For this reason, careful management and planning of the destination are very important for an acceptable tourist offer [6]. The level of satisfaction with some of the elements of the offer is one of the basic features of the stay of tourists in the destination. It was evaluated by direct assessment of individual elements, and by highlighting those elements that tourists are generally important in making a decision to choose a vacation destination. Tourists are most pleased with the beauty of nature and landscape, and the convenience of family vacations. The worst tourists are satisfied with the elements related to the contents of the destination, such as: variety of cultural events, shopping opportunities, entertainment, local transport, marking of sights, sports facilities and the like. For these reasons, well-graded elements are trying to be merged, thus striving to please tourists and increase the number of arrivals. Logistics in its development is increasingly utilizing new technology, hence its development through computerization, provides a better flow of information that is one of the key elements for logistics to fulfill its task and to ensure everything necessary to unquestionably provide services in tourism, the development of other branches such as the traffic ensures the accuracy of logistics implementation to the destination, so we can say that the development of all the elements that are connected and used in logistics depend on the improvement of logistics itself. The tourist offer includes a variety of services for catering, transportation, tourist mediation, shops and many other activities. As such, it can contribute to the country's economic development, particularly in terms of increasing domestic employment. That is why tourism goals are largely based on domestic production that is more competitive and provides tourists with certain certainty that the product is fresh and that there is no doubt about its production and its use. By increasing the quality of accommodation facilities and expanding the supply within accommodation facilities, it is possible to increase the utilization of off-season capacity and increase the consumption of tourists. This can be influenced by various regulations and incentives. In order to increase the number of capacity, it is necessary to renovate destroyed and devastated tourist facilities first, and to overhaul existing abandoned buildings or build new ones instead of outdated facilities in order to optimally exploit the available space. In order to raise the quality of hotel facilities, it is necessary to encourage the construction of new hotels in the category of 4 or 5 stars. It is also possible to encourage hotel owners to improve hotel quality while renovating the hotel. Camps and private accommodation should not be missed by the quality of hotel deals, so it is important that the quality of this offer continues to increase [7].

7. CONCLUSION

Modern lifestyle also has problems in all areas, including tourism, logistics makes it possible to supply tourist destinations with all the necessary means to provide quality services, so logistics if it is well-organized and has a good composition of people and materials and the flow of information that will transform the best offer option at a given time can offer a lot, and can be very high quality and unique, all at a minimum cost. New branches dealing with tourism and its destinations, such as destination management, can greatly improve the destination and offer satisfaction to both the bidders and the end user who will consume it, but also to advertise this destination for future prospective guests looking for something new and innovative. Croatia's traffic development in overcoming the obstacles to the travel of tourists to their destination is increasingly minimized by providing a variety of transport services, as well as good transport infrastructure, which is built or is in the process of being constructed, as is the case with rail traffic. Tourism today has many obstacles in its development, but with special programs and the development of new areas that it will deal with it has potential for further development in the territory of the Republic of Croatia.

REFERENCES

- [1] Zelenika, R. & Pupovac, D. (2000) *Suvremeno promišljanje temeljnih fenomena logističkog sustava*, Zbornik radova Ekonomskog fakulteta u Rijeci, Rijeka, pp. 59 – 63.
- [2] Mrnjavac, E. (2010) *Logistički menadžment u turizmu*, Fakultet za menadžment u turizmu i ugostiteljstvu, Opatija.
- [3] <http://www.htz.hr/hr-HR/projekti-i-potpore/destinacijski-menadzment>
- [4] <http://www.htz.hr/sites/default/files/2017-03/DMK-Prirucnik.pdf>
- [5] <http://www.geografija.hr/hrvatska/meduovisnost-prometa-i-turizma-u-hrvatskoj/>
- [6] Magaš, D. (2003.) *Destinacijski menadžment – modeli i tehnike*, Sveučilište u Rijeci – Fakultet za turistički i hotelski menadžment, Opatija, pp. 14.
- [7] <hrvatskiturizam/2009/10/1626806547/zadovoljstvo-ponudom.html>

EXPLORING THE DIMENSIONS OF CUSTOMER SATISFACTION: THE CASE OF CROATIAN HOTEL INDUSTRY

Sanja Raspor Janković³⁵

Suzana Marković³⁶

Abstract: *The objective of the present research was to determine customer satisfaction dimensions structure in Croatian hotel industry.*

An on-site survey was conducted among foreign guests in 15 hotels in Opatija Riviera (Croatia). The questionnaire used for collecting data was divided in two parts. In the first part customer satisfaction with hotel services was measured, using 37 statements. The second part consisted of respondents' demographic characteristics. A total of 250 valid questionnaires were collected. The descriptive analysis, factor analysis, and reliability analysis were performed to analyze the data.

The findings implied that, in general, foreign hotel guests were very satisfied with the hotel service experience. Respondents were most satisfied with the reception staff's physical appearance. In addition, the study identified five factors that best explained customer satisfaction in hotel industry in Croatia.

The results of the present research may contribute to the existing knowledge of customer satisfaction in hotel industry, indicating hotel service attributes that could be improved, as well as the ones that are important to foreign guests in hotels.

Key words: *customer satisfaction, statistical analysis, hotel industry, Croatia*

1. INTRODUCTION

Customer satisfaction in hotel industry and tourism is a complex concept due to variety of services that customers (travellers and hotel guests) experience during their stay in hotel and tourist destination. In addition, hotel guest satisfaction is a personal judgement, and provides direct information about a hotel performance.

This paper examined the dimensionality of customer satisfaction concept in the hospitality context. The paper provides a brief theoretical background and includes results of empirical research conducted on the sample of foreign hotel guests.

2. THEORETICAL BACKGROUND

Fornell [1] and Oliver [2] defined customer satisfaction as a postconsumption evaluative judgement. In addition, customer satisfaction is a judgement that product or service provides a pleasurable level of consumption related fulfilment. [2]

Churchill and Surprenant [3] stated that satisfaction is similar to attitude in that it can be assessed as the sum of the satisfactions with the various attributes of the product or service.

³⁵Polytechnic of Rijeka, Trpimirova 2/V, 51000 Rijeka, Croatia

³⁶University of Rijeka, Faculty of Tourism and Hospitality Management Opatija, Primorska 42, P.O. Box 97, 51410 Opatija, Croatia

Similarly, Oliver [2] pointed out that customer satisfaction can be measured with single or multiple indicators. Since services, including hotel services, are complex, it is important to identify and measure customer satisfaction with each service component. This approach focuses on attribute satisfaction and provides more accurate and reliable information, since satisfaction (or dissatisfaction) with one service attribute leads to overall satisfaction (or dissatisfaction) with this service [4], [5].

When examining customer satisfaction dimensions in tourism and hotel industry, authors report following findings. Chu [6] revealed five-dimension structure on the sample of hotels in Hong Kong, interpreted as employees, room, basics, value and security. Poon and Low [7] reported twelve dimensions describing travellers' satisfaction in Malaysian hotels, namely, hospitality, accommodation, food and beverage, recreation and entertainment, supplementary services, security and safety, innovation and value added services, transportation, location, appearance, pricing, and payment. What is more, Chi and Qu [8] derived seven dimensions of satisfaction in tourist destination (shopping, activities and events, lodging, accessibility, attractions, environment, and dining). On the other hand, Alegre and Garau [9] identified basic sun and see product, cultural activities and contact with nature, activity and social interaction, easy access and choice, local lifestyle, and price as customer satisfaction dimensions in tourist destination. According to these findings, customer satisfaction dimensions in hotel industry and tourism comprise both tangible and intangible characteristics.

Sanja Raspor Janković, PhD, is a Senior Lecturer on Polytechnic of Rijeka (Croatia), where she teaches Statistics on undergraduate level. Her research interests relate to the application of statistical methods in social research, with particular emphasis on customer satisfaction and service quality measurement. She wrote several scientific papers, mainly in the area of service quality and customer satisfaction measurement in tourism and hospitality industry.



3. METHODOLOGY

3.1. Research questions and objectives

The present research was conducted to examine customer satisfaction dimensions structure in the context of Croatian hotel industry using the sample of foreign guests. Thus, the following research questions were proposed:

1. What is the level of customer satisfaction among foreign hotel guests?
2. What are the key dimensions of customer satisfaction in hotel settings?
3. Is the employed measurement instrument reliable tool for evaluating foreign hotel guests' satisfaction?

Based on the defined research questions, the study aimed to examine foreign hotel guests' satisfaction level, to identify main dimensions of foreign hotel guests' satisfaction and to test the reliability of measurement scale used in this empirical research.

3.2. Research instrument

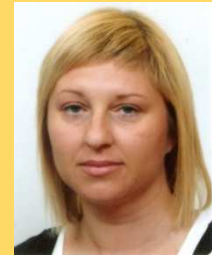
In order to address research questions and objectives, a questionnaire was developed. The foundation of questionnaire design in this study was extensive literature review. The

questionnaire consisted of two parts, designed to measure attribute customer satisfaction, as well as demographic characteristics of the respondents.

The customer satisfaction concept was operationalized with 37 attributes. The item structure was selected from studies conducted by Gunderson et al. [10], Pizam and Ellis [11], Poon and Low [7], Kandampully and Suhartanto [12], Heung et al. [13], Choi and Chu [14], Skogland and Siguaaw [15]. The selected hotel attributes were assessed with a 7-point Likert-type scale, ranging from “very dissatisfied” (1) to “very satisfied” (7).

The respondents’ demographic information included country of residence, age, gender, economic status, level of education, purpose of visit, and hotel category. These characteristics were measured using a nominal scale.

Suzana Marković, PhD, is a Full Professor on Faculty of Tourism and Hospitality Management, Opatija (Croatia). Her research and teaching interests focus on service quality and customer satisfaction measurement, SERVQUAL model and application of statistical methods in tourism and hospitality research. She lectures statistics and research methods and techniques on undergraduate, postgraduate and PhD level. She wrote number of scientific papers in the area of service quality and customer satisfaction research in tourism and hospitality industry.



3.3. Sampling procedure

The target population in this research was foreign hotel guests in Opatija Riviera hotels (Croatia). To make it more representative, the sample included hotels of different sizes and categories. Before the data collection started, hotel managers were contacted for permission to take part in the study. Thus, the questionnaires were administered only in those settings whose managers agreed to participate. Finally, the sample consisted of 15 2-, 3- 4- and 5-star hotels.

The reception desk employees helped to distribute and collect the questionnaires from the participating hotel guests. The questionnaires were distributed to those foreign guests who were willing to participate in the research at the reception desk.

Data collection resulted in a sample of 250 valid questionnaires.

3.4. Data analysis

Data analysis included a descriptive statistics, exploratory factor analysis and reliability analysis.

Descriptive statistics was used to examine demographic profiles of the respondents and evaluate foreign guests’ satisfaction level. Exploratory factor analysis was employed to derive factors from hotel service attributes for the customer satisfaction scale. Reliability analysis was conducted to test the reliability of the scale and assess the inner consistency of each extracted factor.

A principal component analysis with varimax rotation was adopted as the method for identifying customer satisfaction dimensions in the hotel settings. In appropriately applying this technique, several conditions should be respected. First, Kaiser-Meyer-Olkin’s measure (KMO)

should be greater than 0.7, and is inadequate if it is less than 0.5 [16]. Further, Bartlett's sphericity test should be significant (i.e. the significance value should be less than 0.05) [17]. Finally, items with eigenvalues equal or greater than 1, factor loadings above 0.4, and factors, which contain at least three items, were retained [18].

To test reliability, Cronbach's alpha coefficients were calculated. Coefficients higher than 0.6 were considered acceptable, indicating reasonable internal consistency and reliability [18].

4. RESULTS

The results are presented as follows. Firstly, respondents' demographic and traveling characteristics are provided. Next, the results of descriptive analysis of foreign guests' satisfaction are reported. Thirdly, the results of factor and reliability analyses are interpreted.

The sample included respondents from 17 countries. The majority were from Italy, Austria and Germany (17.0 per cent, 14.9 per cent and 12.2 per cent, respectively). There were more females (52.8 per cent) than males (47.2 per cent) and most of the respondents (25.6 per cent) had between 36 and 45 years of age. More than 55 per cent of foreign hotel guests in the sample had a university or college education. About 80 per cent of the respondents indicated that the main purpose of their visit was vacation. Regarding the economic status, almost 70 per cent of the respondents were employed and around 20 per cent of them were retired. Most of the respondents stayed at a 4-star hotel.

As noted in Table 1, the mean scores of customer satisfaction regarding hotel attributes ranged from 3.07 to 6.34. The lowest level of satisfaction was regarding the availability and responsibility of security personnel. On the other hand, the highest level of satisfaction considered receptionist's physical appearance (e.g. neatness). The overall mean score for customer satisfaction items was 5.77. This score indicates high level of hotel guests' satisfaction regarding the hotel attributes.

Factor/Item	Mean ^a	Factor loading	Eigen value	% of Variance	Cronbach alpha
Factor 1			9.798	26.481	0.947
Hotel room cleanliness	6.26	0.777			
Hotel room comfort	6.12	0.765			
Overall satisfaction with the housekeeping department	6.20	0.760			
Physical appearance of the restaurant	6.04	0.743			
Cleanliness of the restaurant	6.20	0.729			
Ambience in the hotel (interior, design, décor, lightning)	6.00	0.721			
Hotel room amenities (TV, mini-bar, telephone, Internet)	5.74	0.714			
Housekeeping staff's willingness to provide service	6.24	0.714			
Housekeeping staff's physical appearance (e.g. neatness)	6.24	0.708			
Housekeeping staff's politeness	6.25	0.692			

Factor/Item	Mean ^a	Factor loading	Eigen value	% of Variance	Cronbach alpha
Ambience of the reception area (comfort, decor, music)	6.04	0.646			
Physical appearance of the reception area	6.17	0.621			
Reservation system (convenience, accuracy, reliability)	6.04	0.599			
Overall satisfaction with food and beverage department	6.13	0.591			
Overall satisfaction with the reception area	6.24	0.557			
Appearance of the hotel surrounding area	5.74	0.549			
Service price	5.90	0.526			
Availability of safe-box	5.38	0.424			
Factor 2			5.468	14.778	0.920
Receptionist's politeness	6.28	0.816			
Receptionist's willingness to provide service	6.25	0.800			
Receptionist's physical appearance (e.g. neatness)	6.34	0.771			
Food and beverage staff's physical appearance (e.g. neatness)	6.24	0.634			
Efficient check-in	6.22	0.478			
Factor 3			3.231	8.734	0.911
Quality of food and beverage (appearance, taste, freshness)	5.97	0.647			
Appropriate portion size	6.20	0.613			
Food and beverage staff's politeness	6.22	0.591			
Food and beverage staff's willingness to provide service	6.24	0.563			
Factor 4			3.074	8.309	0.841
Availability of recreation facilities (e.g. sports grounds, swimming pool, fitness)	3.29	0.872			
Availability of wellness amenities (e.g. personal care services, sauna, massage)	3.92	0.865			
Availability of additional facilities and amenities (e.g. shops, laundry service, animation)	4.20	0.770			
Availability and responsibility of security personnel	3.07	0.725			
Factor 5			2.772	7.492	0.857
Hotel staff's foreign language skills	6.08	0.733			

Factor/Item	Mean ^a	Factor loading	Eigen value	% of Variance	Cronbach alpha
Available, accurate and clear information	5.96	0.652			
Hotel staff's competence	6.16	0.641			
Factor 6					
Availability of parking	4.10	0.588			
Variety of food and beverage	5.91	0.556			
Factor 7					
Convenience of location (accessibility, vicinity of other facilities)	5.83	0.839			
Total			27.579	74.540	0.934

Note: ^a Scale: 1 = "very dissatisfied", 7 = "very satisfied".

Source: Authors

Table 1: Analysis results of foreign hotel guests' satisfaction (N=250)

Furthermore, the 37 hotel attributes were factor analyzed using principal component analysis with varimax rotation. The purpose was to identify the main dimensions of foreign hotel guests' satisfaction.

KMO value was high and scored 0.942, indicating sufficient items for each extracted factor. Bartlett's Test is significant ($\chi^2=8403.049$, $df=666$, $Sig.=0.000$) meaning that strong correlations existed between the items in each factor. Hence, it was justified to conduct exploratory factor analysis. The results are presented in Table 1.

The 37 hotel attributes were reduced to seven factors, explaining 74.54 per cent of total variance in the data. Most of the factor loadings were higher than 0.60, indicating high correlation of the items with the factors on which they were loaded.

However, factor 6 and factor 7 contained less than three items and could not be considered as a factor. Thus, the final solution retained five factors that represent main dimensions of customer satisfaction with hotel attributes. The five remaining factors are labelled as follows:

- Factor 1 – "hotel facilities appearance and housekeeping staff" contains 18 items and indicates tangible aspect of housekeeping, reception, and food and beverage department (appearance, ambience, comfort, cleanliness), as well as housekeeping staff's physical appearance, willingness to provide service, and politeness.
- Factor 2 – "physical appearance and empathy of reception area staff" is loaded with five items that refer to staff's willingness to provide service, politeness, and physical appearance.
- Factor 3 – "food and beverage department staff and service" gathered four items reflecting staff's politeness and willingness to provide service, as well as served food and beverage.
- Factor 4 – "supplementary hotel services" includes four items referring to availability of wellness amenities, recreation facilities, additional facilities and amenities, as well as availability of security personnel service.
- Factor 5 – "competent hotel staff" is loaded with three items that indicate hotel staff's foreign language skills, clear and available information, and professional staff in general.

The results of the reliability analysis showed that Cronbach's alpha coefficients of the extracted factors ranged from 0.841 to 0.947. That is well above the minimum value of 0.60, which is

considered acceptable as an indication of scale reliability [18]. Thus, these values suggest good internal consistency of the factors. Finally, Cronbach's alpha value for the overall customer satisfaction scale was 0.934 and indicates its high reliability.

5. CONCLUSION

The research presented in this paper explored foreign guests' satisfaction with hotel attributes in Croatian hotel industry. Using several methods of statistical analysis, research questions were answered and objectives were achieved.

According to findings, foreign hotel guests showed high level of attribute customer satisfaction with hotel services. Respondents were the most satisfied with receptionist's physical appearance, while they were least satisfied regarding the availability and responsibility of security personnel. In addition, following five dimensions were extracted: "hotel facilities appearance and housekeeping staff", "physical appearance and empathy of reception area staff", "food and beverage department staff and service", "supplementary hotel services", and "competent hotel staff". These results confirm that hotel guest satisfaction can be described with both tangible and intangible aspects of provided services. Furthermore, findings reported here may provide some useful information to better understand key dimensions that contribute to the guest satisfaction in order to create and provide services and products that will lead to satisfactory hotel service experience.

In respect to research limitations, sampling procedure may have influenced a sample structure, hence not representing the population as a whole. The research was conducted in a single, although important tourist destination, that cannot represent all tourist destinations in Croatia. Although a set of hotel attributes included in the research covered variety of hotel service aspects, there can be other attributes that are likely to influence customer satisfaction. Although research instrument was translated in three foreign languages, it is possible that some respondents had difficulty understanding the meaning of some statements.

Therefore, future research might use more representative sample in order to ensure more comprehensive results. Additionally, same research objectives should be addressed in the other accommodation types (e.g. camp-sites, private accommodation, youth hostels), as well as in the other sectors of hospitality industry and tourism (e.g. restaurant industry, travel agencies, museums, transportation).

REFERENCES

- [1] Fornell, C. (1992) A National Customer Satisfaction Barometer: The Swedish Experience, *Journal of Marketing*, 56, pp. 6-21.
- [2] Oliver, R. L. (1997) *Satisfaction: A Behavioral Perspective on the Customer*, New York: McGraw-Hill.
- [3] Churchill, G. A., Surprenant, C. (1982) An Investigation into the Determinants of Customer Satisfaction, *Journal of Marketing Research*, 19, pp. 491-504.
- [4] Grigoroudis, E., Siskos, Y. (2010) *Customer Satisfaction Evaluation: Methods for Measuring and Implementing Service Quality*, New York: Springer Science and Business Media, LLC-
- [5] Kozak, M., Remington, M. (2000) Tourist Satisfaction with Mallorca, Spain, as an Off-Season Holiday Destination, *Journal of Travel Research*, 38, pp. 260-269.

- [6] Chu, R. (2002) Stated-importance versus derived-importance customer satisfaction measurement“, *Journal of Services Marketing*, 16 (4), pp. 285-301.
- [7] Poon, W. C., Low, K. L.-T. (2005) Are travellers satisfied with Malaysian hotels?, *International Journal of Contemporary Hospitality Management*, 17 (3), pp. 217-227.
- [8] Chi, C.G.-Q., Qu, H. (2008) Examining the structural relationships of destination image, tourist satisfaction and destination loyalty: An integrated approach, *Tourism Management*, 29, pp. 624-636.
- [9] Alegre, J., Garau, J. (2010) Tourist satisfaction and dissatisfaction, *Annals of Tourism Research*, doi:10.1016/j.annals.2009.07.001, pp. 1-22.
- [10] Gundersen, M. G., Heide, M., Olsson, U. H. (1996) Hotel Guest satisfaction among Business Travelers: What Are the Important Factors?, *The Cornell Hotel and Restaurant Administration Quarterly*, 37 (2), pp. 72-81.
- [11] Pizam, A., Ellis, T. (1999) Customer satisfaction and its measurement in hospitality enterprises, *International Journal of Contemporary Hospitality Management*, 11 (7), pp. 326-339.
- [12] Kandampully, J., Suhartanto, D. (2000) Customer loyalty in the hotel industry: the role of customer satisfaction and image, *International Journal of Contemporary Hospitality Management*, 12 (6), pp. 346-351.
- [13] Heung, V. C. S. (2000) Satisfaction levels of mainland Chinese travelers with Hong Kong hotel services, *International Journal of Contemporary Hospitality Management*, 12 (5).
- [14] Choi, T. Y., Chu, R. (2001) Determinants of hotel guests' satisfaction and repeat patronage in the Hong Kong hotel industry, *International Journal of Hospitality Management*, 20, pp. 277-297.
- [15] Skogland, I., Siguaw, J. A. (2004) Are Your Satisfied Customers Loyal?, *Cornell Hotel and Restaurant Administration Quarterly*, 45 (3), pp. 221-234.
- [16] Stewart, D. W. (1981) The Application and Misapplication of Factor Analysis in Marketing Research, *Journal of Marketing Research*, 18 (1), pp. 51-62.
- [17] Leech, N. L., Barrett, K. C., Morgan, G. A. (2005) *SPSS for Intermediate Statistics: Use and Interpretation*, 2nd Edition, Lawrence Erlbaum Associates Publishers, New Jersey.
- [18] J. F. Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., Tatham, R. L. (2006) *Multivariate Data Analysis*, 6th Edition, Pearson Prentice Hall, Upper Saddle River, New Jersey.

TOURISM AND TOURISM CLUSTERS IN THE SLOVAK REPUBLIC

Katarína Kráľová³⁷

Jana Sochul'áková³⁸

Dagmar Petrušová³⁹

Abstract: *Cluster initiatives represent a potential sector for the development of individual regions of the Slovak Republic as well as the tourism industry. Cluster initiatives are a unique model of mutual cooperation between small and medium-sized enterprises, research and self-government. Their cooperation is based on achieved synergies and stimulating regional development. The aim of our contribution is to evaluate the current situation in tourism in the Slovak Republic and the impact of tourism clusters on the development of regions and overall tourism in the Slovak Republic.*

Key words: *cluster, tourism, tourism cluster*

1. INTRODUCTION

Tourism is an important economic activity that contributes to the economic and social development and integration of the regions. It represents one of the most widespread socio-economic activities of individual regions. The added value of tourism is that it contributes to GDP creation, to creating jobs with a significant share of the employment of mainly young people, and we must not forget to support economic growth. Therefore, the objective of economic policy is to increase the competitiveness of tourism through more efficient use of existing resources and potential of individual regions of the Slovak Republic. In the Slovak Republic, significant regional disparities in competitiveness, infrastructure, employment, culture, etc. Regional development is recognized as one of the key factors in the economic development policies of many countries as well as transnational institutions. [3] Tourism is one of the ways to mitigate these regional disparities and also to contribute to building forward-looking entrepreneurial activities by building effective tourism clusters. Clusters as such are currently a modern tool for increasing attractiveness and, in particular, for regions to compete. Tourism clusters have a cross-cutting character, affecting both the cultural, economic and social environment of the region. Based on a good and well-functioning castra, the region can increase its competitiveness, attract new investment and more domestic or foreign tourists. We can state that the clusters of tourism:

- bring innovative ideas,
- ensure the cooperation of individual subjects, which allows to offer more experiences and services,
- preserve the natural and cultural heritage of the regions,
- help coordinate the sustainable development of the regions,
- building a cluster brand that brings a better awareness of the region and helps to
- make small business entities visible,

³⁷ A.Dubček University, Faculty of Social and Economic relations, Študentská 3, 911 50 Trenčín, Slovakia

³⁸ A.Dubček University, Faculty of Social and Economic relations, Študentská 3, 911 50 Trenčín, Slovakia

³⁹ A.Dubček University, Faculty of Social and Economic relations, Študentská 3,911 50 Trenčín, Slovakia

- generate the development of other securing and follow-up activities, technical or social infrastructure.

The cluster of tourism thus develops even the region in which the cluster operates. Cluster allows for improvement in the following areas: science and research, business opportunities, education and training, innovation and technology. [6] Clusters are a potential tool for increasing regional value because they use a combination of knowledge, skills and abilities of several subjects. [1] Clusters consist of dense networks of interrelated firms that arise in a region because of powerful externalities and spillovers across firms (and various types of institutions) within a cluster. [5] All active tourism clusters operating in the regions of the Slovak Republic and the year of their establishment are listed in the following table. The oldest clusters arose in the SR already ten years ago.

Table1: List of Tourism Clusters in the Slovak Republic

Region of Trnava			
1	Cluster of Tourism - West Slovakia	Service industries clusters	2008
2	Smolenice Cluster	Service industries clusters	2009
Region of Nitra			
1	Cluster Topoľčany - association of tourism	Service industries clusters	2012
Region of Žilina			
1	Cluster LIPTOV - association of turism	Service industries clusters	2008
2	Cluster Orava	Service industries clusters	2008
3	Cluster TURIEC - association of tourism	Service industries clusters	2009
Region of Banská Bystrica			
1	Cluster HOREHRONIE - association of tourism	Service industries clusters	2011
2	Cluster of Border Castles	Service industries clusters	2010
3	Turism association Balnea Cluster	Service industries clusters	2008
	Cluster of Novohrad	Service industries clusters	2009
Region of Prešov			
1	Cluster of Tourism Slanské Vrchy	Service industries clusters	2014
	Cluster of Tourism Branisko-Bachureň	Service industries clusters	2014
Region of Košice			
1	Cluster of Turism Košice Turism	Service industries clusters	2010

Source: own processing

Clusters of tourism are considered to be an effective engine for regional development. But despite these positive features, there are certain risks to clusters of tourism, for example:

- exaggerated presentation can lead to negative advertising of the region and thus reduce the region's traffic,
- poor quality corporate governance can lead to job cuts,
- leakage of know-how information,
- disintegration of traditional production and crafts, undesirable urbanization, land sales, environmental threats, social conflicts, etc.

Ing. Katarína Kráľová, Ph.D. works at the Department of Economy and Economics of Faculty of Social and Economic Relations, A. Dubcek University in Trenčín. During her pedagogical activity she has been involved in work on scientific research projects of faculty and departmental character as an effective project leader, deputy head of the project, co-worker. In her teaching and research work focuses on the problems of the economy of small and medium-sized enterprises, corporate finance and in the area of financial and economic analysis of the company.

2. DEVELOPMENT OF SELECTED INDICATORS OF TOURISM IN SLOVAKIA BETWEEN 2006 AND 2015

As part of tourism, data on the number and capacity of accommodation facilities, visitor data - whether domestic or foreign in tourist facilities - can also be tracked, as well as the number of visitor beds and visitor stays. Source of information on tourism, according to the Statistical Office of the SR, is data on accommodation and tourism services obtained from statistical units that are registered in the Commercial Register and natural persons registered in the Trade Register.

Ing. Jana Sochuľáková, Ph.D. works as assistant professor in the Department of Economy and Economics of Faculty of Social and Economic Relations, A. Dubcek University in Trencin. During the educational activities at the university she has been in work on research projects of faculty or departmental character as an effective cooperator. She focuses on issues of financial and management accounting business on the area of financial and economic analysis of the company and the issue of foreign direct investment in her teaching and research work.

In tourism statistics, we can determine whether it is a long, medium or short-term trip, and in terms of this breakdown, you can see the number of overnight stays, including the total spend in thousands of €. Also, data on foreign visitors, from which country the largest number of foreigners come to the territory of the Slovak Republic, are also reported. The development of these indicators was dealt with in the following tables.

Table 2: Evolution of the number of accommodation establishments in the SR for the years 2006 – 2015

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
SR	2 490	3 182	3 434	3 292	3 126	3 011	3 643	3 485	3 318	3 724

Source: Statistical Office of the Slovak Republic

Analysing the obtained data we found that in 2007 compared to 2006 there was the highest increase in the number of accommodation establishments, namely by 28%, which in value represented 692 accommodation facilities in the whole SR. Since 2009, we can see the downward trend, with the exception of 2012 and 2015, when we saw a 21% and 12% increase again compared to the previous year.

Table 3: Development of the number of visitors in accommodation establishments in the Slovak Republic for the years 2006 – 2015

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
The count (in thous.)	3,58	3,78	4,08	3,38	3,39	3,57	3,77	4,05	3,73	4,33
Δk (in %)	-	105	108	83	100	105	106	107	92	116

Source: Statistical Office of the Slovak Republic

On the basis of the calculated growth rate Δk for the category of visitors, a growing trend can be observed from 2009, with the exception of 2014. In 2015, the growth rate is again increasing for the whole of the monitored period, namely to 116%. The lowest rate can be seen in 2009, where it was a drop to 83% of the previous period.

Table 4: Development of the number of nights spent in accommodation establishments in the SR for the years 2006 – 2015

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
The count (in mil.)	11,1	11,6	12,5	10,4	10,4	10,5	10,9	11,5	10,9	12,4
Δk (in %)	-	4	8	-17	0	2	4	5	-5	13

Source: Statistical Office of the Slovak Republic

Table 4 clearly shows that we can talk about the biggest decline in 2009, when in value terms it was a decrease in the number of overnight stays by 2 073 035. From this year we see a slight increase; the exception is 2014 but subsequently in 2015 shows a more pronounced growth rate of 13% over the previous period.

Table 5: Development of the number of foreign visitors in accommodation establishments in the Slovak Republic for the years 2006 – 2015

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
The count (in tous.)	1 612	1 685	1 767	1 298	1 327	1 460	1 528	1 670	1 475	1 721
Δk (in %)	-	105	105	73	102	110	105	109	88	117

Source: Statistical Office of the Slovak Republic

When analysing the number of foreign visitors, it should be noted that the total number of visitors, including domestic ones, is approximately 4 000 000, which means that foreign visitors are more than one quarter, while foreign visitors are also visitors from non-EU countries. It is not taken into account whether a foreign guest has visited the territory of the country for the purposes of business travel, holidays or any other purpose.

As with other indicators, we can see a stronger decline in growth rates Δk (%) in 2009 (73%) and 2014 (88%). The year 2015 is again characterized by an increased growth rate, which means a great positive, as tourism brings a profit for the country. Statistical information on arrivals of foreign visitors to Slovakia and exits of Slovak citizens abroad according to sections, national borders and airports is processed from data from border crossings and airports of SR provided by the Foreign and Alien Police Department of the Presidium of the Police Force of the SR. [10]

RNDr. Ing. Dagmar Petrušová, PhD.
works at the Department of Economy and Economics of Faculty of Social and Economic Relations, A. Dubcek University in Trencin. During her pedagogical activity she has been involved in work on scientific research projects of faculty and departmental character as an effective project leader, deputy head of the project, co-worker. In her teaching and research work focuses on the problems of the mathematics, statistics and econometrics.

In Table 6 we can see the data on the development of the number of accommodation establishments in the regions of the Slovak Republic and the value of their year-on-year increase / decrease for the period 2006-2015.

Table 6: Evolution of the number of accommodation establishments in the regions of the SR for the years 2006 -2015

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Region of Bratislava	162	188	199	198	197	203	243	233	221	242
Δ	-	26	11	-1	-1	6	40	-10	-12	21
Region of Trnava	154	213	218	212	208	195	281	276	265	293
Δ	-	59	5	-6	-4	-13	86	-5	-11	28
Region of Trenčín	211	274	275	271	253	249	259	246	234	288
Δ	-	63	1	-4	-18	-4	10	-13	-12	54
Region of Nitra	179	241	267	282	270	262	322	307	292	312
Δ	-	62	26	15	-12	-8	60	-15	-15	20
Region of Žilina	650	872	988	895	826	781	930	882	839	970
Δ	-	222	116	-93	-69	-45	149	-48	-43	131
Region of Banská Bystrica	389	465	483	473	436	424	527	494	475	550
Δ	-	76	18	-10	-37	-12	103	-33	-19	75
Region of Prešov	464	572	625	605	585	551	724	701	663	718
Δ	-	108	53	-20	-20	-34	173	-23	-38	55
Region of Košice	281	357	379	356	351	346	357	346	329	351
Δ	-	76	22	-23	-5	-5	11	-11	-17	22

Source: Statistical Office of the Slovak Republic

Based on the above data, we can see that most of the accommodation is located in the Zilina Region, which is quite natural because of the fact that this region has countless natural and cultural beauties, which is of course the basis of tourism and, besides, there are significant clusters tourism, which have greatly contributed to the development of tourism in the region. We also recorded the highest year-on-year growth in 2007 compared to 2006 - 222 accommodation facilities. The largest year-on-year decrease of -93 accommodation facilities was recorded in 2009 again in 2008 in the Žilinský Region, which was probably caused by the crisis, when almost all indicators in any area declined. Throughout the reporting period, t. j. from 2006 to 2015 it can not be said that this would be a clearly growing or decreasing trend. In each regions of the Slovak Republics we see a fluctuating tendency, as we have noticed that in the last analyzed year, ie 2015, each year is a year-on-year increase.

Tourism moves it affects employment and economy, it impacts on nature. The Slovak Republic, as part of the European area, has great prerequisites to draw on this potential. Sustainable tourism is an essential tool for the further development of the Slovak Republic. The sustainability of tourism needs to be pursued primarily in three basic dimensions - economic, social and environmental. However, this huge economic and social potential of tourism as a sector can not be sufficiently exploited and evaluated. Promoting the promotion and presentation of Slovakia is a long-term and permanent activity in which the state has an irreplaceable role, as in all European countries. Promotional and presentation activities need to be improved also due to the highly competitive environment of the surrounding countries. Sustainable tourism in Slovakia should be a priority for the state, higher territorial units, cities and municipalities.

The potential of tourism in Slovakia is significantly higher than its present value. Taking into account the current occupancy rate of accommodation facilities in Slovakia, which is at the level of 30%, the overall economic and employment benefits are several times higher than the

current values. However, the further development of tourism in our country depends on the competitiveness of the micro and small enterprises, which business in tourism in Slovakia.

3. CONCLUSION

Regions in the Slovak Republic have a large number of competitive disadvantages that need to be gradually mitigated or eliminated. In the Slovak Republic, we have 12 lagging regions, where it is necessary to strengthen job creation, to support the building of entrepreneurial subjects to ensure the economic growth and prosperity of the regions in these underdeveloped rural regions, thereby also preventing people from leaving these areas. One solution is to support and develop tourism as the fastest growing sector of the national economy. The essence of the support is the creation of conditions for comprehensive support for the development of rural tourism and agro-tourism, as well as the completion of infrastructure, missing institutions, information system, tourism marketing, simply say, to support the development of tourism clusters that will help develop regional tourism. All regions of the Slovak Republic as well as lagging regions are areas that have a lot to offer visitors to the region because they have natural and cultural attractions, so created tourism clusters can be an instrument of economic valorisation of the existing potential of regions and of regional development and growth.

ACKNOWLEDGEMENTS

This paper was created within the project VEGA 1/0953/16 Evaluation of the impact of clusters on the development of the regions of the Slovak Republic.

REFERENCES

- [1] Gavláková, P.(2012) *Tourism cluster in a global environment* In Merkúr, Zborník príspevkov z vedeckej konferencie pre doktorandov a mladých vedeckých pracovníkov, Bratislava, Ekonóm 2012,
- [2] Gajdová, D. (2012). *Clusters and cluster initiatives in the Slovak Republic* Aktuálne problémy podnikovej sféry: zborník vedeckých prác [z medzinárodnej vedeckej konferencie, Bratislava 17. 5. 2012]. - Bratislava: Vydavateľstvo EKONÓM, 2012. ISBN 978-80-225-3427-7, s. 106-110.
- [3] Habánik, J., Hošták, P., Kordoš, M. (2016) Competitiveness of Slovak economy and regional development policies. Spôsob prístupu: http://www.jois.eu/files/JIS_Vol9_No1_Habanik_Kordos_Hostak.pdf. In: Journal of International Studies. - ISSN 2071-8330. - Vol.9, No.1(2016), p.144-155.
- [4] Havierniková, K. a kol. (2013). *Theoretical and Methodological Aspects of Measuring the Economic Performance of Clusters in the Slovak Republic*. TnUAD FSEV, Trenčín 2013, ISBN 978-80-8075-619-2,
- [5] Kordoš, M., Vojtovič, S. (2016) *EU regional and cluster policies within their synergic effects* In: Proceedings of the 5th economic & finance conference. - Praha : International Institute of Social and Economic Science, 2016. - ISBN 978-80-87927-20-5. - s.166-174.
- [6] Krajňáková, E., Krajčo, K. (2016) *The risk and clusters in the V4 countries and in the EU 27*. In: 3rd international multidisciplinary scientific conference on social sciences and arts SGEM 2016 : Political sciences, law, finance, economics and tourism. Book 2, Volume III. - Sofia : STEP92 Technology Ltd., 2016. - ISBN 978-619-7105-74-2. - s.1135-1142.
- [7] Krajňáková, E. (2016) *The emergence and functioning of clusters in different regions of the world* In: Sociálno-ekonomická revue. - ISSN 1336-3727. - Roč. 14, č.3(2016), s.31-42.

- [8] www.statistics.sk Štatistický úrad Slovenskej republiky
- [9] www.zcrsr.sk/wp-content/uploads/2017/09/TS-k-svetovemu-dnu-turizmu-2017fin.pdf
- [10] www.mindop.sk
- [11] www.klasterliptov.sk
- [12] www.kupeledudince.sk
- [13] www.braniskobachuren.eu
- [14] www.klaster.smolenice.com

ARE COUCHSURFING AND OTHER FORMS OF FREE AND CHEAP ACCOMMODATION A THREAT TO TRADITIONAL TOURISM?

Cilka Demšar⁴⁰

Abstract: *Undoubtedly, the internet has changed tourism industry substantially. Not only can potential tourists and travellers find all information very quickly and book directly, but they can also connect with potential hosts instantly from the comfort of their homes. In addition, travel has become much more affordable and people are not happy only with sightseeing, the sun and the beach – more and more travellers seek experience and contact with local people so that they can experience a more authentic way of life and thus get to know their destinations better.*

In recent years, a lot of websites have been offering various types of accommodation and they have become increasingly popular.

One of the first was Couchsurfing, founded in 2004, which is now a community of 14 million people from more than 200,000 cities around the world. It is a platform for members to stay as a guest in someone's home for free.

Then there are platforms where people pay annual membership fee and they swap homes homeexchange.com, lovehomeswap.com ... and thus both parties can enjoy holidays in another country. Another way of staying somewhere free is house and pet sitting and platforms such as trustedhousesitters.com, mindmyhouse.com...

Founded in 2008, Airbnb has changed the way of booking accommodation in its core. Unlike Couchsurfing, it is not free but travellers are hosted by local people and able to experience local habits and customs in a more authentic way than in a hotel. Homestay.com is a similar concept.

What about traditional tourism then? In my opinion, all destinations can profit from the above concepts. We should all be aware that they will exist no matter how much opposition there is from tourist industry and therefore the traditional tourist offer should change to more experience-oriented. In the second half of the paper I give suggestions what could be offered to people who stay somewhere for free, which means that they have more money to spend on things like adrenaline sports, skiing, cycling, walking, hiking, learning traditional arts and crafts, cooking classes, learning the language, dancing classes, fishing, photography... In the pay special attention to Bled, a famous tourist resort in Slovenia.

My conclusions are made on the basis of interviewing numerous guests and hosts, traditional tourist service providers, internet research and personal experience. In my opinion, the article could make the tourist service providers think about how to shift their offer from providing only accommodation and food to memorable experiences and share their way of life and culture with the visitors to their destination. All this contributes a lot to more understanding and tolerance between people and can make a kinder and more peaceful world.

Key words: *free accommodation, couchsurfing, Airbnb, home exchange, offering memorable experience, culture exchange*

⁴⁰ Višja strokovna šola za gostinstvo in turizem Bled Prešernova 32 4260 Bled, Slovenija

INTRODUCTION

Undoubtedly, the internet has changed tourism industry substantially. Not only can potential tourists and travellers find all information very quickly and book directly, but they can also connect with potential hosts instantly from the comfort of their homes. In addition, travel has become much more affordable and people are not happy only with sightseeing, the sun and the beach – more and more travellers seek experience and contact with local people so that they can experience a more authentic way of life and thus get to know their destinations better.

In recent years, a lot of websites have been offering various types of accommodation and they have become increasingly popular.

COUCHSURFING – couchsurfing.com

One of the first was Couchsurfing, founded in 2004, which is now a community of 14 million people from more than 200,000 cities around the world. It is a platform for members to stay as a guest in someone's home for free. The title of the site is Meet and stay with Locals All over the World.

How did it start?

In 1999, Casey Fenton scored a cheap ticket to Iceland, but needed a place to stay. He sent an e-mail to more than 1,500 students in Reykjavik asking for a place to crash - even on someone's couch. The result was a new network of friends who offered to show him the "real" Reykjavik. After spending a weekend immersed in the culture of the area, Fenton walked away with disdain for the typical sanitized tourist experience - and an idea for a new non-profit.

He invited former colleagues Daniel Hoffer and Sebastien LeTuan, and friend Leonardo Silveira to form Couchsurfing. The San Francisco-based organization was designed to provide a platform for people to connect all over the world, fostering more affordable travel, not to mention more immersive cultural experiences, by encouraging users to provide and benefit from free in-home lodging.

Joining is free for both, hosts and guests, who create their profiles, stating their personal details, languages they speak, interests, what they can teach, learn or share and the countries they have visited. An important feature are references – left by hosts and guests. However, it is much more than just offering a free couch – there are a lot of meetups and events that members can attend or create – at the time of accessing the website (November which is off-season and therefore the offer is not as big as in high season) there were 14 events listed for Ljubljana – Cycling in Ljubljana – a couchsurfer from Brazil staying in a Ljubljana hostel posted the following : *"According to the forecast, will be a sunny day tomorrow. I will rent a bike and explore the city. want to join? my hostel rent bikes for 8 euros/day.* Every week, there is a traditional Ljubljana's Weekly CouchSurfing meeting: *"You will meet locals, foreigners who live in Ljubljana and travellers who join the meeting. You are all welcome to share your stories and experiences."* In Austria, there is a meet up in Wien Terme, a pub quiz, Tour of Vienna, a yoga and meditation class; in Italy a visit to a castle, a meetup in a restaurant to taste some local food ... A big opportunity for local businesses?

Couchsurfing was started by a student but today it is by no means used only by young people. There are all generations, families, couples and single people hosting and travelling. As it is such an enormous community, members can use various filters for searching and there are nearly 70.000 groups – from photography to Ljubljana, and 50+ travellers, female, solo travellers, cyclists... Slovenia group has 2155 members who are involved in 1580 discussions.

In the part, called Local Advice, people ask and answer all different kinds of questions – from dancing salsa in Ljubljana to transport and where to buy a second-hand bicycle. Another potential?

While it is obvious why guests like to travel this way, there is a question why somebody would offer free accommodation or even food to a complete stranger (or as Couchsurfing says: friends you haven't met). According to hosts, it is meeting new people, making friends, showing our places, way of life and culture to people from all around the world, getting to know new cultures, languages, food ... One Couchsurfer says: *When I can't travel, the world comes to me and I have met some amazing people and made lifelong friends...*

In Slovenia, there are more than 46.000 hosts listed.

AIRBNB airbnb.com

Founded in 2008, Airbnb has changed the way of booking accommodation in its core. Unlike Couchsurfing, it is not free but travellers are hosted by local people and able to experience local habits and customs in a more authentic way than in a hotel.

Since then, Airbnb has grown extraordinarily rapidly and now books millions of room nights for tourists round the globe. Basically, it is ordinary people who rent out their accommodation to tourists, ranging from a shared room to entire apartments and homes and even to an entire island. It is free to join and payments are made through the website and Airbnb earns its revenue by charging guests a 6–12% fee and hosts a 3% fee. Like in the case of Couchsurfing, reviews of guests and host are extremely important.

Again, Airbnb is much more than booking accommodation. Recently, Experiences have been added, divided into 14 categories – from arts, nightlife, social impact to wellness and history. They can last from as short as two hours to several days. Restaurants have been added as well and in addition to a short description and references, it is possible to book directly via the website. Unfortunately, there are no listings for Experiences or restaurants in Slovenia yet. Neighbouring Italy though is doing much better – offering experiences from cooking classes, wine tasting, truffle hunts to fashion and music. Another potential?

Some major cities are the so-called Featured destinations: London, for example includes places to stay, various kinds of Experiences, Food and drink, Art and History experiences and Experiences for Adventurers. Most probably, the number of those destinations will be increasing – according to the founders they want to cover all cities in the world.

Of course, there is an Airbnb app as well and the hosts and guests can be connected all the time.

In Slovenia, there are more than 300 listings but no Experiences or Restaurants yet.

Why do people stay in Airbnb and not in a hotel?

Some of the reviews:

We had three wonderful days in Patricia's apartment! It's just 50 meters away from Ljubljana's inner city pedestrian area, and exactly as shown in the pictures. The offer to park our car in their garage for free was also great, it's just a short walk from the apartment. Thanks a lot for having us, should we return to Ljubljana (which is a wonderful city!), we will definitely try to stay at this place again :-)

The flat is very cozy, situated in a quiet and beautiful neighbourhood. It has everything you may need, including a neat kitchen and a good parking lot right near the house. The lake and restaurants are close, you may reach them by walking. It was a wonderful stay, Cilka is one of the best hosts we've met, who provided us with a lot of useful information of what to see and do and even some legends about the place! :) We're looking forward to coming back! We highly recommend the host and the apartment!!

Furthermore, there are platforms where people pay annual membership fee and they swap homes homeexchange.com, lovehomeswap.com ... and thus both parties can enjoy holidays in another country. Another way of staying somewhere free is house and pet sitting and platforms such as trustedhousesitters.com, mindmyhouse.com...

HOME **EXCHANGE**
www.homeexchange.com,
www.lovehomeswap.com

Started by home exchange pioneer Ed Kushins in 1992 as a printed, mailed book, Home Exchange has grown into a social network and one of the first businesses to adopt “collaborative consumption”. Their mission is to connect like-minded travellers, help them travel anywhere, live like locals, and stay for free. There are more than 65.000 listings and 1 million exchanges in more than 150 countries. Annual membership is EUR 130 and if you don't do an exchange in the first year, you get the second year free.

Members list their house or apartment, inquiries are sent through a simple messaging system.

Cilka Demšar

ČLANKI IN DRUGI SESTAVNI DELI

1.09 Objavljeni strokovni prispevek na konferenci

1. DEMŠAR, Cilka. Problematika prevajanja strokovnega izrazoslovja turistične dejavnosti = Problems encountered when translating terminology in tourism. V: PREMROV, Emira (ur.), KRAŠNA, Tadeja (ur.). Kakovost in inovativnost v turizmu in gostinstvu : zbornik prispevkov 2. mednarodne znanstveno-strokovne konference, Slovenija, Bled, 11.-12. 02. 2010 = Quality and innovation in tourism and catering : conference proceedings of papers of the 2nd international scientific expert conference, Slovenia, Bled, 11 and 12 February 2010. Bled: Višja strokovna šola za gostinstvo in turizem, 2010, str. 586-592. [COBISS.SI-ID [512321654](#)]

1.13 Objavljeni povzetek strokovnega prispevka na konferenci

2. DEMŠAR, Cilka. Problems encountered when translating terminology in tourism. V: PREMROV, Emira (ur.), KRAŠNA, Tadeja (ur.). Kakovost in inovativnost v turizmu in gostinstvu : zbornik vabljenih predavanj in povzetkov referatov 2. mednarodne znanstveno-strokovne konference, Slovenija, Bled, 11.-12. 02. 2010 = Quality and innovation in tourism and catering : conference proceedings of invited lectures and abstracts of the 2nd international scientific expert conference, Slovenia, Bled, 11 and 12 February 2010. Bled: Višja strokovna šola za gostinstvo in turizem, 2010, str. 42. [COBISS.SI-ID [512317558](#)]

What do members say?

All the members point out that they are very happy with the idea, they can travel more, they meet everyday people who live in the area and not just tourists; very often they make friends for life. As they do not have to pay for accommodation, they can spend money on other things ...

HOUSE AND PETSITTING trustedhousesitters.com, mindmyhouse.com

Another very innovative idea – members are people who like travelling but need somebody to look after their house and pets when they are away. Annual membership is EUR 99 for both, house and pet owners and sitters. According to the website, there are thousands of pet-loving members in more than 140 countries.

What do members say:

"I had heard about this website from friends and it sounded too good to be true! I could not believe I could get someone to mind my house and 2 dogs for free - usually it would cost at least \$80 a day for them to be minded. I came back to 2 beautifully cared for dogs and a clean house!"

Feedback from a person who was house and petsitting for me:

"If you are thinking of Slovenia then I cannot recommend the country enough. If you decide to housesit for Cilka then your experience will be greatly enhanced. She is a very hospitable, intelligent and caring person who will make sure you have a wonderful time. Her home is typical of the region and very cosy. It is close to everything you will need in the way of transport, shopping, eating and sightseeing and has wonderful local walking. Pika, her little dog, is full of character and very easy to care for. I am happy to highly recommend this housesit."

This particular sitter went paragliding, hot-air ballooning and rafting as well as eating in numerous local restaurants and visiting (and of course paying) all the sights in Bled and in the surrounding. She spent a lot of money on local activities, which she would not have if she had had to pay a lot of money for accommodation.

TRADITIONAL TOURISM?

There is a lot of opposition from the traditional accommodation providers, stating that the level of quality is decreasing, unfair competition, taxes (as in none of the above, save Airbnb, money in exchanged).

However, that type of travelling is a fact and in my opinion there are a lot of opportunities for everybody. These are not people who are just looking for accommodation but all of them point out meeting local people, getting a better insight into the way of life and experiences.

Slovenia, and Bled in particular, are destinations for people who like nature and active holidays and there are plenty of opportunities for various experiences, which can generate more income than just providing accommodation. These could include adrenaline sports, skiing, cycling, walking, hiking, learning traditional arts and crafts, cooking classes, learning the language, dancing classes, fishing, photography...Some are already organised but there is still plenty of room for new ideas.

Hotel industry could also think how to make their services more personalised, provide more than just beds and food - organise activities for their guests and thus attract also people who are in two minds about where to stay.

In 2016 there were 4000 million tourists in Slovenia and about 11 million overnight stays in about 40 000 accommodation units. Taking into account the number of people hosting in Slovenia (Airbnb 306 listings, Couchsurfing in total 46,000 hosts but the search for hosts (with no filters applied) who are accepting guests shows that there are only 250 and even those are probably not accepting guests all the time⁴¹, homeexchange.com about 20 members, trustedhouseandpetsitters.com – 10 members), there is no real threat but upgrading of tourism and everybody could profit from that.

CONCLUSION

However, Couchsurfing, Airbnb, home exchanges will always have somewhat limited appeal. Some tourists will be deterred by security concerns, plus some tourists will prefer the more predictable experience of staying in traditional accommodation.

Secondly, their potential impacts may be dismissed on the grounds that they exist in parallel with, instead of in competition with, traditional accommodation.

In fact, Airbnb claims its service merely complements hotels by attracting a different type of tourist (Lawler, R. (2012, November 9). Airbnb: Our guests stay longer and spend more than hotel guests, contributing \$56m to the San Francisco economy, making the pie bigger' rather than 'taking a slice of the pie' (Schneider, F., Buehn, A., Montenegro, C.E. (2011). Shadow economies all over the world: New estimates for 162 countries from 1999 to 2007. In F. Schneider (Eds.), *Handbook on the shadow economy*, 9–77. Northampton, MA: Edwin Elgar.)

In other words, increasing the room supply with a new form of economical accommodation should foster visitation, which should have positive impacts on the broader tourism economy. Listings are more scattered than hotels, and therefore guests may be especially likely to disperse their spending in neighbourhoods that do not typically receive much tourist expenditure.

REFERENCES:

- [1] Daniel Guttentag (2015) Airbnb: disruptive innovation and the rise of an informal tourism accommodation sector, *Current Issues in Tourism*, 18:12, 1192-1217; DOI: 10.1080/13683500.2013.827159. Retrieved from <http://www.tandfonline.com/doi/full/10.1080/13683500.2013.827159> on 17/11/2017
- [2] retrieved on 17/11/2017
- [3] couchsurfing.com, retrieved on 17/11/2017
- [4] airbnb.com, retrieved on 17/11/2017
- [5] trustedhouseandpetsitters.com, retrieved on 17/11/2017
- [6] homeexchange.com, retrieved on 17/11/2017

⁴¹https://www.couchsurfing.com/members/hosts?utf8=%E2%9C%93&search_query=&latitude=46.0569465&longitude=14.5057515&country=slovenia®ion=europe&city=Ljubljana&date_modal_dismissed=true&arrival_date=2017-11-25&departure_date=2017-11-26&num_guests=1&has_references=1&can_host%5Baccepting_guests%5D=1&last_login=Anytime&join_date=Anytime&gender=All&min_age=&max_age=&languages_spoken=&interests=&smoking=No+Preference&radius=50&keyword=&host_sort=Best+Match&button=, retrieved on 17/11/2017

A STAKEHOLDER EVALUATION FROM TOURISM BUSINESSES IN SHKODRA TOURISM DESTINATION

Mersida Bala Mokçi⁴²
Romina Dhora⁴³

Abstract: *A special focus in the tourism research has been the evaluation of the stakeholders and their importance. The concept of stakeholders has gained special interest in this area because of the fragmented nature of doing business in tourism and the perception that each stakeholder has its own contribution and interest in the development of a tourism destination. A critical factor in managing and marketing destinations is therefore the selection, understanding and managing of stakeholders (Hankinson, 2009). Literature has been focused on separating the stakeholders in primary stakeholders and secondary ones, theory that has been also applied in the tourism industry. On the other hand Freeman (2010) claims that a business has relationships with different groups and individuals which might include: employees, clients, suppliers, community members and government. Of primary interest for the aim of this paper was the work of Mitchel et al. (1997) who described the stakeholders in terms of managerial perceptions toward three attributes, which were: the power, urgency and legitimacy of different stakeholders. This approach was adapted to show a clear evaluation and categorization of the stakeholders based on the perceptions of the tourism businesses which operate in Shkodra tourism destination. This study was based on a primary research and applied a questionnaire as the main method of data collection. It was interesting to apply this method and the stakeholder theory since it was a new area of research which added valuable insight to the understanding of the overall attitude of tourism businesses towards the identification of stakeholders in an albanian tourism destination which was the first step of research. Next it measured the attitude of tourism businesses toward what they believed was the most dominant, demanding or dependant stakeholders. On the other hand the research findings can also help other private or public institutions to understand stakeholders importance and implement development strategies keeping in mind their position and attributes.*

Key words: *stakeholders, tourism businesses, evaluation, destination*

1. INTRODUCTION

The demanding environment of tourism industry needs responsible activities and planning from the public and private institutions. It is needed to have no gaps in the tourism overall experience but the nature of tourism activities make it difficult to coordinate all actors' initiatives. In light of this evidence, for tourism destinations become crucial to identify its important stakeholders and evaluate them. The overall tourism experience is created by the individual contribution of these different and heterogeneous stakeholders who try to work towards creating attractive products and a unique image of a destination. Gunn (1994) suggests that in tourism, stakeholders refer to the business sector, the public one and the non-profit sector. For tourism destinations that are not managed through organizations and don't have an identified leader it's important to understand who does the business sector consider as

⁴² University of Shkodra 'Luigj Gurakuqi', Shkoder Albania

⁴³ University of Shkodra 'Luigj Gurakuqi', Shkoder Albania

stakeholders who participate in the co-creation of the tourism experience as is the case of Shkodra destination.

2. STAKEHOLDERS CONCEPT

The concept of stakeholders has become popular and has been widely applied in different academic areas of research, media or managerial areas. The traditional definition of a stakeholders is: “every group or individual who can affect or be affected by the achievement of an organization objectives“ (Freeman, 1984). Different years ago Donaldson and Preston (1995) improved the definition of Freeman by affirming that to be identified as an actor, the group or individual must have a legitimate interest in the business activity. Many research have focused their finding regarding the stakeholders, the identification and their involvement in the management of a business and of special interest was the stakeholders power (Clarkson, 1995; Donald & Preston, 1995; Freeman, 1984). On the other hand findings about the rights of the stakeholders to be involved regardless of their power were realized by Carmin, Darnall, Mil-Homes, 2003; Curry, 2001; Steelman, 2001. Researches about stakeholders groups and the importance of their interest have been published by Andereck & Vogt, 2000; Davis & Morais, 2004; De Lopez, 2001; Gunn, 1994; Yuksel et al., 1999. Finally research studies related to the stakeholders and their role in tourism development were primary realized by Goeldner & Ritchie in 2003. Also in the tourism literature a lot of priority has been given to the importance of stakeholdres identification, their categorisation and management (Clarkson, 1995; Hall, 2000; Ryan, 2002; Sheehan & Ritchie, 2005; Yuksel et al., 1999).

Freeman affirms that a business has relationships and prospers because of the collaborations with groups or individuals such as: employees, customers, suppliers, community members and government. According to Savage et al., (1991) the stakeholders are risk holders and they have put to risk the financial and human capital as they depend on the behaviour of businesses. On an overall perspective the concept of stakeholders deals with the concept of how a business works. Freeman (2006) claims that a business itself has to be perceived as a group of stakeholders whose aim is to manage its interests, needs and its perspective. Since the stakeholders might have different aims and objectives, it can cause divergences of perceptions ragarding different topics. These divergences can cause conflicts between stakeholders or stakeholders groups (Byrd, 1997; Gursoy & Rutherford, 2004; Ioannides, 1955; Reid, Mair & George, 2004). In order to minimize the conflict in an effective way it is important to identify and understand stakeholders behaviours and perceptions (Hunter & Haider, 2001; Reid et al., 2002; Yuksel et al., 1999). Sautter & Leise (1999) found out that if the agreements between the

Mersida Bala Mokçi

Lecturer at the Tourism Department, Economic Faculty, University of Shkodra 'Luigj Gurakuqi'. Dr.Mersida Bala Mokçi has more than 8 years experience in lecturing as a university professor. Prior to this position, she has been working as a marketing agent, receptionist and event coordinator at a five star hotel. Prior to this experience she has participated and been awarded first prize in tourism international competitions. Actually, she is lecturing bachelor and master classes at Shkodra University. Her main subjects include: Tourism Marketing, Rural Tourism, Consumer Behaviour in Tourism. From 2010-2016 she has been working on her PhD focused in the importance of collaboration of tourism businesses in a destination. She has several papers and conferences on this topic and international teaching experiences. She has been part of different EU financed projects implemented by Shkodra University.



interest of stakeholders increase, there is a lot of opportunity for the collaboration to increase too, which is foremost important in the tourism industry.

Researches have shown that tourism strategies often have failed because of the lack of communication (Sheehan & Ritchie, 2005). The aim of effective stakeholders participation is applied in order to minimize the differences between them towards goal achievement and trust building in order to accept plans and policies (D'Angela & Go, 2009; Jamal, 2004; Reed et al., 2009; Timur & Getz, 2008). Hall (2008) emphasizes that the participation of stakeholders needs to be applied through collaboration and a vision for common goals where the concerns of industry stakeholders is addressed to the decisionmakers by claiming that: "it is essential for governments of all levels to use all of their influence to encourage a better coordination of the industry regarding the planning issues by creating processes and structures which help stakeholders to engage with each other and to create an effective relationship or partnership. The tourism sector of a destination is very dynamic and creates business development opportunities, increased employment and incomes and offers services to the community, local businesses, local institutions and a lot of its change management has to be done by the public sector (UNWTO, 1993).

3. STAKEHOLDERS ATTRIBUTES

The stakeholders identification and salience is based in their interests, understanding and the capacity to assure their involvement in decisionmaking, planning and development. Researches have shown that stakeholders involvement has the opportunity to transit the participation from one based on low interests and low influence to one with high interests and influence (Reed et al., 2009). Since the participation of the stakeholders in different activities is highly dependend on their interests, influence and time, it is interesting to find out what motivates stakeholders to be involved in tourism? According to Freeman (1994) stakeholders have attributes such as power, legitimacy and urgency and they use these attributes in order to get benefits. There are situations in tourism development where the local government has the legitimacy to protect the natural resources and to take care of the social and economic interests of the host community (Timur & Getz, 2002). Situations where the government might not have the right vision to involve all important stakeholders towards tourism development might happen also. In the same way it can happen that key stakeholders might not have the willingness to pay attention, time and resources towards development. According to Byrd (2007), effective and legitimate stakeholders have knowledge, capacities and power to interact with other stakeholders and to create the full tourism experience. Below are explained in more details the attributes of the stakeholders.

- *Power and influence*

The weberian definition of power is: "the stakeholder with a certain social relation might be in the position to satisfy its desire regardless of the others resistance (Weber, 1947). According to Pfeffer & Salancik (1974) power is a relationship among social stakeholders where a stakeholder can push a stakeholder to do something that in another situation he couldn't have done. It is obvious that is a little bit difficult to define power but it is clear that power means to achieve the desirable results. The biggest part of literature research is focused in the identification of primary and secondary stakeholders (Savage et al., 1991). In terms of power it is suggested that primary stakeholders are those who have formal and contractual relationships and have also a direct economic impact. The secondary stakeholders are various and are not directly involved in the economic activity of a destination but exercise influence (Savage et al., 1991) and might have power which comes from legitimacy (Mitchel., 1997).

- *Legitimacy*

Mitchel et al., (1997) claim that power is essential but they don't explain why some stakeholders who don't have power, are important for the tourism destination or economic activity. But they might be seen as legitimate, an attribute that comes from the belief that an actor, a rule or institution has the right to decide or govern. In a world of social relations, legitimate stakeholders have the capacity to take important decisions. Suchman (1995) defines legitimacy: "a perception or general assumption that the action of a stakeholder is desirable, appropriate or suitable within a social system with norms, values, beliefs and definitions". Legitimacy and power are interconnected in a way that scholars affirm that the legitimate stakeholders are powerful and that powerful stakeholders are legitimate. Davis (1973) suggests that those stakeholders who don't make a responsible use of their power in a society, in long term they have a tendency to lose this power. Scholars suggest that even though power and legitimacy contribute to the actors' salience they don't clarify the dynamics of the collaborations among different stakeholders until when the attribute of urgency is added to make the theory of stakeholders dynamic.

- *Urgency*

Mitchel et al., (1997) suggest that for a systematic identification of stakeholders, in the moment where power and legitimacy are present, the theory of stakeholders explains the result as urgency. They define urgency as a mean that stakeholders use to attract immediate attention and makes them compelling and demanding. The Merriam-Webster vocabulary defines urgency as 'seeking for immediate attention' or 'pressure'. A literature research suggests that urgency has existed in the areas of management and crisis management for many years and recently has been applied also in the area of stakeholders management (Wartick & Mahon, 1994).

4. STAKEHOLDER THEORY AND RESEARCHES IN TOURISM

A special focus in the tourism literature has been given to the identification of stakeholders, their categorization, management and the priorities they have by authors such as Clarkson, 1995; Hall, 2000; Ryan, 2002; Sheehan & Ritchie, 2005; Timur & Getz, 2008; Yuksel et al., 1999. In the same context different methods have been used to identify, understand their interest, evaluate their power in order to formulate strategies which improve the stakeholders relationships (Hall, 2000). Many researches in tourism have been done to study the right of the stakeholders to get involved regardless of their power level (Carmin, Darnall & Mil-Homens, 2003; Curry, 2001; Steelman, 2001) or related to the importance of their interest (Andereck & Vogt, 2000; Davis & Morais, 2004; De Lopez, 2001; Gunn, 1994; Gursoy et al., 2002; Yuksel et al., 1999), on the role of stakeholders towards tourism development including four categories of stakeholders: tourists, residents, entrepreneurs and local government (Goeldner & Ritchie, 2003). Results have shown that these above mentioned groups of stakeholders have reported divergent points of views regarding their impacts on tourism development (Pizam, 1978;

Romina Dhora (Bushati)

A full time lecturer in the University of Shkodra "Luigj Gurakuqi" since 2006. She finished the Master of Arts in Marketing at the Tirana University, in 2009 with excellent grades and her PhD in the field of Marketing at "Aleksander Moisiu" University, Durres in 2016. Romina is a full time lecturer in the Tourism Department and her main subjects are: Cultural Tourism, Gastronomic Tourism, Food and Beverage Management and Marketing Services, subjects that are taken in bachelor degree and master degree, professional and scientific.



Puczko & Ratz, 2000; Murphy, 1983). These divergences lead to conflicts within groups since they have different interest and perceptions of the benefits and cost of the development (Byrd, 1997; Gursoy & Rutherford, 2004; Ioannides, 1995; Reid, Mair & George, 2004). In order to minimize conflict it is needed to identify and understand stakeholders attitudes and perceptions (Hunter & Haider, 2001; Reid et al., 2002; Yuksel et al., 1999). Meanwhile in the tourism industry the efforts to create sustainability, encouraged the awareness about the fact that a larger involvement rather than only the direct tourism industry stakeholders is needed (Joppe, 1996; Simmons, 1994). Yuksel et al. (1999) emphasize the idea that feedback from stakeholders is important to facilitate tourism development.

Destination stakeholders

Weaver and Lawton (2002) affirm that the tourism industry includes accommodation, transport, food and beverages, tour operators, travel agencies, attractions and souvenir shops but also other businesses which deliver services for tourism consumption. Wider categories of touristic destinations include complementary and competitive businesses, infrastructure and public-private collaborations which create the full touristic experience. The local community is also a stakeholder in the tourism development and of the same importance is also the government (Timur & Getz, 2008).

5. RESEARCH FINDINGS

Tourism development in Albania is largely emphasized as a way to improve and to contribute to the economy of the country. Shkodra is a tourism destination with lots of natural and cultural resources but as in general in Albania, also in Shkodra, tourism is a new area of management and research. This research was focused in the importance of stakeholders identification by the tourism businesses which were considered as a primary group of stakeholders. A sample of 100 different tourism business stakeholders were asked to identify who do they consider as stakeholders in order to create a complete tourism experience. In the next step they evaluated the stakeholders based on three attributes: power, urgency and legitimacy. A value of 1 was considered the lowest value and 5 the highest one. The last step included the ranking of the identified stakeholders within each of the three attributes.

Power	Urgency	Legitimacy
Consumers 4.11	Consumers 4.39	Local government 4.06
Tourism associations 3.69	Suppliers 3.71	Consumers 4.03
Local government 3.36	Local government 3.62	Local community 3.86
Suppliers 3.12	Tourism associations 3.35	Suppliers 3.11
Local community 2.88	Local community 3.01	Tourism associations 2.85
Media 2.65	Banks 2.72	Media 2.65
Banks 2.48	Media 2.56	NGO-s 2.45
NGO-s 2.19	NGO-s 2.46	Banks 2.40

Table 1. Stakeholders identification and evaluation

The business stakeholders have identified eight groups of stakeholders they perceived as important to create a full tourism experience namely: the customers, local community, local

government, suppliers, tourism associations, media, banks and NGO-s. These identified stakeholders were next ranked by the three attributes: power, urgency and legitimacy. It resulted that customers are perceived as the stakeholder with the greatest power and greatest urgency. The most legitimate stakeholder was perceived to be the local government.

6. CONCLUSION

For a successful development of tourism it is needed to identify the key stakeholders since it is the best way towards the management of their expectations. For the tourism businesses which operate in Shkodra the most powerful and urgent stakeholder resulted to be the customer. Research suggests that stakeholders which combine two of the highest attributes need to be taken seriously and here the customer seems of high importance showing the attention businesses try to draw to them. On the other hand recently business management is focusing on employees in order to have satisfied customers and this strategy needs to be applied also by these businesses. As the most legitimate stakeholder is perceived the local government that means tourism businesses understand the importance of the right and legal and the fact that they to work with and within the context of its guidelines.

REFERENCES

- [1] Andereck, K. L., & Vogt, C. A. (2000) *The relationship between residents' attitudes toward tourism and tourism development options*, Journal of Travel Research, pp. 27-36.
- [2] Erick T. Byrd, (2007) *Stakeholders in sustainable tourism development and their roles: applying stakeholder theory to sustainable tourism development"*, Tourism Review, Vol. 62, Issue: 2
- [3] Carmin, J., Darnall, N., Mil-Homens, J., (2003) *Stakeholder Involvement in the Design of U.S. Voluntary Environmental Programs: Does sponsorship matter?* Policy Studies Journal, pp. 527-543
- [4] Clarkson, M. B. E. (1995) *A Stakeholder Framework or Analyzing and Evaluation Corporate Social Performance* , The Academy of Management Review, pp. 92 – 117
- [5] Curry, N. (2001) *Community Participation and Rural Policy: Representativeness in the development of Millennium Greens*, Journal of Environmental Planning and Management, pp. 561-576
- [6] D`Angella, F., & Go, F., (2009) *Tale of two cities' collaborative tourism marketing: Towards a theory of destination stakeholder assessment*, Tourism Management, Vol 30, pp. 429-440
- [7] Davis, J. S., Morais, D. B., (2004) *Factions and Enclaves: Small towns and socially unsustainable tourism development*, Journal of Travel Research, pp. 3-10
- [8] De Lopez ,T. T., (2001) *Stakeholder Management for Conservation Projects: A case study of Ream National Park, Cambodia*, Environmental Management, pp. 47-60
- [9] Donaldson, T., Preston, L. E., (1995) *The Stakeholder Theory of the Corporation: Concepts, evidence, and implications*, The Academy of Management Review, pp. 65-91
- [10] Freeman, E., (2010) *Strategic Management: A stakeholder approach*, UK: Cambridge University Press.
- [11] Freeman, R. E. (1984) *Strategic Management: A stakeholder approach*, Pitman, Boston
- [12] Goeldner, C. R., Ritchie, J. R. B. (2002) *Tourism: Principles, practices, philosophies*, 9th Ed., John Wiley and Sons, Inc, New Jersey
- [13] Gunn, C., (2002) *Tourism Planning*, London: Routledge

- [14] Hall, C. M., (2000) *Rethinking Collaboration and Partnership: A public Policy Perspective*. In: *Tourism Collaboration and Partnerships: Politics, Practice and Sustainability*, B. B. Lane, UK: Channel View Publications, pp. 143-158
- [15] Hall, C. M., (2008) *Tourism planning -policies, processes and relationships*, Harlow: Pearson Education Limited
- [16] Hunt, L., Haider, W. (2001) *Fair and Effective Decision Making in Forest Management Planning*, Society of Natural Resources, pp. 873-887
- [17] Ioannides, D. (1995) *A Flawed Implementation of Sustainable Tourism: The experience of Akamas, Cyprus*, *Tourism Management*, pp.583-592
- [18] Joppe, M., (1996) *Sustainable community development*, *Tourism Management*, pp.475-479.
- [19] Mitchel, R. et al., (1997) *Toward a Theory of Stakeholder Identification and Saliency: Defining the Principle of Who and what really count*, *The Academy of Management Review*, Vol 22, pp. 853-886
- [20] Murphy, P. E. (1983) *Perceptions and Attitudes of Decision Making Groups in Tourism Centers*, *Journal of Travel Research*, pp.8-12
- [21] Pizam, A. (1978) *Tourism's Impacts: The social costs to the destination community as perceived by its residents*, *Journal of Travel Research*, pp. 8-12
- [22] Reed, M. G. (1997) *Power Relations and Community Based Planning*, *Annals of Tourism Research*, pp. 566-591
- [23] Reid, S., Arcodia, C.(2002), *Stakeholder theory to event management contexts*, in Arola, E., Kärkkäinen, J. and Siitari, M.-L. (Eds), *Tourism and Well-Being*, The 2nd Tourism Industry and Education Symposium, pp.342-352
- [24] Ryan, C. (2002) *Equity, Management, Power Sharing and Sustainability- Issues of the ' New Tourism*, *Tourism Management*, pp.17-26
- [25] Sautter, E. T., Leisen, B. (1999) *Managing Stakeholders: A tourism planning model*, *Annals of Tourism Research*, pp. 312-328
- [26] Sheehan, R., Ritchie, B., (2005) *Destination stakeholders: A tourism planning model* *Annals of Tourism Research*, Vol 37, pp.711-734
- [27] Simmons, D. G., (1994) *Community participation in tourism planning*, *Tourism Management*, Vol 15, pp.98-108
- [28] Steelman, T. A. (2001) *Elite and Participatory Policymaking: Finding balance in a case of national forest planning*, *Policy Studies Journal*, pp. 71-89
- [29] Yuksel, F., Bramwell, B., Yuksel, A. (1999) *Stakeholder Interviews and Tourism Planning at Pamukkale, Turkey*, *Tourism Management*, pp. 351-360
- [30] Weber, M. (1947) *The Theory of Social and Economic Organization*, Henderson and Parsons, New York

CLUSTER ANALYSIS OF REGIONAL TOURISM IN SLOVAKIA

Dana Jašková⁴⁴

Abstract: *The clusters are now considered to be a significant economic factor. It increases the prosperity of the regions, and it's creating an environment for innovation. Clusters of tourism affect the development of industry in the region, their impact on the social, cultural and ecological life of the region. Clusters of industry operate on a regional basis. The article deals with one of the possible approaches to quantitative evaluation of the potential of the region for mutual comparison of the regions in the Slovak Republic. Using the cluster methods of analysis are analysed for regions of Slovakia. The results of the analysis are compared with the existing situation in Slovakia. It is also referred to the potential of the regions for the creation of new clusters in the tourism industry.*

Key words: *Clusters, tourism, regional analysis*

1. INTRODUCTION

One of the EU's objectives is to improve the socio-economic level of the regions of the Member States. To achieve this objective it is important the level of economic and social development. It is in each countries at different levels and is determined by the situation and the developments in different regions of the Member States. Region in the EU is regarded as the main element and at the same indicator of economic development. The region is considered to be a political, economic, social and cultural unit [1]. Activities are aimed to improving the welfare and performance of the regions and are referred to as a regional policy. We mean the notion of regional policy as a set of objectives, tools, methods and measures that lead to the reduction of the disparities in the socio-economic level of individual regions [2].

One of the options for improving the economic performance of regions is to promote the development in certain sectors of the prevailing in the region. This creates a unique environment to unite enterprises of a similar nature. Those tries to exploit the comparative advantages of the region, thus creating a network of a wide range of companies connected to specific networks, i.e. the cluster. The term cluster became part of different developmental directions of economic theory and practical experience in the field of economic development. For the definition of a cluster there are a variety of definitions. The most common definition is: „Clusters are geographic concentrations of interconnected companies, specialized suppliers, service providers, and companies in related industries and associated institutions (such as universities, agencies, business associations) in a certain area which not only compete but also cooperate“ The most important participants of the clusters are small and medium-sized enterprises. Thanks to the cooperative agreements small and medium-sized enterprises are able to increase their competitiveness and face pressure to be out of the market [4]. The clusters will become particularly important in industries where is applicable the Gibratov law and so where small businesses don't grow faster than large enterprises and so ones do not have one of its essential

⁴⁴ Faculty of Social and Economic Relations, Alexander Dubček University of Trenčín, Študentská 3, 911 50 Trenčín, Slovakia

advantages against to big firms [5], [6]. Other major entities involved in the cluster include: public administration and self-government, middle and high school, scientific research institutes and so on. In the definitions of clusters areas of cooperation and relations between firms, agglomerating effects, social capital, economies of scale, the transfer and dissemination of technology, innovation and knowledge management are overlapping [7].

To the common element and the ties, which form the basis of successful clusters include the following attributes: cluster management, cooperation and competition, ties, system's approach, the life cycle of the cluster, innovation and so on. Clusters play a major role in the development of the various regions by contributing to an increase in their competitiveness [8].

The promotion of regional development by influencing of the existence of the cluster in the region is affected by several factors. This is the level of the scientific research base and access to research institutions and facilities in the region. Furthermore it is a kind of culture of the participating firms, proximity to markets and the level of transport infrastructure, materials technology, the availability of skilled labour, the ability to finance, raw material's availability, the availability and the level of potential participants in the cluster and foreign markets. Different research works indicate that the mapping of differentiation in individual regions focused on sectorial structure is required condition for cluster creation [9].

The peculiarity of the cluster is organized on the basis of the principle of the uniqueness of regional internal environment, infrastructure, macro-level system of their own to the region. Also the feasibility of it competitive advantages in the territory through the integration. The cluster acts as a stimulus of economic development. Regionality is the support point for the stable development of the cluster, which has an important role in the selection of the priority directions of investment in the region. The investment's effectiveness in accordance with cluster is conditional by strengthening the cluster to the reciprocal links between the participants [10].

2. CLUSTERS OF TOURISM AS PART OF THE DEVELOPMENT OF THE REGIONS

Tourism and its product comprises a group of companies of a different nature. Their goal is to meet the needs of visitors in the tourism industry. The development of a cluster of tourism affects the development of other industries in the region. It has an impact on the social, cultural and ecological life of the region. Not every region has the potential for the emergence of a cluster of tourism. If the cluster has also become a factor for regional development, it must be created in the region with appropriate conditions. Cluster in tourism can be defined as: "Targeted mutual cooperation of actors product creation and actors of regional development by means of tourism, which simultaneously meets the needs of tourists while supporting business environment in accordance with the moral and environmental regulations of the objective region" [11].

In places with an attractive offer, tourism and also tourism's clusters are subjects of economic recovery and instruments of economic development. Clusters of tourism have become bearers of offerings, the makers or marketing promoters of tourism products. The visibility of the region has resulted into increase of its traffic. This has other positive economic impacts. Clusters therefore can be seen as a tool of regional development. Clusters are able to offer clients packages of services that did not offer so far. The formation of the cluster is a long-term process, which is based on the existence of appropriate conditions in the tourism industry. Includes two phases: the mapping of the cluster formation and development of the cluster. The formation of

the cluster in the region represents a long-term process based on the identification of its potential. This natural and cultural-historical attractions give rise to traffic. To identify the potential and the appropriateness of the assessment of the conditions for the establishment of a cluster are:

- identifying existing or potential competitive advantages that have the prospect to developing,
- processing strategies for the use of the key opportunities for businesses and partners involved,
- creation of added value for the customer with the ability to offer a comprehensive tourism product for the national and even international market,
- the creation of new employment opportunities,
- a common solution of the problems raised by the undertakings in the cluster [12].

Cluster or networks in tourism are typical examples of „knowledge economy“. Clusters in tourism support cooperation of various actors of tourism and focus on the raise of the regions competitiveness. This is more or less the only similarity with the technology cluster. The reason for their difference is the fact that the tourism has different inputs, outputs and specifically structured functional environment. The differences between tourism and industrial clusters are in:

- tourism is seasonal,
- tourism has different localization factors (natural attractions, human-geographic attractions),
- tourism can be well-developed even in peripheral regions,
- employees in tourism have different structural qualification,
- products of tourism can even have abstract character (experience, education, culture, etc.)

Each geographical region of Slovakia shows different results of various economic, employment, the structure of the industry, the amount of the wages, the potential for tourism and other indicators. The attractiveness of regions creates a good potential for the formation of clusters of tourism.

Cluster Liptov is the first cluster of tourism in Slovakia. It was founded in 2008. This association tries to build a considerable destination of tourism of the Liptov region with strategic aim to increase the attendance of Liptov at least to a double. A brief overview of the existing cluster of tourism are provided in table 1.

<i>Title</i>	<i>Region</i>	<i>Date of establishment</i>	<i>Type of cluster</i>
Cluster Liptov	Žilina	2008	Cluster of tourism
Cluster of tourism Western Slovakia	Trnava	2008	Cluster of tourism
Cluster Orava	Žilina	2009	Cluster of tourism
Cluster Turiec	Žilina	2009	Cluster of tourism
Cluster Horehronie	B. Bystrica	2011	Cluster of tourism
Balnea Cluster Dudince	B. Bystrica	2008	Spa tourism cluster
Cluster Smolenice	Trnava	2010	Rural cluster of tourism
Novohradský Cluster	B. Bystrica	2009	Rural cluster of tourism
Cluster Košice	Košice	2010	City cluster of tourism
Cluster Šariš	Prešov	2014	Cluster of tourism

Cluster Slanské vrchy	Košice	2010	Cluster of tourism
Cluster Topoľčany	Topoľčany	2012	Cluster of tourism
Cluster Tatry	Prešov	2010	Cluster of tourism
Cluster of border castles in southern Slovakia	B. Bystrica	2010	Cluster of tourism

Table 1. Clusters of tourism in Slovakia

The main initiators and founders of the cluster of tourism in Slovakia are mostly private companies, autonomous counties, cities, towns and rural settlements. The number of clusters and their members in compared with countries in Europe is lower and in the functioning less efficiently. Their links with universities and research centres is inadequate, hardly any. The major problem in achieving the objectives and the promotion of the regions is the lack of financial resources. In terms of geographical scope of all clusters and the regional nature of the mikroregionálny. The aim of the article is using the multidimensional statistical methods to track clusters at the level of districts in considering appropriate indicators.

3. MATERIAL AND METHODS

For the selection of the indicators to be used in this study the starting point was the World Tourism Organization guidelines [13]. To evaluate the potential of the districts in Slovakia using cluster analysis we have chosen regional indicators available in the databases of the Slovak Statistical Office for the year 2016 [14]: Number of accommodation facilities, Number of beds in accommodation facilities, Number of visitors in accommodation facilities, Number of overnight stays by visitors in accommodation of facilities, Emissions of basic pollutants – particulates, Emissions of basic pollutants – Carbon monoxide, General and specialized hospitals, Number of cultural facilities (theaters, cinemas, museums, galleries, ...), Electricity consumption, Consumption of drinking water, Number of registered job applicants.

The potential of the regions we evaluated by using Cluster analysis, one of the methods to deal with the investigation of similarities of multidimensional objects. Clustering is a classification of objects into various clusters so that objects within a cluster are similar as far as possible and with objects from different clusters. In drawing up the cluster analysis usually proceeds in the following steps [15]:

1. Standardization of selected variables (z-score).
2. The selection criteria on the basis of the calculation method of hierarchical cluster analysis CC (Cophenetic correlation coefficient, Delta (0.5) and Delta (1). When considering the degree of tightness of the construction dendrogram assurance or transfer. The first criterion in the choice of the "best" dendrogram is CC. The second criterion is a criterion that is leak-transfer by delta Δ measured the degree of changes to the structure of the data rather than the degree of similarity. Delta criterion is defined by:

$$\Delta_A = \left[\frac{\sum_{j < k}^N |d_{jk} - d_{jk}^*|^{1/A}}{\sum_{j < k}^N (d_{jk}^*)^{1/A}} \right]^A \quad (1)$$

where $A = 0.5$ or 1 , d_{jk} is the distance in the original matrix of distances and d_{jk}^* indicates the distance obtained from dendrogram. It is desirable that the values A were close to zero. Many of the authors showed that the average method leads to the best dendrogram.

3. The creation of dendrogram.

4. AN ASSESSMENT OF THE POTENTIAL OF THE REGIONS FOR THE DEVELOPMENT OF THE CLUSTER

The Slovak Republic consists of 79 districts at NUTS level 4. As far as Bratislava and Kosice tend to create an urban cluster of further analysis have been left out of the districts of these cities. In the analysis is joining the 70 properties. For the purposes of the analysis of the cluster was used 11 regional indicators. Input data had different variability of different units of measure. All values were converted to the middle state of the population in a given period. Therefore in the introduction of the analysis the data was standardized by z-score. In the next step we proceeded to choose the most appropriate cluster methods. Based on the calculations of the cophenetic correlation coefficient $CC = 0,725849$, $\Delta(0.5) = 0,531541$ and $\Delta(1.0) = 0,639355$, we have set that the most appropriate clustering method is Complete Linkage (Furthest Neighbor) with Euclidean distance type. The analysis was carried out in NCSS 11.0 12. The following illustrates the resulting dendrogram 11 clusters.

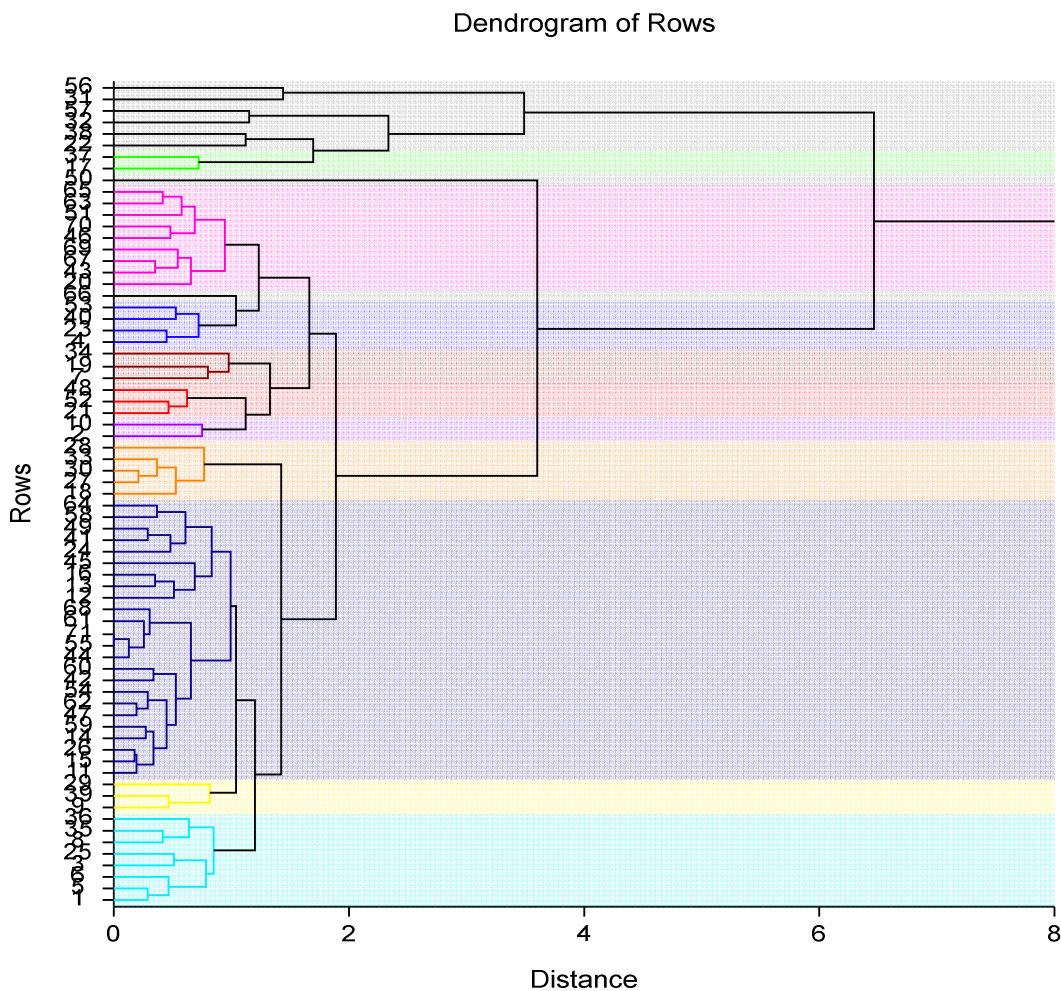


Figure 5 Dendrogram of clusters of tourism in Slovakia

Source: own processing

In view of the large number of cluster properties, it is not clear from the image into the competence clusters. In the following table (Table 2) we present the classification of districts in each of the clusters.

<i>Clusters</i>	<i>Districts</i>
Cluster 1	Poprad, Liptovský Mikuláš, Prešov, Martin, Banská Bystrica, Nitra
Cluster 2	Žilina, Prievidza
Cluster 3	Košice-okolie, Vranov nad Topľou, Bardejov, Trebišov, Rimavská Sobota, Spišská Nová Ves, Rožňava, Lučenec, Komárno
Cluster 4	Kežmarok, Brezno, Nové Zámky, Dunajská Streda
Cluster 5	Ružomberok, Trenčín, Piešťany
Cluster 6	Zvolen, Humenné, Levice
Cluster 7	Trnava, Pezinok
Cluster 8	Čadca, Námestovo, Kysucké Nové Mesto, Bytča, Púchov
Cluster 9	Gelnica, Sabinov, Žarnovica, Detva, Šaľa, Revúca, Považská Bystrica, Myjava, Ilava, Sobrance, Stropkov, Medzilaborce, Poltár, Stará Ľubovňa, Krupina, Levoča, Svidník, Veľký Krtíš, Snina, Nové mesto nad Váhom, Zlaté Moravce, Partizánske, Bánovce nad Bebravou
Cluster 10	Dolný Kubín, Banská Štiavnica, Skalica
Cluster 11	Tvrdošín, Turčianske Teplice, Senica, Topoľčany, Senec, Hlohovec

Table 2 Classify districts into agglomerations

Source: own processing

From the inclusion of district shows the validity of the existing cluster of clusters. Proof of this are the clusters of 1, 2, 8, 7. From these clusters work effectively clusters Liptov, Orava, Turiec. Some potential can be identified for the district Trenčín. The biggest similarity in indicators is being tracked with the district Piešťany. Piešťany district has long recognised the high level of tourism. It can therefore be stated that there is the potential for the formation of the cluster in the region Trenčín.

5. CONCLUSION

Cluster cooperation can be characterized as a collaboration between local entities, which are active in a particular sector. Entities involved in the cluster perform their primary activity. At the same time benefit from the participation of and collaboration with other entities included in the cluster. This leads to the emergence of innovation and increase in employment. It has an impact on the whole regional development. Clusters of tourism make up a specific framework for this cooperation. At the level of the districts of the Slovak republic were analysed 11 selected indicators. With them, we have defined the qualitative conditions for the existence of the

Jašková Dana, RNDr., PhD.

WORK EXPERIENCE

09. 2011 – Present

*Assistant professor at the university
Faculty of Social and Economic Relations
TnUAD Trencin
Training courses Statistics, Mathematics,
Demography, Computer Science, Applied
Science, Database Systems. Contractor
learning through e-Learning.
Investigator ESF- Digitisation study
materials*

09. 1997 – 08. 2011

*Assistant professor at the university
Faculty of Mechatronics
TnUAD Trencin
Training courses Statistics and Probability,
Statistical Quality Control, Stochastic models
inequality management, data processing.
Contractor training by eLearning.
Project leader: Improhelt collaborative LdV
SK/06/B/F/PP -17743
KEGA č. 3/3074/05 – Modern teaching
methods courses Computer Aided
Quality Management Systems
KEGA 3/125403 - Teaching metrology
systems of quality assurance in accordance
with EU*

cluster. On the basis of these indicators has been allocated 11 clusters. The clusters are assigned to the districts with most similar as possible to the conditions for the effective operation of tourism. From this perspective, it appears to be some potential for the region of Trenčín for the formation of the cluster in tourism.

REFERENCES

- [1] Krajňáková, E., Vojtovič, S. (2012) *Význam ľudského kapitálu a kreatívnych klastrov v rozvoji regiónu*. In: Sociálno-ekonomická revue. 1/2012, pp. 76-84.
- [2] Habánik J., Koišová, E. (2011) *Regionálna ekonomika a politika*. Bratislava: Sprint dva, 2011.
- [3] Porter, M.E. (2000) *Location, Competition, and Economic Development: Local Clusters in a Global Economy*. In: Economic Development Quarterly, 14(1), pp.15-34.
- [4] Wöhe, G., Döring, U. (2002) *Einführung in die Allgemeine Betriebswirtschaftslehre*. 21. neubearb. Auflage. München: Vahlen.
- [5] Leitão, J., Serrasqueiro, Z., Nunes, P. M. (2010) *Testing Gibrat's law for listed Portuguese companies: a quantile approach*. In: International Research Journal of Finance and Economics, 37, pp. 147–158.
- [6] Del Monte, A., Papagni, E. (2003) *R&D and the growth of firms: empirical analysis of a panel of Italian firms*. In: Research Policy, 32(6). pp. 1003–1014.
- [7] Kordos, M., Karbach, R. (2014) *The Issue of Innovation in International Economics*. In: Political science, Law, Finance, Economics and Tourism, Vol III, Book Series: International Multidisciplinary Scientific Conferences on Social Sciences and Arts, SGEM pp. 653-667.
- [8] Navickas, V., Vojtovic, S., Svazas, M. (2016) *Clusterization processes influence to competitiveness: biomass clusters case*. Conference: proceedings of the 1st international conference contemporary issues in theory and practice of management: CITPM 2016 pp. 302-308.
- [9] Havierníková, K., Strunz, H. (2014) *The comparsion of selected methods used for identification of cluster potential in the regions of the Slovak Republic*. Political sciences, law, finance, economics and tourism conference proceedings. SGEM, vol. IV, p. 693-700.
- [10] Krajňáková, E. (2016) *Vznik a fungovanie klastrov v rozličných regiónoch sveta*. In: Sociálno-ekonomická revue. 3/2016. pp. 31-42.
- [11] Zdon – Korzeniowska, M. (2009) *Jak kształtować regionalne produkty turystyczne*. Teoria i praktyka. Wydawnictwo Uniwersytetu Jagiellon'skiego, Kraków, pp. 206.
- [12] Belešová, S. (2009) *Klastre cestovného ruchu ako faktor regionálneho rozvoja*. In 13. Nitra: Univerzita konštantína Filozofa v Nitre. pp. 22-26.
- [13] WTO, 2004. *Indicators of Sustainable Development for Tourism Destinations*. A Guidebook. [online] [cit. 2017.11.11] Available: <http://www.e-unwto.org/doi/book/10.18111/9789284407262>
- [14] Statistical office of the Slovak republic (2017) *DataCube*. [online] [cit. 19.11.2017] Available: www.statistics.sk
- [15] Meloun, M., Militký, J. (2002) *Kompendium statistického zpracování dat*. Praha, Academia 2002.

TAKING ADVANTAGE OF UNESCO WORLD HERITAGE FOR PROPAGATION OF SLOVAK DESTINATIONS

Barbora Suchá⁴⁵

Abstract: *Slovakia may be proud of having numerous monuments and rarities which belong to UNESCO World Heritage List. In well managed destination's propagation this fact should be used as an advantage. The goal of this paper is the analysis of taking advantage of UNESCO World Heritage for propagation of Slovak destinations at home and abroad. Based on the current state of the problem being solved concerned about importance of marketing in destinations' presentation as well as about destination management itself, the analysis could have been realized. Data for analysis were obtained either from commonly available websites of Slovak destination management organizations or interviews with managers of Slovak destination management organizations. Results of analysis are provided in this paper. They show that taking advantage of UNESCO World Heritage is different in every destination. There are some destinations which could be used as examples of successful destination's propagation using UNESCO World Heritage as a competitive advantage of destination. At the same time there are destinations which are not able to take advantage of such precious treasure which they dispose of. At the end of paper, there are some suggestions for those destination management organizations, which do not use UNESCO World Heritage as a competitive advantage, with the aim of showing them the potential of well managed propagation.*

Key words: *UNESCO, destination, marketing*

1. INTRODUCTION

The fact that some monument is inscribed on UNESCO World Heritage List gives the monument big competitive advantage. It is the task of destination management organizations (DMO's) to take advantage of it. Our task in the realized research was to find out whether it is reality in Slovakia and if not, what has to be improved. The theoretical background of problem being solved is summarized in chapter 2. From the theoretical point of view it is important to concentrate on the topic of tourist attractions, UNESCO World Heritage List and promotion of destination and its tourist attractions. In chapter 3 the methodology used in research is explained. In the next chapter the objects of investigation are described. The last chapter offers us the results of realized research, the summary and recommendations resulted from findings.

2. CURRENT STATE OF THE PROBLEM BEING SOLVED

Tourist Attractions

Tourist attractions are strong impulses which motivate people to travel. At the point of tourist's decision making regarding the place of visit, attractions offered in destination play a big role. Despite the fact that attractions earn just a small part of money spent by tourists in destinations, they are the motivators for coming to destination and spend the money on primary services of

⁴⁵ Comenius University in Bratislava, Faculty of Management, Odbojarov 10, P.O.BOX 95, 820 05 Bratislava 25, Slovakia

tourism: accommodation, eating, transportation, etc. The more various attractions offered by destination the better influence on tourism it has. [1]

There are different types of attractions, the basic division of attractions is: built and natural attractions. [2]

As another deeper division of tourist attractions can be considered following: natural, historical, recreation, commercial, technical, cultural and entertainment attractions. [1]

UNESCO World Heritage List

UNESCO World Heritage List is a list of cultural and natural heritage which is unique and should be kept for next generations. Due to the fact that today's world is facing numerous economic and social changes and the protection of cultural and natural rarities at the national level is incomplete, stronger safeguard is necessary. Otherwise the cultural and natural heritage would be in a big danger of destruction. [3]

Cultural and natural rarities inscribed on the UNESCO World Heritage List belong to the tourist attractions which motivate tourist to travel. Moreover, UNESCO is a world known brand which adds value to the attractions in the tourists' eyes. The candidates for placement in the UNESCO World Heritage List have to be unique but have to meet more criteria at the same time. Therefore the rarities belonging to the list can be considered as very special and prominent, and the UNESCO brand can be considered as their competitive advantage. [4]

Promotion of Destination and Its Tourist Attractions

Lately, the development of tourism has been connected with development of regions. Destination management has been considered as a relatively new way for growth of tourism in regions. It is a group of activities realized by destination management organizations namely strategic planning, cooperation and coordination of tourism subjects in destination and promotion of destination utilizing the subsidy funds. [5]

If we want tourists to come to the destination, firstly they have to be informed that such a destination exists and is worth of their visit. Therefore marketing is an unavoidable part of destination management. Promotion of destination and its offer is necessary in order to catch attention, generate interest, initiate the desire for coming and realize the trip. Promotion can be

BARBORA SUCHÁ

EDUCATION

2017 - *Comenius University in Bratislava, Faculty of Management, graduate: Management*

2012 – 2017 *Comenius University in Bratislava, Faculty of Management, bachelor, master: Management*

2015 – 2016 *Erasmus, Austria, Steyr: University of Applied Sciences Upper Austria, School of Management*

2014 *Erasmus, Belgium, Brussels: EPHEC University College*

2004 – 2012 *GCM – Secondary Grammar School in Nitra*



EXPERIENCE

2017 February – 2017 June:

MAN Truck & Bus AG, Munich

Position: **trainee at Procurement Department**

2016 April - 2017 January:

Nestlé Slovensko s.r.o., Bratislava

Position: **trainee - physical distribution**

2012 - *Ing. Mária Suchá – Lay assessor, specialization: Agriculture*

Position: **assistant**

2015 *GLOBAL CONTRACT s.r.o., Bratislava*

Position: **event assistant**

2015 *HERIAL, s.r.o., Bratislava*

Position: **assistant**

2014, 2015 July: *DUSLO, a. s., Šaľa*

Position: **brigade – worker**

realized through various forms: advertisement, personal selling, public relations, activities for sales promotion (tourism fairs, press trips). [1] It is important to build communication mix:

- *advertisement* – it is a paid form of promotion the aim of which is to persuade potential customer to buy a product or service; It is paid by known sponsor, it should catch the attention of potential customer and bring the positive feeling in his thoughts, [1], [6]
- *public relations* – in tourism, it is important to build good relationships with the public - visitors, community, employees and suppliers; it is important to build harmony among all these groups; to find positive messages and transform them to positive stories as well as to formulate the best response when the negative news appear in order to mitigate the damage, [7]
- *online marketing* – development of internet has brought various changes into people's lives and tourism was one of the areas where the impact was visible very early and is still more and more actual (social media, blogs, forums, etc.) – internet started to be the source of information and later it started to be used as a distribution canal. [1]

3. METHODOLOGY

For gaining all the necessary data, it was important to combine more techniques. At the beginning, we had a look at UNESCO World Heritage web page to get the actual list of monuments and rarities in Slovakia which are inscribed on World Heritage List. We decided to concentrate on cultural monuments. In the next step, it was necessary to find which destination management organization is responsible for propagation of each monument. This step was realized through internet research.

Interview

We realized a qualitative research, specifically non-personal interviews with the managers of DMO's realized through e-mails asking six questions. Before sending the e-mails with questions we had a phone call with all managers to ensure that they were going to cooperate.

In interview, we asked following six questions:

1. Does your DMO promote monuments inscribed on UNESCO World Heritage List (UWHL) situated in your destination?
2. Does your DMO take advantage of the fact that the monuments belong to UWHL and consider it as a competitive advantage?
3. How does your DMO promote monuments inscribed on UWHL?
4. Where does your DMO promote monuments inscribed on UWHL?
5. Who does your DMO communicate the monuments' visits with?
6. What effect does the realized propagation have on number of visitors? Do you measure it anyhow?

Internet research

While waiting for answers, we realized internet research about all DMO's webpages looking for UNESCO. We had a look at propagation of the UNESCO monuments, whether the UNESCO is used as a competitive advantage and how the UNESCO monuments are promoted.

Analysis of gained results

In the last step, we analysed the answers got from interviews, we compared the answers and the information from internet research. We analysed what the DMO's are doing well and what should be improved.

4. OBJECT OF INVESTIGATION

In Slovakia, there are forty DMO's. [8] Following Slovak properties are inscribed on the UNESCO World Heritage List:

- **cultural:**
 - Historic Town of Banska Stiavnica and the Technical Monuments in its Vicinity,
 - Levoca, Spissky hrad and the Associated Cultural Monuments,
 - Vlkolinec Reservation of Folk Architecture,
 - Bardejov Town Conservation Reserve,
 - Wooden Churches of the Slovak part of the Carpathian Mountain Area,
 - **natural:**
 - Caves of Aggtelek Karst and Slovak Karst,
 - Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe.
- [9]

In the realized research, we have focused on propagation of cultural properties. Localization of them is shown in the Picture 1.



Picture 1: Localization of cultural properties in Slovakia inscribed on UNESCO World Heritage List

In the research we concentrated just on DMO's where the cultural properties inscribed on UNESCO World Heritage List are situated. Those are these 8 DMO's:

- DMO Banska Stiavnica,
- DMO TATRY-SPIS-PIENINY,
- DMO REGION LIPTOV,
- DMO "SARIS" – BARDEJOV,
- DMO Cluster Orava,
- DMO Middle Slovakia,
- DMO North-East of Slovakia,
- DMO Kosice Region.

5. RESULTS

Realized analysis of answers obtained from interviews and the information obtained from internet research has brought various results.

1. Does your DMO promote monuments inscribed on UNESCO World Heritage List situated in your destination?

All answers to this question were yes. They promote these monuments what is also proved on their websites. However, the major question here is whether they take advantage of value added by the fact that the monuments are inscribed on UNESCO World Heritage List. The answer was found in the answers to the next questions.

2. Does your DMO take advantage of the fact that the monuments belong to UNESCO World Heritage List and consider it as a competitive advantage?

All DMO's consider the UNESCO monuments as a competitive advantage since, as they said, UNESCO is the sign of quality and uniqueness and is also known to visitors from outside of the destination. DMO Kosice Region has decided to use UNESCO as one of the main pillar of destination's propagation. For propagation, they decided to use *UNESCO within reach* strategy built on 18 monuments and rarities reachable within 100 minutes from Kosice. They decided to use *UNESCO within reach* as the main identifier of their destination, which has got a big potential for catching the attention of tourists through building a strong brand image.

3. How does your DMO promote monuments inscribed on UNESCO World Heritage List?

Among the interviewed DMO's, it is common to use websites, social networks and propagation materials like booklets. Some of them use mobile applications with the use of which they guide tourists through UNESCO monuments. Another way of propagation is realized through tourist information centres or the brown indicators along the roads.

However, during the realized research we found out that although the DMO's say that they use website for propagation, they do not promote the UNESCO monuments as they could. We found out that most of the time the UNESCO monuments are hidden somewhere among the other monuments, there are no UNESCO sections or UNESCO headlines. As a good example of propagation of UNESCO monuments can again be used *UNESCO within reach* realized by DMO Kosice Region. Since the DMO decided to use that as an identifier of destination, they created its own webpage which is linked through webpage of DMO. Beside that they also decided to use huge static forms as well as dynamic forms of advertisement.

4. Where does your DMO promote monuments inscribed on UNESCO World Heritage List?

Answers to this question varied a lot. Some DMO's promote their destination and UNESCO monuments also abroad using advertisement or tourism fairs. The most popular countries are the Czech Republic, Poland, Hungary or Austria. One DMO is not active in propagation abroad at all. The only thing they do is a cooperation with a few foreign bloggers. Regarding propagation in Slovakia, all the DMO's are active and try to catch the attention of tourists within the region as well as within the whole country.

5. Who does your DMO communicate the monuments' visits with?

Realized research has showed that DMO's mainly communicate with individuals and a part of this communication is realized through tourist information centres. Representatives of DMO's

meet potential tourists at tourism fairs, too. However, such communication is again communication with individuals. As a part of propagation, the DMO's also talk to the journalists. DMO's do not communicate with any travel agencies with the aim of persuading them to bring tourists to their destination. This means that the DMO's always work with the actual number of tourists but do not know any predictions – how many tourists are going to arrive. However, if they cooperated with travel agencies, they would be informed and could prepare better.

6. What effect does the realized propagation have on number of visitors? Do you measure it somehow?

One DMO does not measure the impact of propagation at all. Another DMO says that it is impossible to measure the impact of propagation. The others either use the statistics about visits rare made by Statistical Office of the Slovak Republic, create their own statistics, use the data from social networks or combine all of them.

SUMMARY AND RECOMMENDATIONS

From the realized research, we have found out that DMO's in Slovakia realize the value of monuments and rarities inscribed on UNESCO World Heritage List, they also consider it as a competitive advantage, but they cannot take the advantage of it. They make propagation of UNESCO monuments but limit themselves too much on their region or the country. It is necessary to show the tourists from abroad who have no idea about these Slovak destinations that they exist and they offer such a wide spectrum of unique monuments. Propagation of these monuments realized within the region is well done. However, the international propagation is very important for the future of tourism in Slovak destinations. At the same time, it is necessary to point out the fact that all these monuments belong to UNESCO. Everyone knows UNESCO and can recognize its value. We then recommend to start cooperation with foreign travel agencies. It is important to show them what treasures these destinations dispose of and to catch their attention in order to motivate them to bring tourists there. Such cooperation with travel agencies will cause that DMO's will know how many tourists are going to come to their destination so they can prepare better. The last recommendation is to keep abreast of the times – to create and promote new and interesting mobile applications to catch the visitors' attention.

REFERENCES

- [1] Goeldner, Ch. R., Brent Richie J. R. (2014) *Cestovní ruch, Principy, příklady, trendy*, BizBooks, Brno, pp. 196-198.
- [2] Tourism Western Australia. (2009) *What is a Tourist Attraction?* In *Tourism Western Australia*. [online] Available on internet: <http://www.tourism.wa.gov.au/jumpstartguide/pdf/Quickstart_What%20is%20a%20Tourist%20Attraction%2008LOW.pdf>
- [3] UNESCO World Heritage Centre. *Convention Concerning the Protection of the World Cultural and Natural Heritage*. In *UNESCO*. [online] Available on internet: <<http://whc.unesco.org/en/conventiontext/>>
- [4] UNESCO World Heritage Centre. *List of factors affecting the properties*. In *UNESCO*. [online] Available on internet: <<http://whc.unesco.org/en/factors/>>
- [5] Hesková, M. et al. (2011) *Cestovní ruch*, Fortuna, Praha, pp. 151.
- [6] Cambridge Dictionary. *Advertisement*. In *Cambridge Dictionary*. [online] Available on internet: <<https://dictionary.cambridge.org/dictionary/english/advertisement>>

- [7] Wynne, R. *Five Things Everyone Should Know About Public Relations*. In *Forbes*. [online] Available on internet: <<https://www.forbes.com/sites/robertwynne/2016/01/21/five-things-everyone-should-know-about-public-relations/#4a59ea952a2c>>
- [8] Ministry of Transport and Construction of the Slovak Republic. *Register of Destination Management Organizations*. In *Ministry of Transport and Construction of the Slovak Republic*. [online] Available on internet: <<http://www.telecom.gov.sk/index/index.php?ids=117872>>
- [9] UNESCO World Heritage Centre. *Properties inscribed on the World Heritage List*. In *UNESCO*. [online] Available on internet: <<http://whc.unesco.org/en/statesparties/sk>>
- [10] Bartakova, G. et al. (2007) *Základy marketingu*, 228, Bratislava, pp. 197-226.
- [11] Michalova, V. et al. (2001) *Služby a cestovný ruch*, SPRINT, Bratislava, pp. 243, 287.

RURAL TOURISM AS A MEANS FOR STRENGTHENING RURAL ECONOMY

Gordana Rokvic⁴⁶

Milos Galic⁴⁷

Zeljko Vasko⁴⁸

Abstract: *The aim of this paper is to identify and valorise potentials for the development of rural tourism in Bosnia and Herzegovina, as well as presenting the benefits of rural tourism for strengthening the rural economy of the area. Through the case study of the selected new tourism product in the form of a network of bicycle paths, the direct and indirect benefits of rural tourism in the context of strengthening the rural economy would be identified.*

Rural tourism includes all tourist activities that can be realized in rural areas. The impact of rural tourism on the given area manifests itself through the decrease of unemployment, the improvement of the demographic situation in rural areas, the increase of revenues, the development and strengthening of local economy and thus reduces the disparities in regional development. A priority condition for the development of rural tourism is the strong strategic and financial support, which should create the necessary environment and promote a certain concept of development.

Rural development, is a key instrument for the restructuring of the rural areas and agricultural sector and the activation of tourism potentials, through the diversification of agricultural production that will be attractive to tourists. Therefore, one of the goals is to show rural tourism as an additional activity in the rural areas as one of major development opportunity that will help the development of the rural environment. Rural areas are areas that, on the one hand, are abundant with the preserved natural and cultural resources necessary for the development of tourism, and on the other hand significantly lagging behind in economic development in relation to urban areas.

Valorisation of potentials for rural tourism was carried out on case study of two municipalities and with FAS (Factors, Attractors, Support) methodology, which is actually the first example of applying this method in Bosnia and Herzegovina, based on available references.

Key words: *Rural tourism, rural area, valorisation, FAS methodology, case study*

1. INTRODUCTION

Bosnia and Herzegovina is certainly one of the most rural countries in Europe, with between 40 and 60 percent of the population living in rural areas according to the definition used [1]. This confirms the fact that BiH is predominantly a rural country that has the potential to develop economic activities in the rural area, which are underutilized.

Arnaut and Fehrić [2] state that tourism has an explicit impact on macroeconomic aggregates and increases the macroeconomic stability of each country, while at the same time facilitating

⁴⁶ University of Banja Luka, Faculty of Agriculture, Vojvode Petra Bojovica 1A, 78000 Banjaluka, Bosnia and Herzegovina

⁴⁷ Visitor Centre PECKA, Pecka b.b., 70260 Mrkonjic Grad, Bosnia and Herzegovina

⁴⁸ University of Banja Luka, Faculty of Agriculture, Vojvode Petra Bojovica 1A, 78000 Banjaluka, Bosnia and Herzegovina

regional and local development, and increasing employment in undeveloped areas and tourist-attractive destinations. This is precisely the chance for BiH tourist destinations at the local level that have comparative advantages and which the global tourism industry has accepted as a promising tourist destination.

According to the Export strategy for the tourism sector [3], the WTTC (World Travel & Tourism Council) notes that tourism demand in Southeast Europe (SEE) is on a steady pace and exports of tourism services in Bosnia and Herzegovina amount to 1,136.6 million in 2011. The same organization further envisages a nominal increase in the export of tourism services in Bosnia and Herzegovina of 8.3% per year, thus the total value of tourism services exports in 2021 would amount to BAM 2,025.4 million.

Ćatović and Mešković [4] point out that rural tourism in Bosnia and Herzegovina is at an early stage, but as most of the rural area has a characteristic of the socio-economic crisis, it could become a significant factor in the revitalization of rural areas.

Vaško and Vojnović [5] were researching possibilities of development of rural tourism in the Republic of Srpska argued that rural tourism is an effective response to demographic, economics and environmental challenges, and have proven that the selected municipality has a lot of natural, cultural-historical and other potentials for the development of rural tourism and that there is an interest of the rural population to engage in these activities (19% of surveyed rural households wanted to deal with rural tourism).

Madzar and Madzar [6] in their analysis of rural tourism potentials in Herzegovina point out that non-existent or non-compliant legal regulations are reflected as a limiting element in the development of this type of tourism on the observed space. On the other hand, the

Gordana Rokvić obtained her first work experience in the Agricultural Advisory Service of the Republic of Srpska, after which she transferred to permanent employment at the University of Banja Luka,



Faculty of Agriculture, where today she is in a position of assistant professor in subjects of: Rural Development Policy, Rural Development Programing, Agricultural Extension Methods, Rural Tourism, Agricultural Cooperatives and others.

From 2006 to 2009 she worked in the Ministry of Agriculture, Forestry and Water Management at the Unit for Coordination of Agricultural Projects. From 2010-2011, based on an agreement concluded between the University of Banja Luka and the Ministry of Agriculture, Forestry and Water Management, she was engaged in the Regional Representation of the Republic of Srpska in Brussels as a consultant for agriculture and rural development. Since 2013, she has been hired in the Ministry of Agriculture, Forestry and Water Management as the Minister's adviser.

As a member of the research team of the Institute of Agricultural Economics of the Faculty of Agriculture, she participated in the creation of strategic documents of the Republic of Srpska in the field of agriculture and rural development. Since 2003 she has been hired as a consultant and coordinator in various international projects funded by USAID, Land O'Lakes, REC, World Bank, UNIFEM, UNDP, FAO and others. As part of her research work, she was the author or co-author of over 50 scientific and professional papers and four books. The field of scientific research of Gordana Rokvić is in the application of the model of integral rural development, planning, monitoring and analyzing the effects of agricultural policy measures, development and analysis of agricultural advisory models, and others.

growing demand for this kind of vacation is

conditioned in particular, a completely unprepared offer domestic renters of accommodation units included in rural tourism.

Desić [7] argues that the basic preconditions for the development of rural tourism in BiH is education of rural population in rural tourism (standards of welcoming and accommodation of guests, necessary hygienic requirements, manner, quantity and quality of providing food services, behaviour towards the guest) and other necessary conditions for pleasant stay of tourists in the rural household.

The overall objective of this paper is to identify the potential for rural tourism development in Bosnia and Herzegovina on the case study of two rural municipalities, the Mrkonjić Grad and Šipovo area, as well as to identify the benefits of rural tourism for strengthening the rural economy of the area, through valorisation of potentials and support for the development of rural tourism.

2. METHODOLOGY

For the purposes of the research a FAS methodology [8] (Factors, Attractors and Support) of the UNWTO was used, according to which Factors, Attractors and Support potentials of the tourist destination are observed. Attractors are natural, cultural and created or built tourist resources that continuously attract a significant number of tourists. The assessment of the attractors is based on the current situation, but also the potential for attracting tourists in the future. Regarding the current attractiveness of the attractors, the quantitative estimation of the number of visitors, the beauty of the location, accessibility, and value for tourism is taken into account. In the context of potential, an assessment is made of: possibilities for improvement, future increase / decrease in number of visitors, future activities on increasing accessibility.

Tourist factors are natural tourism resources that attract a small number of resources in relation to potential activity, as they are not yet adequately prepared for inclusion in the tourist offer of the destination. They include human and capital factors necessary for activating the potentials of natural tourist resources. Natural factors are assessed depending on their beauty, biodiversity and potential to attract tourists. Human resources include the level of equipment and working conditions, the level of technologies and equipment, and the level of cultural traditions. Financial capital factors include the availability of loans, the level of entrepreneurship, infrastructure and potentials to attract capital.

Support includes complementary services, transport (availability of tourist attractions and natural factors) and tourist facilities that contribute to the attractiveness of tourist resources and destinations. Transport support refers to current links with tourist attractions, and is evaluated depending on the available of traffic connections, their frequency and transport improvements.

Milos (Jovo) Galic was born in 1989 in Jajce. He finished primary and secondary economics school in Mrkonjić Grad. He continued his education at the Faculty of Agriculture, University of Banja Luka, Bosnia and Hercegovina, where he completed Bachelor and Master studies in the field of Agriculture Economics and Rural Development, and in 2013 he received the title of a graduated agricultural engineer for agrarian economics and rural development and in 2017 the title Master of Science in Agriculture Economics and Rural development. Since 2010 he is engaged in various NGOs dealing with environmental protection, rural tourism and sustainable agriculture. Since 2016 he is a director of agriculture cooperative and a visitor center Pecka in rural area of Bosnia and Hercegovina.



Catering support takes into account accommodation categories, capacity, occupancy rates and forecasted potentials. The supporting services include general safety features, as well as assistance to tourists when arriving in a particular area.

The goal of applying the FAS methodology was to evaluate tourist elements and identify the attractiveness of each of the elements in the development of tourism in the municipalities of Mrkonjić Grad and Šipovo in Bosnia and Herzegovina. A total of 31 representatives from the state, private and civil sectors involved in the tourism development process were interviewed.

Respondents evaluated attractors, factors and support on the Likert scale with a response range of 1 to 5, with 1 indicating a low degree of value, while 5 signifies a high degree of value. Data processing methods of descriptive statistics were used for the processing of the data and the measures of central tendency (arithmetic mean) and variability (standard deviation) were calculated.

Željko Vaško, PhD

Associate professor at the University of Banja Luka, Faculty of Agriculture in Banja Luka (Bosnia and Herzegovina). Lecturer on several subjects at study program Agricultural Economics and Rural Development (Cost and Calculations in Agriculture production, Evaluation of Agricultural Investments, Rural Finance, Planning and Economy Development, Project Management). Head of Institute of Agricultural Economics and Rural Development at the Faculty of Agriculture. Author or coauthor 7 books and 80 scientific and professional papers. Member of The European Association of Agricultural Economists and The Balkan Scientific Society of Agricultural Economists.



2. RESEARCH RESULTS

By analysing the data collected during the research, attractors, factors and elements of support in standard categories were identified and their ranking was based on respondents' answers.

Natural attractors: Seven natural attractors were identified in the rural areas of the municipalities of Mrkonjić Grad and Šipovo, which are actively involved in the rural tourism process. These are primarily water resources that are rich in this area, where water of the first class is located in a preserved natural environment and represent a good basis for the development of tourism. The respondents rated the River Pliva the most (4.65), while Ada Sokočnica was the lowest rated (3.42). The total mean value of natural attractors is 4.12 (\pm 0.61), which reflects the high degree of attractiveness of natural attractors.

Cultural attractors: In the rural area of Mrkonjić Grad and Šipovo, nine cultural attractors have been identified. The lowest rated was the House of ZAVNOBiH (3.03), while the local brandy festival in Mrkonjić Grad was rated the best (4.19). The average value of cultural attractors is 3.73 (\pm 0.58), which is a good rating, but also a confirmation that in the case of cultural attractors there is still space for improvement of potentials.

Attractors as activity centres: These attractors include the places of entertainment that tourists visit and represent an important element of the tourist offer of one place. Six centres were identified, where the most visited is Tourism Complex Pliva (4.55), while the traditional craft workshops were rated the lowest (3.03). The average rating for attractors in the form of activity centres is 3.97 (\pm 0.48) and represents a good rating, but it is still necessary to work on improving traditional and craft workshops as a tourist product.

Table 1: Assessment of the potentials of individual attractors in the area of Mrkonjić Grad and Šipovo

Natural Attractors	<i>M</i>	<i>SD</i>
River Pliva	4,65	0,55
Balkana Lake	4,65	0,60
River Sana	4,35	0,95
Janj islands	4,23	0,76
Mount Lisina	4,16	0,96
Lake Bočac	3,45	1,12
Ada Sokočnica	3,42	0,99
<i>Total</i>	4,12	0,61
Cultural attractors		
Home Brandy Festival MG	4,19	0,74
Jazz festival - Zelenkovac	4,16	1,03
Days of mowing - Mrkonjić Grad	4,13	0,76
Days of Šipovo	3,97	0,79
Monastery Glogovac	3,97	0,83
Prizren medieval Town	3,48	1,15
Ethno House Roljić	3,42	0,95
Old town - Sokograd	3,29	1,07
The Home of ZAVNOBIH	3,03	1,11
<i>Total</i>	3,73	0,58
Attractors as activity centres		
Tourist Complex Pliva	4,55	0,67
Tourist complex of the Balkana lake	4,45	0,72
Ecological movement Zelenkovac	4,35	0,75
Visitor Centre Pecka	4,29	0,86
Restaurants with traditional cuisine	3,19	1,22
Traditional craft workshops	3,03	0,83
<i>Total</i>	3,97	0,48

Natural factors: The rural areas of Mrkonjić Grad and Šipovo are preserved areas dominated by water potentials and mountainous environments that form the basis for the development of an active holiday in nature, but there are also other potentials that can contribute to the development of rural tourism. Eight potentials were identified where the cave „Jama pod jelikom“ was poorly rated (3.39), while Pecka was the best rated (3.97). The mean value for natural factors is 3.70 (± 0.76), which reflects a good potential for the development and expansion of tourism in this area.

Human resources: Four categories of human resources are observed: technical equipment, technical training, level of income and working conditions and cultural traditions. The most poorly assessed is the level of income and working conditions with only 2.58, while cultural traditions were best rated (3.35). The mean value of human resources is (2.93) (± 0.89), which according to the consulted literature is one of the limiting factors of development, but the fact that the worst-rated factor is level of income and working conditions proves that this is one of the priority problems to be solved.

Factors of financial capital: There are five components that represent the basis for financial investments for the development of the area. Access to loans is designated as the worst component (2.55), while the potentials for attracting capital are the highest (3.68). The mean

value of financial capital factors in Mrkonjić Grad and Šipovo area is 2.96 (± 0.79) which is one of the limiting factors of development. The respondents pointed out that the finances were one of the key problems of rural tourism development in the first part of the survey.

Table 2: Assessment of the potentials of factors in the area of Mrkonjić Grad and Šipovo

Natural factors	<i>M</i>	<i>SD</i>
Climbing Pecka	3,97	0,98
Village of Šibovi	3,84	0,77
The Sokočnica canyon	3,84	1,06
Medljan river	3,77	1,05
Đol Lake	3,71	0,90
Mount Dimitor	3,58	1,02
River Ponor	3,55	0,99
Cave under the Jelika	3,39	1,08
<i>Total</i>	3,70	0,76
Human resources		
Cultural traditions	3,35	1,08
Technical equipment	2,94	1,03
Technical training	2,87	1,02
Income level and working conditions	2,58	0,99
<i>Total</i>	2,93	0,89
Factors of financial capital		
Potentials to attract capital	3,68	1,04
Bicycle paths	3,00	1,26
Travel infrastructure	2,90	1,07
The level of entrepreneurship	2,71	0,73
Access to loans	2,55	1,20
<i>Total</i>	2,96	0,79

Catering: This component includes accommodation and restaurants and is presented through a mean value of 3.08 (± 1.15). Based on standard deviation, we can conclude that the views of the respondents are different because they are based on personal expectations and attitudes towards this component, which is the most sensitive component of the tourism industry.

Transport: This component refers to different types of transport infrastructure used by tourists to move within the tourist area. The mean value of this component is 3.03 (± 0.92) and represents satisfactory availability to the locations of rural tourism, but it certainly needs to be further work on its improvement.

Support services: These services relate to other services (safety of tourists, necessary materials for easier acquaintance with the area, health care) which are necessary for the development of tourism in rural areas. These services were rated with a score of 3.00 (± 0.88), which represents a good basis for future activities, as the respondents put their opinion in the survey that the main limiting factor of development is financial support.

Table 3: Evaluation of the potential of individual support services in the area of Mrkonjić Grad and Šipovo

Catering	<i>M</i>	<i>SD</i>
Accommodation	3,10	1,27
Restaurants	3,06	1,20
<i>Total</i>	3,08	1,15

Transport		
Bus connections	3,23	1,02
Bicycle paths	3,00	1,26
Bicycle rental	2,87	1,36
<i>Total</i>	3,03	0,92
Support services		
Security level	3,71	1,27
Police	3,48	1,06
Health centres	3,16	1,34
Tourist guides	2,97	1,08
A guide in the form of a book	2,81	1,07
Local tourist organizations	2,52	1,23
Travel agencies	2,39	1,43
<i>Total</i>	3,00	0,88

By comparing the total assessment of the tourist potential in Mrkonjić Grad and Šipovo, we obtain the following results:

Table 4: Total potential assessment in Mrkonjić Grad and Šipovo

	<i>M</i>	<i>SD</i>
Attractors	3,94	0,42
Factors	3,20	0,60
Support	3,03	0,75
<i>Total</i>	3,39	0,45

The researchers also wanted to find out what are the views of the respondents related to starting and performing rural tourism activity in the area of Mrkonjić Grad and Šipovo. The target group of the research were all active rural tourism service providers in the area of these two municipalities: agricultural households engaged in rural tourism, as well as representatives of the public and civil sectors involved in the process of development and promotion of rural tourism in the mentioned area, a total of 31 respondents.

The main problem and limitations for the development of rural tourism in the Mrkonjić Grad and Šipovo areas are related to the rural population (40%) and their lack of awareness on tourism as a business activity, while poor infrastructure and lack of accommodation capacities were rated as less limiting factor.

Table 5: Problems and limitations for the development of rural tourism

<i>Answer</i>	<i>Number</i>	<i>Frequency</i>
- The lack of awareness of the local population on rural tourism	15	41%
- Poor road and other infrastructure	10	27%
- Lack of accommodation capacity	7	19%
- Other (lack of networking, the need for greater promotion, and lack of financial resources)	5	14%
Total	37	100%

Respondents see the basic problem of starting a business in rural tourism in poor financial support (34%), while 25% of respondents consider that the basic problem is poor local government support and a lack of strategy for rural tourism development.

Table 6: The main problem for starting a business in rural tourism

<i>Answer</i>	<i>Number</i>	<i>Frequency</i>
- Poor support from local authorities	11	25%
- Poor RT development strategy	11	25%
- Poor financial support	15	34%
- Lack of institutional support	7	16%
Total	44	100%

Support for the development of rural tourism should include greater financial support (38%), while some respondents (25%) believe that measures for connecting tourism and other activities (diversification of agriculture) are the main factor in supporting the development of rural tourism. About 21% of respondents believe that the main factor in supporting education of those interested in the development of rural tourism, and 16% think that the emphasis should be placed on supporting the promotion of rural tourism.

Table 7: Support to the development of rural tourism

<i>Answer</i>	<i>Number</i>	<i>Frequency</i>
- Greater financial support	23	38%
- Measures for linking tourism and other activities such as agriculture	15	25%
- Greater educational support	13	21%
- Support for promotion of RT	10	16%
- Other	0	0%
Total	61	100%

3. CONCLUSION

The economic development of rural area in Bosnia and Herzegovina is characterized by uneven development between rural and urban areas in the social, economic and cultural conditions. Rural areas significantly lag behind urban areas, especially in economic terms. On the other hand, the rural resources that are the basis for the development of rural areas are rated as rich and diverse but underutilized. Based on the results of the research on the case study area, we can conclude that the rural areas of Bosnia and Herzegovina are suitable for the development of various types of tourist activities. Rural tourism can provide a solution to some of the key challenges such as employment, economic strengthening, social strengthening, cultural strengthening, and depopulation of rural areas and the creation of additional value in agricultural holdings.

The analysis of the results of the research carried out among the subjects active in rural tourism in the mentioned area identified the following problems:

- Poor financial support for starting a business in the field of rural tourism in terms of lending and financial incentives;
- Lack of strategies and programs for the development of rural tourism at both the local and the entity level, where the ultimate goal would be to create a strong legal platform for the development of rural tourism;

- Poor connectivity between educational and research institutions and actors wishing to engage in rural tourism, strengthening institutional support for the development of entrepreneurship in the field of rural tourism.

It follows that for strengthening of rural tourism it is necessary to provide better financial and institutional support in the study area, as well as in the whole of Bosnia and Herzegovina. This would result in an increase in rural household income and increase of (self)employment and a reduction in dependence on only (low-profitable) agricultural activities, which is in line with numerous strategic commitments towards diversification of rural economy.

REFERENCES

- [1] United Nations Development Program (UNDP) in Bosnia and Herzegovina (2013), Rural Development in Bosnia and Herzegovina: myth and reality, National report on human development for 2013, p. 9.
- [2] Arnaut E., Fehrić F. (2011), *Turizam i turistička industrija kao faktor ekonomskog razvoja Bosne i Hercegovine*, Fakultet poslovne ekonomije "Vitez" Travnik; p.8.
- [3] Izvozna strategija za sector turizma (2011), Vanjsko-trgovinska komora BiH, p.4.
- [4] Čatović, A., Mešković, M. (2011), *Ruralni turizam na području Tuzlanskog kantona*, Fakultet poslovne ekonomije "Vitez", Travnik; p.136.
- [5] Vaško Ž., Vojnović D. (2016), Rural tourism in the function of development of rural areas – the case of the Municipality of Laktaši, Thematic Proceedings, 1st International Scientific Conference "Tourism in function of development of the Republic of Serbia", 2-4 June 2016, Vrnjačka Banja, Serbia, pp. 364-381.
- [6] Madžar, I., Madžar, D.: Analiza elemenata i preporuke za unaprjeđenje razvoja seoskog turizma na području Hercegovine, *Ekonomski misao i praksa dbk. God XXV. (2016.) Br. 1. (159-176)*
- [7] Desić V. (2005), *Turizam i razvoj seoskog turizma*, Fakultet poslovne ekonomije, Banja Luka; p.65.
- [8] Eduardo Fayos-Sola (2014), *Tourism as an Instrument for Development: A Theoretical and Practical Study, Bridging Tourism Theory and Practice*, Volume 5, Emerald Group Publishing Limited, p. 59.

PROFILE OF VISITORS IN THE NATIONAL PARK ŠUMAVA AND THEIR ATTITUDE TO ENVIRONMENTALLY FRIENDLY TOURISM OFFERS

Dagmar Škodová Parmová⁴⁹

Zuzana Dvořáková Líšková⁵⁰

Rostislav Kain⁵¹

Marie Korousová⁵²

Abstract: *Green marketing in the frame of green economy are currently enormously important in the programming and packaging of products in Czech Republic's destinations. The aim of this work is to analyse the demands of the participants of tourism on eco-friendly accommodation, based on the identification of approaches in the offer of accommodation in the Šumava National Park area. Based on these analyses we point out the typology of guests from both the Czech Republic and abroad. Based on a questionnaire survey among the visitors of Šumava, namely Jezerní Slat', Modrava and Zadov in summer 2016, the analysis of customer behaviour was conducted. After this survey the friendly approaches in the presentation of accommodation enterprises and the finding of the relationship of visitors to the offer of sparse accommodation in the area were explored on the basis of advanced statistical methods. Both domestic and foreign respondents showed a similar willingness to accept or not to accept chosen eighteen measures regarding environmentally friendly accommodation and catering. Thus, inhomogeneity was not demonstrated. Respondents from abroad were willing to accept the declared "Effort to Inform about Savings and Waste Management Options" more than domestic respondents. In general, foreign respondents are generally more willing to spend more money on environmentally friendly accommodation and catering, which we can read from the average of their answers, which are in all cases higher than those of Czech respondents.*

Key words: *Tourism, sustainable tourism, accommodation enterprises, environment friendly accommodation.*

1. INTRODUCTION, AIMS AND METHODOLOGY

The current trend in tourism is to change the attitudes of tourists towards more responsible behavior in nature and in the environment, tourists are slowly leaving mass tourism and replacing them with "greener" forms of traveling such as ecotourism. The offer of tourism facilities also reflects this trend. Therefore, the work combines tourism and environmentally friendly procedures to improve accommodation services in the chosen area - the Šumava National Park. The aim of the study is to identify eco-friendly approaches in the offer of accommodation in the area and assessing the importance of such approaches in the business strategy of enterprises, identifying the importance of eco-friendly tourism, analyzing the demands of tourists on environmentally friendly accommodation and suggesting possible improvements on the basis of these analyzes for accommodation facilities.

⁴⁹ University of South Bohemia, Faculty of Economics, Studentská 13, CZ-37005 České Budějovice

⁵⁰ University of South Bohemia, Faculty of Economics, Studentská 13, CZ-37005 České Budějovice

⁵¹ University of South Bohemia, Faculty of Economics, Studentská 13, CZ-37005 České Budějovice

⁵² University of South Bohemia, Faculty of Economics, Studentská 13, CZ-37005 České Budějovice

The aim of the research was to analyze the demands of the participants of the tourism industry on ecologically friendly accommodation based on the identification of eco-friendly approaches in the offer of accommodation in the Šumava area. Based on these analyzes, we will point out the typology of guests from the Czech Republic as well as from abroad. The contribution can become a guideline for further exploration of consumer behavior, but also for business entities, what priorities the customer perceives in the future. According to Klufová (2016), South Bohemia offers opportunities for various forms and types of tourism, however, eco-friendly forms are still in view of conventional forms of minority status. Based on a questionnaire survey among the visitors of Šumava, namely Jezerní Slat', Modrava and Zadov during the period July and August 2016, the importance attached to the eco-friendly approaches in the presentation of accommodation establishments and the visitor relationship to the offer of eco-friendly accommodation in the surveyed area was assessed and elaborated on the basis of the statistical methods further. The questions for the survey were taken mainly from the Environmental Impacts of Tourism (2001). 207 questionnaires were completed, of which 51 were filled in by foreigners. For the purposes of data processing from the questionnaire survey, the following methods were used: variability rate, variance analysis (ANOVA), multiple linear regression, correlation analysis.

Assoc. Prof. Dr. rer. soc. oec. Dagmar Škodová Parmová, Associate Professor in services management. Her research interests cover issues in the public a private services management and marketing, in the tourism management, and in the rural development. Assoc. Prof. Dagmar Škodová Parmová has studied and then taught at the Johannes Kepler University in Linz. She is a member of Scientific Board of the University of South Bohemia, a member of Scientific Board of the Faculty of European Studies and Regional Development of the Slovak Agricultural University in Nitra, a member of The Austrian Society for Agricultural Economics, a member of The Czech Society for Economics, a member of The Alliance of Tourism Experts of the Czech Republic, a vice-president of Best Business Award Forum – for sustainable entrepreneurship. She has collaborated with the Ministry of Education of the Czech Republic as leader of Internalization of Higher Education Expert Group. She is the author of 80 publications on the services management and marketing, including monographs, scientific papers and reports;

RESULTS

In total 124 women and 83 men responded. Most respondents were between the ages of 18 and 25, exactly 90, of which 69 were women and 21 were men. The segment aged 26 to 35 was made up of 41 people, including 23 women and 18 men. An even larger group of respondents was a 36 to 45-year segment with a total of 38 participants in the survey. Of these, 21 were women and 17 men. The age segment of 46 to 55 years was a total of 9 women and 14 men, together 23 people. At the age of 56 to 65, 14 people answered, of which only one was a woman and the remaining 13 were men. For a segment from 66 to 75, one woman answered and there was no respondent for the segment over 75 years old. The socio-economic segmentation shows what travel participants spend on their vacation. Most respondents said they would spend between CZK 5,000 and CZK 10,000 and followed immediately by a segment of people who on their holidays count on spending from two to five thousand Czech crowns per person. While domestic visitors are most often in groups from two to five thousand Czech crowns, foreign visitors can spend a little more. Respondents from abroad most often reported expenses ranging from CZK 5,000 to CZK 10,000.

Within the behavioral segmentation, respondents were divided by the number of days of the actual holiday. The highest numbers have reached the value of seven and five days of vacation. Most (50) Czech respondents reported 7 days as the current holiday length. Followed by respondents who spent 5 days in the Bohemian Forest and other domestic respondents spent their holidays from eight days earlier. Foreign respondents mostly chose the answer for 5 days at the time of their vacation, followed by foreigners with eight and seven days of vacation. Two of the respondents stated that they spent more than ten days in the Šumava Mountains.

In the fourth part of the questionnaire respondents were asked about the number of visited accommodation facilities in the last two years. In addition, they should indicate how many of these devices were geared towards environmentally friendly practices. Although respondents visit a total of 31 respondents, 31 respondents said they had visited five accommodation facilities in the last two years, the top six, four and even 24 respondents said they had visited 10 accommodations and 23 respondents even more as ten. However, the number of accommodation facilities that boasted the good practices was not great, but not surprising. Out of a total of 207 respondents, 53 said that only one of their accommodation facilities was ecologically oriented. Nineteen respondents said they had visited two such facilities, fourteen respondents said even three facilities. It cannot be said that the difference between domestic and foreign respondents in the number of ecologically-oriented hotels visited is somewhat striking, because the number of foreign respondents was not very large. Participants' interest in environmentally friendly practices can also be attributed to the areas visited where special emphasis should be put on ecology.

Concerning the issue of public support for environmentally friendly tourism, most of the respondents expressed quite indecisively, as confirmed by the figures below. The aim of this question is to monitor the level of interest in public support for environmental tourism funded from public sources. If interest was the maximum, 70 points would have come from one questionnaire, because there were 207 completed questionnaires, so the maximum would be 14 490 points. The minimum interest in one questionnaire is 10 points and it would be 2070 points. The number of points showing interest in publicly funded environmental friendly tourism was 9,292, the arithmetic average was 4,489, which ranges from one to seven above the average. The highest values were the three, four, and five on the Likert scale, which can be considered neutral. Taking into account this real response, the funding of environmentally friendly tourism from public sources will not be exciting, attractive, or fascinating. On the other hand, respondents think very positively about the importance of this support. Fifty-seven of all respondents stated that they think public funding is needed and thirty-four that it is essential. Thirty-one of those surveyed do not consider public support for environmentally friendly tourism to be worthless, but worth valuing and twenty-nine interviewees consider it to be important.

Analyses of the acceptability rate of environmentally friendly accommodation and meals structured offer

The degree of acceptability of selected nineteen environmentally friendly measures was also monitored. The maximum number of points was 1035 and the lowest 207. The smaller hotel entrance hall reached the highest score (893 points), with the highest average of 4.314 (from 1 to 5); no TV sets in the hotel hall and no fountains reached 876 points, non-designed front office (851 points), automatic lights switches (543 points), energy efficient WC flushing (829 points) and effort to inform the respondent about savings and environmentally friendly waste management (826 points) points). On the other hand, the lowest value was given for non-

energy-consuming meals (raw food) with 487 points, respondents were less willing to accept poorer heating / air conditioning (526 points), significantly reduced bed linen and bathroom amenities (568 points), and food with less energy and technology need for preparation and service (585 points).

Table 1: Measures - Final score and averages

	Points	Average
Non-designed front office	851	4,111
Smaller entrance hotel hall	893	4,314
No TV sets and fountains in the hotel hall	876	4,232
No air-conditioning in the public parts of the hotel	610	2,947
No bath tub in the rest rom	768	3,71
Water-saving shower	745	3,599
Water-saving WC flushing	829	4,005
Automatic light switches	843	4,072
Energy-saving lights	870	4,203
Use of disposable hand towels	668	3,227
Significantly reduced bed linen and bathroom amenities exchange	568	2,744
Reduction of air-conditioning and heating	526	2,541
Information about waste recycling and reduction oriented on guests	826	3,99
Lawn and flower beds next to hotel and parking places in a longer distance from the hotel	781	3,773
Trees covering the view from hotel windows	761	3,676
Snow shovelling instead of salting	650	3,14
Food with less energy need for preparation and service	487	2,353
Food with less technology need for preparation and service	585	2,826
Food and drinks offer in reusable packaging	725	3,502

Source: own compilation

Predictors of the acceptability of friendly tourism

A correlation analysis was used to analyse the significant dependence of the acceptability of a structured offer of environmentally friendly tourism on a given segmentation criterion, from which a correlation matrix was created. Correlation coefficients reach positive or negative values at p-value <0.05 and determine the interdependence between respondents. This addiction is expressed by the willingness to adopt environmentally friendly measures in the hotel and the interest in promoting environmentally friendly accommodation and meals, the last two years of hotels visited, hotels visited by EKO hotels, gender, age and spending per person and per holiday.

Table 2: Measures - Correlation Matrix

	Correlation coefficients					
	Support	Hotels	EKO hotels	Sex	Age	Spending
Non-designed front office	0,165	0,060	0,144	0,450	-0,051	0,028
Smaller entrance hotel hall	0,392	-0,092	0,028	0,594	-0,182	-0,045
No TV sets and fountains in the hotel hall	0,373	0,053	0,138	0,677	-0,184	-0,041
No air-conditioning in the public parts of the hotel	0,362	0,109	0,278	0,257	-0,010	-0,030
No bath tub in the rest rom	0,492	0,093	0,249	0,465	-0,327	-0,096
Water-saving shower	0,402	0,041	0,156	0,389	-0,094	-0,120
Water-saving WC flushing	0,381	0,029	0,171	0,513	-0,163	-0,047
Automatic light switches	0,440	0,076	0,167	0,573	-0,293	-0,088
Energy-saving lights	0,362	0,042	0,123	0,570	-0,310	-0,118
Use of disposable hand towels	0,397	0,035	0,228	0,406	-0,199	-0,076
Significantly reduced bed linen and bathroom amenities exchange	0,296	0,121	0,239	0,280	-0,106	-0,091
Reduction of air-conditioning and heating	0,451	0,028	0,325	0,291	-0,044	-0,044
Information about waste recycling and reduction oriented on guests	0,404	-0,040	0,148	0,426	-0,134	-0,048
Lawn and flower beds next to hotel and parking places in a longer distance from the hotel	0,327	-0,005	0,207	0,438	-0,067	0,017
Trees covering the view from hotel windows	0,306	0,071	0,141	0,429	-0,173	-0,105
Snow shovelling instead of salting	0,311	0,027	0,099	0,354	-0,136	-0,140
Food with less energy need for preparation and service	0,236	0,028	0,249	0,375	-0,062	-0,023
Food with less technology need for preparation and service	0,352	-0,035	0,110	0,375	-0,229	-0,136
Food and drinks offer in reusable packaging	0,383	0,029	0,242	0,434	-0,298	-0,030

Source: own compilation

Significantly important variables that are demonstrably interdependent have been bold in the correlation matrix. Respondents, according to a positive correlation coefficient, are willing to accept the absence of bathtubs, economical shower heads, automatic light switches, limitation of heating / air conditioning, and information on environmental friendliness and waste management. The lower the age of the respondents, the higher the willingness to accept the absence of a bathtub, installed light sources (LED), an offer with no technologically demanding preparation and serving dishes, and a beverage-free and disposable meal. On the other hand, respondents with a higher age would be less likely to accept the absence of air conditioning in the public areas of the hotel. With rising spending per person on vacation, the willingness to

accept snow removal without salt, an offer of less technologically demanding preparation and serving dishes, installed saving shower heads, energy saving lights and trees covering the view from the window.

Multiple linear regression has highlighted the significant impact of independent variables - the view of people on environmentally friendly tourism, the offer of environmentally friendly tourism and the means of environmentally friendly tourism to a dependent variable of interest in promoting environmentally friendly tourism. Two of the three variables have a positive effect on the dependent variable and one has a negative effect. The other predictors do not have any significant positive or negative effect.

Testing the impact of nationality on the level of interest in a structured offer of environmentally friendly tourism

The analysis of the statements regarding respondents' and other people's views on the offer of environmentally friendly accommodation and catering for everyday life and environmentally friendly measures at an unchanged price and at a price increased by 25% was done by 2-sample t-tests. Parameters independent of the parameter (homogeneity) were compared at the significance level $p < 0.05$.

Table 3. Two sample T-test dependence of nationality and statements

	CZE		Foreigners			
	average	S. D.	average	S. D.	t	P
Attitude of others to eco-friendly tourism	2.5449	0.9527	2.451	0.8559	0.6259	0.5321
Use of eco-friendly tourism offers by others	1.8974	0.9516	1.6471	0.8677	1.6658	0.0973
Statements about eco-friendly tourism	2.7628	1.1078	2.7059	0.9443	0.3298	0.7419
Decisions in eco-friendly tourism	4.4423	0.7807	4.4902	0.543	-0.4865	0.6275
Eco-friendly offers	3.6731	0.8513	3.6667	0.7394	0.0481	0.9616
Spending on eco-friendly tourism	3.141	1.0743	3.4902	0.946	-2.0725	0.0395

Note: S. D. = standard deviation, t= value of tested statistics, P = level of statistical significance

Respondents expressed an almost similar degree of consent. However, this does not concern the last statement "I have the resources, the time and the opportunity to take advantage of the offer of environmentally friendly accommodation and meals during the holiday", with which foreigners showed a demonstrably higher degree of consent than the domestic respondents (average respondents = 3.49, average domestic respondents = 3.141).

CONCLUSION

According to our study the willingness to pay for the eco-friendly procedures in hospitality facilities is relatively high. Respondents do not mind paying for BIO quality meals and for dishes made from local sources or for accommodation in a hotel that recycles wastewater. Our research has shown that participants who have visited more environmentally friendly

accommodation facilities are more willing to pay for a wastewater recycling, capturing rainwater or strictly scrapping waste. However, there is no single accommodation facility in the area which has got a certification of environmentally-friendly practices, so it can be assumed that this certificate would then help to a particular environmental friendly accommodation facility to gain a competitive advantage in the future as visitors of this type. They will also searched for such eco-friendly offers in the future, and the specific "materialization of the service" in the form of certification is favourable to the service provider and clearly "readable" for the visitor. Current changes in the macro surrounding can also contribute to significant shifts in the customers' behavior and destination choice (compare Bacsi, 2017).

This paper was supported by the project GAJU 053/2016 / S "Innovative Management and Competitiveness of SMEs".

REFERENCES

- [1] Bacsi, Z. (2017). Tourism and Diveristy. In *Deturope*. 9, 2: 25-57.
- [2] *Češi třídí papír tak, že víc už to skoro nejde. Patří k evropské špičce.* (2015). Retrieved from 15.3.2017, on-line http://ekonomika.idnes.cz/cesi-vrati-68-papiru-do-sberu-vic-uz-to-skoro-nejde-fbv-/ekonomika.aspx?c=A151105_151841_ekonomika_chrs.
- [3] *Environmental impacts of tourism.* (2001). Retrieved from 7.3.2017, on-line <https://www.gdrc.org/uem/eco-tour/envi/one.html>.
- [4] Klufová, R. Destination attractiveness of the South Bohemian region from the viewpoint of spatial data analysis. *Deturope*, 8, 1: 92-111
- [5] Korousová, M. (2017). *Ekologicky šetrné ubytování ve vybrané oblasti*. EF JU.

AGRO-TOURISM DEVELOPMENT BASED ON THE CONCEPT OF TOURISM PRODUCT DIVERSIFICATION

Tihana Sudarić⁵³
Jadranka Deže⁵⁴
Ružica Lončarić⁵⁵

Abstract: *Agro-tourism plays an important role in the sustainable social, economic and tourist development of rural areas. Development opportunities depend on the organization and activities of networked agro-touristic economies with different stakeholder groups with aiming for rural tourism development, both locally and regional. Structural changes in production and structural changes in economic activities are increasingly present on agricultural farms in Croatia. The weakening of the rural economy has affected producers who are trying to find new business opportunities in the environment and through realization to create additional sources of income. Meanwhile, tourist demand is growing and consumer preferences increasingly emphasize the meaning of indigenous food products, preserving the culture and lifestyle of the local population. Economic empowerment of local communities based on their own resources creates the preconditions for sustainable and continuous development. The fact is that local communities can identify their own resources on the most appropriate way (natural and social attractiveness of locations) and as such have the best opportunities of quality management for local rural areas development. This paper points out the weaknesses and opportunities for future agro-tourism development in the eastern part of Croatia. Regional differences also require different guidelines for strategic management of agro-tourism development as a specific form of rural tourism. The aim of the paper was to establish guidelines for the integration of tourist offer based on the diversification of products and services in agro-tourism. The current development of agro-tourism is based on a local entrepreneurial initiative which resulted in an unplanned development with a very heterogeneous tourist offer. In such conditions it is difficult to spot a tourist product that would be recognizable, original and unique in this area. The research was conducted by the survey questionnaire method in a selected sample of 147 respondents who visited at least one of the agri-tourism offer from September 2016 to September 2017. Secondary data were collected from scientific and professional relevant publications and websites. Conducted research confirmed the findings that agro-tourism should be developed more intensively as a specific form of rural tourism, because over 92% of the national territory of the Republic of Croatia is a rural area. The future agro-tourism development should be integrated through a tourist offer in order to achieve ecological, socio-cultural and economic equilibrium in development. Concept of diversification of tourism product can be achieved through better cooperation between farms as well as with all stakeholder groups in order to adjust very dynamic changes on touristic market demand.*

Key words: *rural tourism, agro-tourism, product diversification*

⁵³ Josip Juraj Strossmayer University of Osijek, Faculty of Agriculture, Vladimira Preloga 1, Osijek, Croatia

⁵⁴ Josip Juraj Strossmayer University of Osijek, Faculty of Agriculture, Vladimira Preloga 1, Osijek, Croatia

⁵⁵ Josip Juraj Strossmayer University of Osijek, Faculty of Agriculture, Vladimira Preloga 1, Osijek, Croatia

INTRODUCTION

Agro-tourism is specific way of touristic activities; first of all it is multifunctional, because it combines agricultural activities, touristic services, product diversification and infrastructural development of rural area. There are many benefits for agro-tourism provider and for rural environment as well as for visitors. In attempt to define agro-tourism, some authors have focused on an aspect of demand. As for visitors, according to Long [6] rural areas are places in which visitors feel safe, they encounter firm values, they may spend time outdoors and enjoy in natural attractions, they are treated in a friendly way and with respect. An attempt is also made in agro-tourism to provide guests with individually adapted services, help them learn as much as possible about various activities in rural areas and provide them with an opportunity to participate in these activities as well as in the lifestyle of local people [1]. Tourism product diversification can provide different kind of product and/or services in agro-tourism but according to the *Lebe and Milfelner* [5] the basic problem of rural destinations is their fragmented offer – namely, instead of pursuing a joined promotion of a tourism destination, for fear of competition they venture alone on to the tourism market and put their products and/or services on this market on their own. This is why it is very important for rural tourism to develop an integrated touristic product, to invest in education of local inhabitants and to conduct mutual-marketing of rural areas.

1. MATERIALS AND METHODS

In this research, survey was used as the methodology for data collection, and a survey questionnaire was used as an instrument. It was sent to respondents via social networks, e-mail and directly. The research was conducted from September 2016 to September 2017.

PhD Tihana Sudarić (1974) is an associate professor at the Faculty of Agriculture, Department for agro-economics, University of Josip Juraj Strossmayer in Osijek, Croatia. She attended



primary and secondary school in Osijek and graduated at the Faculty of Economics in Osijek (1999) at study program „Marketing“. PhD Tihana Sudarić graduated in 2004. at postgraduate study program "Entrepreneurial Management" at the Faculty of Economics in Osijek. Doctoral thesis entitled "Diversification of Economic Activities in the Function of Integral Rural Development of the Republic of Croatia", mentor prof.dr.sc. Božidar Petrač, was defended at the Faculty of Economics in Osijek in 2009. Ph.D. Tihana Sudarić is involved in undergraduate, graduate and postgraduate studies in the Agro-economics field in the modules of Agro-economic fundamentals, Croatian Economy, Foreign Trade, Cooperative business, National Resources Economics and Rural Tourism. As author and co-author, she published more than 50 papers and participated in 20 international and 25 domestic scientific and professional conferences. She is also co-author of one handbook and one author's book. She is included in the scientific research work and so far, she has participated in five national scientific projects, one as a leader project manager of the Ministry of Science, Education and Sports (MSES), and in four as an associate. She is also involved in 5 international projects. Ph.D. Tihana Sudarić is a member of the Managing Board of the Croatian Agro-economic Society (HAED) and a member of the Croatian Agronomist Society (HAD), and since 2007 at the European Association of Agrarian Economists (EAAE) as well.

The questions are divided into several groups: visibility of agro-tourism ads (social networks, TV, newspapers, posters), the preference of the site (rural vs. mediterranean tourism), frequency of visits to agro-tourism, preferred kinds of visits to rural tourism (agro-tourism, ecotourism and adventure tourism), opinion about the tourism widespread in Osijek-Baranya (OB) County, the main factors of poorer visits of agro-tourism, deciding factors for choosing a particular supplied for agro-tourism (offer of food and drinks, sport and recreational activities, accommodation, traditional facilities, etc.), opinion of the respondents about the development of products and services in agro-tourism, the differentiation of the offer of products and services and the offer of products/services that would attract tourists to agro-tourism. At the end of the survey, the questions related to sociodemographic characteristics of respondents (age, gender, occupation, place of residence) were added.

In the questionnaire were used open and closed type of questions. Questions related to the deciding factor for choosing a particular agro-tourism diversification were measured using the Likert scale of 5 degrees (1- lowest value, 5 - highest value).

The data analysis was performed in the SPSS Statistics V23 statistical program package. Descriptive statistics (percentages, frequencies, arithmetic mean, standard deviation) were used in order to describe the sample. Chi-squared test, as the non-parametric test, were used to determine whether there was a statistically significant differences between the observed frequencies and the expected frequencies of the observed attitudes of the respondents. One-way variance (one-way ANOVA) and Student's t-test (independent t-test) were used from the parameter tests.

		<i>N</i>	<i>Share (%)</i>
Gender	Male	36	24.5
	Female	111	75.5
Age	15-20	10	6.8
	21-25	66	44.9
	26-30	52	35.4
	31-35	10	6.8
	>35	9	6.1
Occupation	Pupil/student	60	40.8
	Part-time employee	27	18.4
	Full time employee	46	31.3
	Unemployed	13	8.8
	Retired	1	0.7
Place of residence	Village	56	38.1
	Town	91	61.9

Table 1: Sociodemographic characteristics of respondents

Sample description - 147 participants participated in the study, with a higher share of female respondents (75.5%) and respondents with age of 21-25 (44.9%) and 26-30 (35.4%). The most frequent occupation was pupil/student (40.8%) and full time employees (31.3%). The most frequent place of residence is town (61.9%). Sociodemographic attributes of respondent are shown in previous table.

2. RESULTES AND DISCUSSION

In rural tourism in Croatia, agro-tourism is the most developed type of tourism. It implies an occasional stay in a rural area, which offers to visitors, apart from clean air and natural environment, various opportunities of active participation in life and work on a family farm, participation in various agricultural festivals and other events [4]. This paper points out the weaknesses and opportunities for future agro-tourism development in the OB County, the eastern part of Croatia in order to establish guidelines for the integration of tourist offer based on the products diversification in agro-tourism.

2.1. Agro-tourism in Osijek-Baranja County from the respondents' view

The conceptual development framework [9] in rural tourism is based on four elements: development on the national level, education, promotion and cooperation in order to conceptualize environment by defining short term, middle term and long term plans for encourage the rural touristic destination in eastern Croatia.

When respondents were asked regarding media where they will first notice promotion for agro-tourism, 69.4 % answered that it will be social networks, 19.7% TV, 9.5% billboards and papers the least (1.4%). Considering differences between sociodemographic groups, there were statistically important differences when we consider occupation of respondents (χ^2 (df = 12; N = 147) = 8.125; $p < 0.05$), shown in the following table:

<i>Socio - demographic characteristics</i>		<i>N</i>	<i>Social networks</i>	<i>TV</i>	<i>Newspaper</i>	<i>Billboard</i>	<i>Papers</i>
Gender	Male	36	23	9	1	3	n.s.
	Female	11	79	20	1	11	
		1					
Age	15-20	10	8	2	0	0	n.s.
	21-25	66	48	14	1	3	
	26-30	52	37	7	0	8	
	31-35	10	5	3	1	1	
	>35	9	4	3	0	2	
Occupation	Student	40	42	16	0	2	0,002*
	Part-time employees	27	25	2	0	0	
	Full-time employees	46	26	9	2	9	
	Unemployed	13	9	2	0	2	
	Retired	1	0	0	0	1	
Place of residence	Village	56	43	8	0	5	n.s.
	Town	91	59	21	2	9	

N=number of respondents, p=chi-square tests (χ^2)

Table 2: Distribution of answers considering media promoting agro-tourism

Considering frequency of noticing promotion for agro-tourism, the most frequent answer was few times a month (74.8%), followed by never (19%) and frequently (6.1%). Only 16.3% of respondents remember product or service offered in promotion material (22.4% did not notice any; 61.2% do not remember). For services, they remember offer of accommodation, vine roads, riding horses and birds watching, and for products it was indigenous food (kulen, cottage

cheese and honey) and clothes. According to research Deže, et. al., [2] there are numerous examples in which the regional indigenous products become recognizable local products - olive oil, wine, and honey and as such they are connected with agritourism. There are synergistic effect on the growth of tourism demand and supply of typical, indigenous and quality products. By offering in tourism, these products through catering services create added value which is higher than the economic value of the primary products.

Respondents prefer mediterranean tourism (78.9%) over rural tourism (21.1%). Rural tourism is more preferred by men (30.6% vs. 18% women), older people (>36 years old) and urban respondents (17% over 14% rural). Respondents mostly visited rural tourism few times (63.9%) so far. Consumers also prefer adventurous (46%) more than other kinds of rural tourism (ecotourism and agro-tourism). Mostly, respondents think that rural tourism is not developed enough in OB County (85%). The most frequent reasons for the poorer visits are: bad economic situation in Croatia (82 respondents), non-popularity of agro-tourism (71 respondents) and insufficient advertising (70 respondents), while no adequate interest in (63 respondents), insufficient contents in agro-tourism (53 respondents) and non-diversity agro-tourism offer (22 respondents) were the least frequent questions.

2.2. Deciding factors for choosing tourism product diversification

Choosing tourism product diversification can depend on organic agriculture that gravitates to an ethically acceptable, ecologically, socially and economically viable production. Entrepreneurship has the function of launching production and business activities, and the goal is to create new products and their added value, according to Deže, et. al., [3].

In terms of deciding factor for choosing particular agro-tourism product diversification (on scale from 1 to 5), in general, the best average rate belongs to food and drinks offer (M=4.33), followed by natural sights (M=4.17), accommodation (M=4.05), events (M=4.01), traditional

PhD Jadranka Deže (1964.) is an associate professor at the Faculty of Agriculture, Department for agroeconomics, University of Josip Juraj Strossmayer in Osijek, Croatia. She is a head of Chair for Management since 2017.



As a result of continuous multi-annual scientific research on the village and agriculture development of Eastern Croatia she works on the projects of Social Economic Changes in Slavonija and Baranja villages (1989-1992); Structural Development of family farms in Eastern Croatian livestock production (1996-2002); Adjusting resources in function of family farming (2002-2004), and she has also been leader manager on project: „Entrepreneurial management to development of agrotourism, from 2005-2008. PhD. Jadranka Deže published 85 scientific papers in journals and proceedings of national and international conferences. The professional activity is based on cooperation with economic operators (CZP, CEPOR, BIOPA), with the aim of transferring knowledge about entrepreneurship management of small and medium-sized enterprises - business development planning, organic-biological food production and rural tourism. PhD. Jadranka Deže is a member of the Agricultural Association of Osijek since 1993, the Croatian Agro-Economical Society since 1999, the Croatian Society of Economists since 2000 and the European Agrarian Economists Association since 2007.

architecture (M=3,90), while participating in agricultural works (grape harvest, making brandy, etc.) which had the lowest rate (M=3.03).

When respondents were divided in sociodemographic groups, we have found some statistically significant differences in gender analysis, table 3. Male respondents evaluate accommodation offers significantly lower (M=3.64) than female respondents (M=4.18; $p<0,01$) as well as events (M=3.67 vs. M=4.13; $p<0,05$). In general, female respondent gave higher rates mostly to all deciding factors, except sport and recreational activities and natural sights, although those differences were not statistically significant.

<i>Deciding factors for choosing agro-tourism diversification</i>	<i>Male</i>		<i>Female</i>		<i>t-test</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Food and drinks (gastronomy)	4.22	0.989	4.36	0.829	0.828	n.s.
Sports and recreation	4.03	1.028	3.99	0.919	0.203	n.s.
Accommodation offer	3.64	0.961	4.18	0.946	-2.973	0,003**
Traditional architecture	3.72	1.162	3.96	1.035	-1.181	n.s.
Events	3.67	1.195	4.13	1.028	-2.237	0,027*
Natural sights	4.19	1.037	4.16	0.930	0.176	n.s.
Participation in farm activities	3.00	1.373	3.05	1.275	-0.181	n.s.

** $p<0,01$, * $p<0,05$

Table 3: Testing of differences in arithmetic means with regard to gender of respondents

According to the data in table 4, we can see that respondents aged 31-35 give the lowest rate to food and drinks offer in relation to other age group, and that difference had statistical significance ($p<0,05$).

<i>Deciding factors for choosing agro-tourism diversification by age groups</i>	<i>15-20</i>		<i>20-25</i>		<i>26-30</i>		<i>31-35</i>		<i>>36</i>		<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Food and drinks (gastronomy)	4.20	0.919	4.32	0.897	4.54	0.779	3.50	0.850	4.22	0.667	0.015*
Sports and recreation	4.10	0.738	4.11	0.862	3.96	1.009	3.70	1.418	3.67	0.707	n.s.
Accommodation offer	3.60	1.174	4.11	1.040	4.21	0.825	3.70	1.059	3.56	0.726	n.s.
Traditional architecture	3.70	1.160	3.92	1.100	3.88	1.060	4.00	0.667	4.00	1.323	n.s.
Events	4.00	0.667	4.05	1.129	3.98	1.180	4.00	0.471	4.00	1.225	n.s.
Natural sights	4.20	1.033	4.20	0.948	4.13	1.030	4.20	0.789	4.11	0.782	n.s.
Participation in farm activities	3.40	1.075	3.00	1.301	2.98	1.365	3.30	1.418	2.89	1.054	n.s.

** $p<0,01$, * $p<0,05$

Table 4: Testing of differences in arithmetic means with regard to age of respondents

According to the Sudarić et. al. [7] possible diversification measures for economic activities on family farms are based on the two basic directions: (a) the diversification of activities with the goal of creating added value through vertical connection of agricultural/food products (wheat/flour/bread/pasta/cakes) - organic food, indigenous product, functional food and on (b) horizontal activities based on sports and recreation, village wellness and other events.

2.3. Products/services - attraction factor to agro-tourism

Agro-tourism product and/or services are not individual attractions present in the market – diversification should be integrated in tourism of specific region. Identification and valorization of product diversification contribute to the increase number of touristic products based on natural and social prerequisite of rural areas [8]. However, agro-tourism as the most perspective type should play an important role in the sustainable social, economic and tourist development of rural areas. According to Bartoluci et.al., [1] only about 2% of the total tourism revenue is generated in rural area.

Analyzing products and services, according to the research, are not sufficiently developed in agro-tourism (72.1%). In the same time, 11.6% respondents thinks that products and services are well developed while 16.3% of respondents have no opinion.

Respondents were furtherly asked what product offer should be more differentiated in order to attract them to agro-tourism and 85% of respondents believe that offer should be better differentiated. Mostly, they think it should be combination of food and non-food products. The most frequently answered service (possibility of choosing more than one answer) that should attract people to agro-tourism is gastronomy services (90), followed by combination of products and services (71), sports and recreation services (68), accommodation services (41), while the participating in farm activities is the least frequent answer (29).

The last question (open type question) was: Which product or service, specific to OB County, would most encourage you to visit agro-tourism? Respondents think it should be kulen (25), vine (9), brandy “rakija” (7) as well as fish and fish specialties (6). Horse riding and cycling was the most important when we analyzed services. Such results overlap with the *Croatian Tourism Development Strategy until 2020*. where gastronomic

PhD Ružica Lončarić

*(1970) is a full professor at the Faculty of Agriculture in Osijek. She attended elementary and secondary school in Donji Miholjac and graduated at the Faculty of Agriculture in Osijek (1994), the course Crop production. She enrolled in the postgraduate study "Business Management - Management" at the Faculty of Economics in Osijek. The Master's thesis entitled "The Economic Position of Agricultural Economies of the Republic of Croatia in the Conditions of World Market Globalization" was defended in 2002 under the guidance of mentor prof. dr. sc. Ljubomir Baban. In 2006, under the title of "The Impact of the Stabilization and Association Agreement between the Republic of Croatia and the European Union on Agriculture of the Republic of Croatia" she defended doctoral thesis under the guidance of mentor prof.dr.sc. Goran Marijanović. She has been employed at the Faculty of Agriculture in Osijek since 1997. She is involved in the teaching of professional, undergraduate, graduate, specialist and doctoral studies in the fields of international market relations, markets and marketing of agri-food products and the decision-making system in agriculture. As author and co-author, she published 60 papers and participated in 28 international and 15 domestic scientific and professional conferences. As an associate, she participated in the work of 4 international and 7 national scientific projects. She is co-author in three university handbooks. Currently, she is the vice-president of the Croatian Agro-Economic Society (HAED), member of the Croatian Society fo agronomists (HAD), as well as ISHS and EAAE organizations. She is the editor-in-chief of the *Agroeconomia Croatica* scientific journal.*



tourism, enotourism, sport tourism, health tourism, culture tourism and cycle-tourism are perspective products in rural tourism.

3. CONCLUSION

According to empirical research, the survey show that mediterranean tourism is much more significant (78.9%) over rural tourism (21.1%). Rural tourism is more interested to men (30.6% vs. 18% women) from urban area (17% over 14% rural area) in the age of more than 36. Also, respondents prefer adventurous tourism and that is because most of our respondents were younger than 30 years (87.1%). Respondents think that rural tourism is not developed enough in OB County (85%) and the most frequent reasons are: bad economic situation, non-popularity of agro-tourism, insufficient advertising, no adequate interest, insufficient contents in agro-tourism and non-diversity agro-tourism offer. In this paper we have found some statistically significant differences in gender analysis, male respondents evaluate accommodation offers significantly lower (3.64) than female respondents (4.18; $p < 0.01$) as well as events (3.67 vs. 4.13; $p < 0.05$). In general, female respondent gave higher rates mostly to all deciding factors, except sport and recreational activities and natural sights, although those differences were not statistically significant. As a result, 72.1% of respondents think that products and services are not sufficiently developed in agro-tourism. Gastronomy were the most frequently answered offer, while the participating in farm activities is the least frequent answer. In order to the research, survey and analyze the further development of tourism product diversification in agro-tourism in OB County should be in recognizable, original and unique product for this local area (indigenous food product - kulen, cottage cheese, honey, rakija) as well as services like vine roads, riding horses, birds watching etc. Agro-tourism development should be integrated through a tourist offer in order to achieve ecological, socio-cultural and economic sustainable development. Concept of diversification of tourism product can be achieved through better cooperation between farms but in coordination with different stakeholder groups, both locally and regional.

REFERENCES

- [1] Bartoluci, M., Hendija, Z., Petračić, M. (2015) *Possibilities of sustainable development of rural tourism in continental Croatia*, Acta Turistica, Vol 27, No 2, pp. 191-219.
- [2] Deže, J., Ranogajec, Lj., Sudarić, T. (2017) *Development of local communities through the production of regional indigenous products*, Interdisciplinary Management Research XIII, Opatija, 19th-21th May 2017. pp. 1149-1165.
- [3] Deže, J., Ranogajec, Lj., Lončarić, R., Rabik, M. (2016) *Mogućnosti razvoja poduzetništva u ekološkoj poljoprivredi Vukovarsko-Srijemske županije*, Poljoprivreda 22/2, str. 64-69.
- [4] Kesar, O. (2011) *Specifični oblici turizma kao nositelji održivog razvoja destinacije*, Turizam i sport – razvojni aspekti, Školska knjiga, Zagreb, pp. 50-57.
- [5] Lebe, S.S., Milfelner, B. (2006) *Innovative organisation approach to sustainable tourism development in rural areas*. Kybernetes. Vol. 35 No. 7/8. pp. 1136-1146.
- [6] Long, P. (1998) *Rural Tourism Foundation Information Piece*, University of Colorado: Boulder. In: Gartner, W.C. (2004) Rural tourism development in the USA. *The International Journal of Tourism Research*. Vol. 6. No. 3. pp.151-164.
- [7] Sudarić, T., Zmaić, K., Blagojević, G. (2009) *Diversification of Rural Economic Activities in Eastern Croatia*, Proceedings 4th Aspects and Vision of Applied Economics and Informatics, Debrecen, Hungary, pp.1064-1070.

- [8] Sudarić, T., Zmaić, K., Petrić, B. (2015) *Atraktivnost i konkurentost ruralnog prostora Slavonije i Baranje*, Proceedings of the 50th Croatian and 10th International Symposium on Agriculture, Zagreb, pp.169-173.
- [9] Sudarić, T., Zmaić, K., Nedić, I. (2012) *Koncepcijski okvir razvoja ruralnog turzima u istočnoj Hrvatskoj*, Proceedings of the 47th Croatian and 7th International Symposium on Agriculture, Zagreb, pp. 227-230.

ECOLOGICALLY IMPORTANT AREAS AND PROTECTED NATURAL SITES AS IMPORTANT POTENTIAL FOR THE DEVELOPMENT OF ECOTOURISM IN SERBIA

Milan Počuča⁵⁶

Jelena Matijašević-Obradović⁵⁷

Abstract: *Ecotourism is a form of tourism which, alongside tourist offers and investments into tourist activities, is predominantly recreational, but also focused on environmental protection, improvement of life quality of the local population and education of interested parties, as well as promotion of basic principles that it is based on. Ecologically important areas and protected natural sites are a very important potential for the development of ecotourism. In the research part of the paper, we have analysed the representation of individual protected natural sites in Serbia, in the period between 2013 and 2015, along with the review of ecologically important areas in the Republic of Serbia in 2016. The work on the paper has been done applying the analytical method in theoretical content analysis, the deductive method when drawing conclusions and the basic quantitative data analysis in the research part. The research for the paper has been based on the official data of the Statistical Office of the Republic of Serbia. The analysis of type and number of protected natural sites in the territory of Serbia has been done for the period between 2013 and 2015. Observing the relationship between ecotourism and protected natural sites, we have noticed a very pronounced mutual conditionality. Namely, however much the impacts of a well-planned and organised ecotourism may be positive for a particular area and protected natural sites found in that area (in terms of tourism development prospects, realised economic income for the region and the local population, etc.), so much an ecologically important area and protected natural sites can significantly influence the shape and quality of the tourism offer, and hence the development and prospects of ecotourism in certain areas.*

Key words: *ecotourism, tourism, ecologically important areas, protected natural sites.*

1. INTRODUCTION

Tourism is often viewed as a targeted, planned and motivated behaviour, where the most important role in making a travel decision is also that of traveller's expectations. Therefore, the needs, attitudes and motives of tourists are of crucial importance [21]. The role of tourism in local economic development is a topic of critical importance [15], [16].

The globalisation process has encouraged the development of tourism through numerous countries opening to the world. The consequences of globalisation in tourism are countless and relate primarily to the following inherent features: typification of tourist offer, impact and numerous negative effects on the environment, development of cultural and historical sites, etc. Thanks to the globalisation and its impact, both globally and locally, and having in mind primarily the impact in the field of finances, labour, technology, transport and communications,

⁵⁶ Faculty of Law for Commerce and Judiciary in Novi Sad, Geri Karolja Street no. 1, Novi Sad 21 000, Serbia

⁵⁷ Faculty of Law for Commerce and Judiciary in Novi Sad, Geri Karolja Street no. 1, Novi Sad 21 000, Serbia

tourism has experienced a large expansion in the second half of XX and the beginning of XXI century.

Tourism is one of the most effective ways to valorise natural entities (lakes, rivers, mountain viewpoints and landscapes, etc.) as well as cultural heritage (archaeological sites, monasteries, etc.). Bearing in mind that tourism is a kind of user of space, whereby it is not an irreversible consumer of natural elements, a controlled development of tourism may contribute to the development of a particular area [7]. Tourism can therefore primarily be viewed as an economic branch which simultaneously promotes economic growth and equity, as it involves the use of local inputs - local resources, but also the engagement of local labour [9]. However, some authors point out that tourism is in turn one of the most developed industries and that it engages very large natural resources in many ways, particularly those that are ecologically the most attractive and sensitive regions [10]. It is precisely in this context that the emergence of ecotourism, as a form of tourism that has been gradually evolving in recent years, has brought along an array of possibilities for preservation of natural resources, important sites and a healthy environment in general. This certainly speaks of the important interaction between ecotourism and all components of a healthy environment. In other words, however much is ecotourism important for the preservation of protected natural sites, ecologically important areas and environment as a whole, so much are all components of a healthy environment an important potential for development and improvement of ecotourism.

In its basic meaning, ecotourism primarily highlights environmental protection, improvement of life quality of the local population and education of interested parties in this form of tourist offer [13]. In the sense of the foregoing, the environment represents everything that surrounds us, that is, everything that is directly or indirectly connected with human life and production activity [4]. Therefore, the right of a human to a healthy environment is one of the basic human rights. However, during their activities, humans change the natural environment, often by disturbing or damaging it. In that context, it is important, both from scientific and theoretical aspects and the practice itself, to deal with basic advantages and characteristics of ecotourism as a form of tourist offer that has been developing more and more, as well as with possibilities for further development of ecotourism within Serbia.

Proceeding from the above, in addition to the relevant theoretical definitions, the subject of our paper includes a quantitative analysis of official statistical data regarding the type and number of protected natural sites in the territory of Serbia, as well as examination of all ecologically important areas in the territory of Serbia, and in accordance with the current by-law - Regulation of the Government of the Republic of Serbia on the ecological network. The work on the paper has been done applying the analytical method in theoretical content analysis, the deductive method when drawing conclusions and the basic quantitative data analysis in the research part. The research for the paper has been based on the official data of the Statistical Office of the Republic of Serbia. The analysis of type and number of protected natural sites in the territory of Serbia has been done for the period between 2013 and 2015.

2. LITERATURE REVIEW

The emergence of ecotourism in the world in the 1980s was marked by another, whose participant behaviour, need for a more humane approach, spiritual enrichment of the personality and a more purposeful relationship towards natural and anthropogenic tourist values [6]. Ecotourism is one of the special forms of alternative tourism that can be defined as a form of tourism inspired, above all, by the natural history of the region, including the host culture [23].

The International Ecotourism Society understands this form of tourism as responsible travel to natural areas with care for the preservation of the environment and ensuring a better life for the local community [1]. Under [5] it is pointed out that ecotourism is a journey to sensitive, primordial and usually protected areas, which seeks to minimise the impact on those areas and is usually small scale. It helps to educate visitors, provide resources for protection, it directly benefits the economic development and political empowerment of local communities and it encourages respect for different cultures and human rights. Unlike traditional tourist destinations, under [6] it is emphasised that "ecodestinations are mostly protected natural sites or areas with preserved natural features and rich biodiversity, but can also include relatively altered rural and even some urban areas". Under [2] it is stated that ecotourism, unlike other forms of tourism, directly contributes to the preservation of nature.

Countless definitions related to ecotourism stress the following: ecotourism is a journey which is friendly to the environment, which emphasises observation and preservation of natural habitats and archaeological resources; ecotourism is a means of environmental protection; ecotourism is ecologically responsible tourism; ecotourism is a way of protecting natural areas that involves economic gain through the protection of natural resources, it is a type of tourism which involves nature; ecotourism means more than protection, it is a type of journey that responds to the ecological, social and economic needs of a destination, it includes all stages of travel - from air travel, to hotel, local transportation and tour operator; ecotourism is a form of tourism that takes care of the environment and the integrity of ecosystem and provides economic growth and means of nature protection [3]. The base of the mentioned definitions of ecotourism reveals two primary goals of the same thing: 1) minimise the negative impacts on the site being visited and contribute to the sustainable development of

Milan (Bogdan) Počuča



EDUCATION

1981-1986 - Graduated from the Faculty of Law, University of Zagreb.

2005 - Completed specialist studies, awarded the title of specialist in the field of Insurance Law

26 Jan 2006 - Awarded the title of Master of Laws

29 Nov 2007 - Defended his doctoral dissertation and was awarded the title of Doctor of Laws

ACADEMIC CAREER AND PUBLICATIONS

14 Feb 2008 - Awarded the academic title of assistant professor in Civil Law and Commercial Law specific scientific area, as per decision of the Senate of the University Business Academy in Novi Sad.

14 Feb 2013 - Awarded the academic title of associate professor in Civil Law and Commercial Law specific scientific area, as per the decision of the Senate of the University Business Academy in Novi Sad.

23 Feb 2017 - Awarded the academic title of full professor in Civil Law and Commercial Law specific scientific area, as per the decision of the Senate of the University Business Academy in Novi Sad.

Milan is employed on a contract of indefinite duration for a full-time job at the Faculty of Law, University Business Academy in Novi Sad.

Author and co-author of four textbooks, seven monographs and more than 100 scientific and professional papers published in leading international and national journals and conferences.

Participated in one European, several provincial and municipal scientific projects.

He is a mentor and a tutor at doctoral and master's studies and a reviewer in the Commission for the accreditation of higher education institutions under the Ministry of Science and Education of the Republic of Serbia (accreditation period 2014-2019).

Milan is a reviewer in top national scientific journals, such as *Vojnosanitetski preglad* (Military, medical and pharmaceutical review), *Ekonomika poljoprivrede* (Economics of agriculture) and a national scientific journal *Pravo teorija i praksa* (Law, theory and practice).

the entire area and the local community and 2) create awareness of environmental protection among the local residents and tourists [8].

General characteristics of ecotourism are: basic motivation of tourists is observation and appreciation of nature, as well as of traditional cultures prevailing in the observed natural areas; it is minimising negative impacts on natural and socio-cultural features; it is usually organised for small groups of visitors; it contains educational and scientific characteristics; it supports the protection of nature areas creating economic benefits for local communities and administrative authorities that manage the nature areas, with the aim of their preservation; it raises awareness of environmental protection and cultural heritage; it becomes educational basis and course of development of sustainable tourism [12]. In this context, [22] emphasises education as an important component of ecotourism, which means that tourists with the new way of hedonism, i.e. consuming products from the environment, at the same time learn about the unity of man and nature.

The principles of ecotourism development can be classified as follows:

- that development is based on nature - it depends on the natural environment, but it can also refer to cultural features, although environmental protection is crucial for the development of ecotourism;
- that it is environmentally sustainable - all its forms should be environmentally sustainable, although it practice it varies from case to case;
- that it is environmentally instructive - education on natural environment and interpretation should be the key features of ecotourism, as it is the kind of training that tourists actually expect;
- that it is useful locally - ecotourism should involve the local community for the benefit of both the community and the environment, as well as improve the quality of tourist experience;
- that it represents an experience for tourists - visitors' satisfaction with ecotourism experience and their safety are vital for the future of the "ecotourism industry" [11].

Ecotourism features can be described using the tools for conservation and its implementation which: give economic value of the ecosystem and services which ensure protection of the area; generate direct revenues for conservation and protection of the area; generate direct and indirect revenues for local stakeholders; encourage conservation in local communities; build up clientele for conservation on local, national and international levels; promote sustainable use of natural resources and reduce biodiversity problems [10].

Modern forms of ecotourism under [11] include: scientific research tourism, cultural and educational (ecotourism), excursion tourism, hunting tourism, fishing tourism, bird watching, photo safari, rural tourism, sports tourism.

3. METHODOLOGY AND DATA SOURCES USED

The subject of the analysis of this paper are two very important potentials for the development of ecotourism in the territory of Serbia. In other words, the work on the paper has been done applying a quantitative analysis of official statistical data regarding the type and number of protected natural sites in the territory of Serbia, as well as examination of all ecologically important areas in the territory of Serbia, and in accordance with the current by-law - Regulation of the Government of the Republic of Serbia on the ecological network.

The work on the paper has been done applying the analytical method in theoretical content analysis, the deductive method when drawing conclusions and the basic quantitative data analysis in the research part. The research for the paper has been based on the official data of the Statistical Office of the Republic of Serbia. The analysis of type and number of protected natural sites in the territory of Serbia has been done for the period between 2013 and 2015.

4. RESEARCH RESULTS AND DISCUSSION

Within the research subject, it is necessary to point out several relevant definitions, according to the statistical yearbook of the Statistical Office of the Republic of Serbia [17], [18], [19] and provisions of Paragraph 4 of the Law on Nature Protection [20]. In line with that:

- protected areas are areas with a pronounced geological, biological, ecosystem and/or landscape diversity and are therefore declared as protected areas of general interest by means of protection act.
- protected species are wild species that are endangered or may become endangered, that have special significance from the genetic, ecological, ecosystem, scientific, health, economic and other aspects and are protected as strictly protected wild species and protected wild species – Article 36 of the Law on Nature Protection [20].
- ecological network is a set of functionally connected or spatially close ecologically important areas, whose biogeographical representation and representativeness contribute significantly to the conservation of biodiversity, including ecologically important areas of the European Union NATURA 2000. The ecological network consists of: ecologically important areas, ecological corridors and protection zone, if necessary.
- ecologically important areas are parts of the ecological network that are significant for the conservation of species, certain types of habitats and habitats of certain species that are important for the Republic of Serbia, in accordance with the generally accepted rules of international law ratified international agreements.

Jelena Matijašević-Obradović, PhD is Associate Professor at Faculty of Law for Commerce and Judiciary in Novi Sad (FLCJ), University Business academy in Novi Sad, The Republic of Serbia.



Date and place of birth: February 07, 1983, Belgrade, The Republic of Serbia

Education: 2011. – PhD dissertation entitled „Criminal Law regulation of the Computer crime“; FLCJ

2008. - Master thesis „Money Laundering“; Faculty of Law, University in Novi Sad, Department of Internal Affairs.

Work experience:

2007. – 2008. - Teaching assistant, Department of Criminal Law, FLCJ;

2008. – 2011. – Assistant Department of Criminal Law, FLCJ;

2009. -2013. - Assistant Manager and Chief Coordinator of the Center for Education and Specialized Courses;

2012. - Assistant Professor, FLCJ;

2013. - Dean's advisor for teaching and extra-curricular matters;

2016. - Associate Professor, FLCJ.

Manager and Chief Coordinator of the following specialized courses: „Legal and Economic aspects of ICT Abuse“, „Operational and Investigative Forensics in Criminal Proceedings“. Languages: Serbian (native language), Russian language and English language. Participated in a number of conferences and has published papers in many domestic and international journals. Competency index: 292,5

The following tables show quantitative indicators of representation of protected areas and protected species as basic elements of protected natural sites, for the period between 2013 and 2015, then they show a percentage share of protected areas and protected species in the total number of protected natural sites, for the period between 2013 and 2015, and finally, an overview of ecologically important areas in the Republic of Serbia in 2016.

<i>Protected natural sites</i>	2015	2014	2013
<i>Protected areas</i>	467	458	474
National parks	5	5	5
Natural parks	17	17	18
Landscapes	20	20	16
Reserves	69	67	69
Strict natural reserves	33	32	40
General natural reserves	7	4	4
Special nature reserves	29	28	22
Natural monuments	313	308	324
Protected trees and parks	244	239	252
Geoheritage sites	69	72	72
Cultural-historical areas	38	38	39
Protected habitats	3	3	3
<i>Protected species</i>	2613	/	/
Strict protected wild species	1760	/	/
Protected wild species	853	/	/

Table 1: Quantitative indicators of representation of protected natural sites, for the period between 2013 and 2015 (Source: [17], [18], [19]).

<i>Protected natural sites</i>	2015	2014	2013
<i>Protected areas</i>	467	458	474
National parks	1,07 %	1,09 %	1,05 %
Natural parks	3,64 %	3,71 %	3,80 %
Landscapes	4,28 %	4,37 %	3,38 %
Reserves	14,78 %	14,63 %	14,56 %
Strict natural reserves	7,07 %	6,99 %	8,44 %
General natural reserves	1,50 %	0,87 %	0,84 %
Special nature reserves	6,21 %	6,11 %	4,64 %
Natural monuments	67,02 %	67,25 %	68,35 %
Protected trees and parks	52,25 %	52,18 %	53,16 %
Geoheritage sites	14,78 %	15,72 %	15,19 %
Cultural-historical areas	8,14 %	8,30 %	8,23 %
Protected habitats	0,64 %	0,66 %	0,63 %
<i>Protected species</i>	2613	/	/
Strict protected wild species	67,36 %	/	/
Protected wild species	32,64 %	/	/

Table 2: Percentage share of protected areas and protected species in the total number of protected natural sites, for the period between 2013 and 2015 (Source: author's calculation)

<i>National name</i>					
1	Subotica lake and sand bank	35	Brdjanska klisura, canyon	69	Ozren-Jadovnik
2	Velike droplje pastures	36	Gruža reservoir	70	Pešter
3	Gornje Podunavlje	37	Ovčarsko-kablarska klisura, canyon	71	Gutavica
4	Salt marshes of the Western Bačka	38	Brzansko Moravište	72	Golija
5	Salt marsh areas around Doroslovo	39	Klisura Osaničke reke, canyon	73	Ras-Sopoćani
6	Krivaja river loess valleys	40	Mustafa	74	Rogozna
7	Bečej fish farm	41	Felješana	75	Kopaonik
8	Slano kopovo	42	Mali Kr	76	Čelije
9	Okanj and Rusanda	43	Stol-Veliki Krš	77	Prokop
10	Jegrička	44	Deli Jovan	78	Lalinac salt marsh
11	Titel hill	45	Bukovo	79	Kamenički vis
12	Carska bara	46	Kučajske mountains	80	Stara mountain
13	Karadjordjevo	47	Rtanj	81	Sićevačka klisura, canyon
14	Fruška gora and koviljski cape	48	Mala Jasenova glava	82	Suva mountain
15	Potamišje	49	Gornje Pomoravlje	83	Šljivovički vis
16	Vršac mountains and meadows	50	Ozren and Devica	84	Krupacko blato
17	Bosuts forests	51	Mojsinjske mountains and Stalaćka klisura, canyon	85	Jerma
18	Zasavica	52	Osredak	86	Zeleničje
19	Obedska bara (pond)	53	Kalenić	87	Kukavica
20	Deliblatska peščara	54	Vrh Željina-Pločka čuka	88	Vlasina
21	Donje Podrinje	55	Goč	89	Radan
22	Confluence of the Sava river into the Danube	56	Klisura Ibra	90	Aleksandrovac salt marsh
23	Košutnjak	57	Iznad Tatalije	91	Rujam
24	Avala	58	Tesne Jaruge	92	Pčinja
25	Kosmaj	59	Zelenika	93	Jarešnik
26	Šalinački lug	60	Klisura detinje, canyon	94	Rudina
27	Prugovo	61	Tara	95	Golemi vrh
28	Đerdap	62	Zlatibor	96	Grmija
29	Mala Vrbica	63	Park forest near Ribnica	97	Gazimestan
30	Kladovo-Radujevac	64	Mali Rzav river valley	98	Sitnica
31	Cer	65	Mučanj	99	Miruša
32	Danilova kosa	66	Uvac and Mileševka	100	Prokletije
33	Valjevske mountains	67	Paljevine	101	Šar planina
34	Veliki Šturac	68	Kamena gora	/	/

Table 3. Review of Important Sites for the Ecological Network in The Republic of Serbia, for 2016 (Source: [17]).

From the data shown in Tables 1 and 2, it can be concluded that in the group of protected areas, the most common ones are the Natural monuments, with the percentage share of 67.02 % in 2015, 67.25 % in 2014 and 68.35 % in 2013, and in relation to the total number of protected areas in the Republic of Serbia. In the Natural monuments group, the Protected trees and parks (52.25 % in 2015, 52.18 % in 2014 and 53.16 % in 2013) are more common, as opposed to the Geoheritage sites (14.78 % in 2015, 15.72 % in 2014 and 15.19 % in 2013). Furthermore, it can be concluded that the Protected habitats are the least represented ones in the group of protected areas (0.64 % in 2015, 0.66 % in 2014 and 0.63 % in 2013).

The representation percentage of the rest of the protected areas, by years, is as follows: National parks (1.07 % in 2015, 1.09 % in 2014 and 1.05 % in 2013), Natural parks (3.64 % in 2015, 3.71 % in 2014 and 3.80 % in 2013), Landscapes (4.28 % in 2015, 4.37 % in 2014 and 3.38 % in 2013), Reserves (14.78 % in 2015, 14.63 % in 2014 and 14.56 % in 2013) and Cultural-historical areas (8.14 % in 2015, 8.30 % in 2014 and 8.23 % in 2013).

In the group of protected species, the Strict protected wild species (67.36 % in 2015) are more represented in relation to the Protected wild species (32.64 % in 2015). Data on the number and representation of the protected species (strict protected wild species and protected wild species) have not been statistically recorded for the years 2014 or 2013.

From the data in Table 3, it can be concluded that a total of 101 ecologically important areas were recorded in the Republic of Serbia in 2016, and in accordance with the Regulation on the ecological network of the Government of the Republic of Serbia [14].

5. CONCLUSION

As already mentioned at the beginning of this paper, ecotourism is a form of tourism which, alongside tourist offers and investments into tourist activities, is predominantly recreational, but also focused on environmental protection, improvement of life quality of the local population and education of interested parties, as well as promotion of basic principles that it is based on.

Ecologically important areas and protected natural sites are a very important potential for the development of ecotourism. In the research part of the paper, we have analysed the representation of individual protected natural sites in Serbia, in the period between 2013 and 2015, along with the review of ecologically important areas in the Republic of Serbia in 2016. As pointed out by some authors, protected natural sites are very attractive for tourists and mainly have two clear purposes: protection of important natural resources and recreation.

Observing the relationship between ecotourism and protected natural sites, we have noticed a very pronounced mutual conditionality. Namely, however much the impacts of a well-planned and organised ecotourism may be positive for a particular area and protected natural sites found in that area (in terms of tourism development prospects, realised economic income for the region and the local population, etc.), so much an ecologically important area and protected natural sites can significantly influence the shape and quality of the tourism offer, and hence the development and prospects of ecotourism in certain areas. In other words, tourism that is carefully planned and organised for the purpose of scientific and ecological education will not only be of significance for the protection of nature, but may also be important for its popularisation, since tourism develops mainly in resorts with well-preserved nature. such as in protected natural sites. On the other hand, protected natural sites, as well as ecologically

important areas are the primary resource on which ecotourism is based, i.e. a significant potential for the development of ecotourism and the main motive for choosing a specific ecotourism destination.

REFERENCES

- [1] Bakan, R., Jaković, B. (2015) *Ekoturizam*. Visoka škola za menadžment u turizmu i informatici, Virovitica, Croatia, p. 2.
- [2] Ćurić, K. (2010) Promišljanje razvoja ekoturizma i ekološke poljoprivrede, *Praktični menadžment*, 1 (1), pp. 98-100, p. 98.
- [3] Đuričić, Z., Đuričić, R., Avakumović, J. (2009) Marketing i ekoturizam-resursi savremenog doba. U: *Ekološka bezbednost u postmodernom ambijentu*, Apeiron, Banja Luka, pp. 429-437, p. 432.
- [4] Hamidović, Dž. (2012) Krivičnopravna zaštita životne sredine i održivi razvoj naše zemlje, *Socioeconomica*, 1 (2), pp. 235-245, pp. 235-236.
- [5] Honey, M. (2008) *Ecotourism and Sustainable Development: Who Owns Paradise* (sec. ed.), D.C, Island press, Washington, USA, p. 33.
- [6] Jegdić, V. (2010) Model razvoja ekoturizma u Vojvodini, *Ekonomski horizonti*, 12, (1) pp. 63-78, p. 65.
- [7] Jovičić, D. (2000) *Turizam i životna sredina*, Zadužbina Andrejević, Belgrade, p. 17.
- [8] Klarić Z., Gatti P. (2006) *Hrvatski turizam - Plavo, bijelo, zeleno*, Institut za turizam, Zagreb, p. 151.
- [9] Mansury, Y., Hara, T. (2007) Impacts of Organic Food Agritourism on a Small Rural Economy: A Social Accounting Matrix Approach, *The Journal of Regional Analysis & Policy*, 37 (3), pp. 213-222, p. 213.
- [10] Milivojević, J., Kanjevac Milovanović, K., Rajković, D., Grubor, S., Tonić, N. (2011) Eko turizam u funkciji ekselentnog kvaliteta životne sredine. U: *Festival kvaliteta 2011 - 6. Nacionalna konferencija o kvalitetu života* (ur. Alavko Arsovski, Miodrag Lazić i Miladin Stefanović), Mašinski fakultet, Kragujevac, pp. 65-70, p. 66.
- [11] Novaković-Kostić, R., Trumbulović, Lj. (2016) *Ekoturizam*, Visoka poslovno tehnička škola strukovnih studija, Užice, p. 158.
- [12] Pavlović, S., Jovanović, B. (2009) Komplementarnost eko i etno turizma na primerima zlatiborskih sela, *Zbornik radova Geografskog fakulteta Univerziteta u Beogradu*, 57, pp. 165-180, pp. 167-168.
- [13] Rabotić, B. (2012) *Selektivni oblici turizma*, Visoka turistička škola strukovnih studija, Belgrade, p. 2, <http://www.visokaturisticcka.edu.rs/> (15.05.2017)
- [14] Regulation on the ecological network, "Official Gazette of The Republic of Serbia", no. 102/10.
- [15] Rogerson, C. M., Rogerson, J. M. (2014) Agritourism and local economic development in South Africa, *Bulletin of Geography (Socio-economic Series)*, 26 (26), pp. 93-106.
- [16] Spilanis, I., Kizos, T., Karampela, S. (2016) Evaluating the impact of agritourism on local development in small islands, *Island Studies Journal*, 11 (1), pp. 161-176, p. 161.
- [17] Statistical Yearbook of the Republic of Serbia (2016) *Environment*, Statistical Office of the Republic of Serbia, Belgrade.
- [18] Statistical Yearbook of the Republic of Serbia (2015) *Environment*, Statistical Office of the Republic of Serbia, Belgrade.
- [19] Statistical Yearbook of the Republic of Serbia (2014) *Environment*, Statistical Office of the Republic of Serbia, Belgrade.
- [20] The Law on Nature Protection, "Official Gazette of The Republic of Serbia", no. 36/2009, 88/2010, 91/2010 - corr. and 14/2016.

- [21] Wall, G., Mathison, A. (2006). *Tourism: change, impacts and opportunities*, Pearson Education Limited, Harlow.
- [22] Weaver, D. (2001) Ecotourism as mass tourism: Contradiction or reality?, *Cornell hotel and restaurant administration quarterly*, 42 (2), pp. 104-12.
- [23] Ziffer, K. (1989) *Ecotourism: The Uneasy Al-liance*, DC: Conserv. Int., Washington, USA.

DRIVING FOOD TOURISM DEVELOPMENT THROUGH LOCAL GASTRONOMY

Alžbeta Királ'ová⁵⁸
Iveta Hamarneh⁵⁹

Abstract: *Local gastronomy is an essential element of tourism that can contribute to the general perception of the destination. It has been recognized as an essential part of destinations' culture and identity as it plays an important role in visitors' experiences. Trying out local food and beverages can serve to enrich the overall experience of visitors seeking to learn more about the destination's authentic culture. Local gastronomy is easily linked to the destination and can contribute to its growth and welfare of its residents.*

Food tourism is a factor of economic growth of the destination and may play a significant role in its development. It is a cultural enhancement activity contributing to the tourism experience. Gastronomic experience can drive the destination's visitation, the visitors' spends and the average length of visitors' stays.

Food tourism is a phenomenon that has a positive impact on the development of destinations while respecting the principles of sustainable development. Food tourism can provide new job opportunities; it strengthens the cultural identity, traditions, pride and the use of local resources. On the other hand, it affects the local heritage, while most tourists, once in the destination, want not only experience the local gastronomy but also want to discover the way the local food is produced.

Local gastronomy is a vital factor in visitors' satisfaction, connected with the lasting memory of the culinary experience. Several studies have found that destinations that have established a reputation as a place to experiment with quality local gastronomy have high visitation. However, the local gastronomy in the Czech Republic is receiving very little attention. Although the Czech regions combine prerequisites for food tourism development with a long lasting tradition of food preparing culture, it is currently not enough exploited. Food tourism can be a means for the better economic growth of the destinations with high unemployment and low socio-economic status.

The study aims to identify the role of the local gastronomy in the Czech regions with regards to food tourism development. The study applies a qualitative approach using literature review, content analysis, in-depth interviews, and the Delphi method. Proposal for future research is also outlined.

Attractive location, rural areas, local farms and wineries, production of hops and vegetables, growing grapes, organizing events related to food and drinks create suitable conditions for the future development of food tourism in the Czech Republic. Based on the interviews conducted it can be stated that food tourism can subsequently increase the income from tourism in regions, enhance the guest's traffic, and improve the destinations' image. Destinations can, through local gastronomy, gain a global competitive advantage with further use and sustainability of local cultural capital.

Key words: *Food Tourism, Local Gastronomy, Development, Destination, Czech Republic*

⁵⁸ University College of Business in Prague, Spálená 14, 110 00 Prague, Czech Republic

⁵⁹ University College of Business in Prague, Spálená 14, 110 00 Prague, Czech Republic

1. INTRODUCTION

Food plays a vital role in the visitors' experience. Interaction with locals enables visitors to get an authentic touch of local culture and local gastronomy. Food tourism represents an attractive market for many destinations; it creates a unique competitive advantage [1], it is a factor of destinations' economic growth, and it contributes to the development of the destination [2].

Food also may become a central motivation for travel [3]. Visitors often like to combine food tourism with other activities, like culture, sport, festivals, shopping, outdoor activities, or adventurous excursions. Food tourism helps to create long-term relationships between visitors and producers as visitors often continue to prefer and purchase food and beverages from the visited destination long after they have returned to their homes. Food preference, in general, refers to the selection of one food item over the other [4]. It is an expressed choice of visitors between two or more food items available in the destination.

Food tourism refers to trips in which local gastronomy plays an important role. Local gastronomy is an aspect of utmost importance in the quality of the holiday experience, and it is based on food and drinks that are produced or grown in the local area or on local specialty food that has a local identity [5]. It can be differentiated from non-local products regarding distinct product characteristics, social features and ecological features.

According Hjalanger and Richards [6] tourism and local gastronomy have a potential for a symbiotic relationship as the relationship between food and tourism represent a significant opportunity for product development, marketing as well as for product diversification. Traditional local food and beverages create the opportunity for the development of rural tours, direct purchasing from the farms, and specialized restaurant menus [7], [8], [9], [10], [11]; it is an opportunity for producer to develop a long-term relationships with visitors as they often continue to purchase food and beverages from the visited destination after return home [3].

Local gastronomy has a potential to strengthen the destinations' identity, increase the sustainable use of the environment, and promote the regeneration of the local heritage and local economies. It tells the story of a destination's history, culture, and people. The UNWTO Global Report on Food Tourism [12] states that gastronomy is for 88.2% of destinations a strategic tool in their image and brand; 79% of destinations expressed that food events are the most important for the them; 62% of respondents consider gastronomic routes and cooking classes and workshops important; 59% of respondents consider food fairs featuring local products relevant; 53% of respondents expressed the importance of visits to markets and producers.

The Food Travel Monitor, the research conducted by the World Food Travel Association (WFTA) proves that 93% of travelers can now be considered food travelers. WFTA defines food travelers as "travelers who had participated in food or beverage experience other than dining out, at some time in the past 12 months" [13]. WFTA describes typical European food tourists as professional couples that have above-average income, aged between 36 and 55 years, with higher educational graduation, with high interest in food and culture (food culture), with high desire to travel, and with high interest in social and environmental issues and organic food. They spend on food and beverages from €150 to €250 daily which creates approximately 25% of their travel budget. Food tourists are looking for unique and authenticity, they like to interact with local people, and they often participate in cooking workshops run by locals.

Local gastronomy as one of an essential component of food tourism holds great potential to contribute to sustainable competitiveness in a destination, both from a tourism development and a destination marketing perspective. Visitors are demanding food that comes from sustainable and organic farms; they extend this lifestyle also to their holidays. It can be expected that sustainable and organic culinary tourism is expected to thrive. According to Meredith and Willer [14], the European organic market grew by 7.4% in 2014. The promotion of local gastronomy is an efficient way of supporting and strengthening the local economies by preserving culinary heritage and adding value to the authenticity of the destination; broadening and enhancing the local and regional tourism resource base; and stimulating the agricultural production. Development of a framework and guidelines for implementing food tourism can enable destination marketers and entrepreneurs to optimise the tourism potential of local gastronomy. Destinations can benefit through food tourism from increased demand for food-related products, brand loyalty, marketing intelligence for producers and suppliers, educational opportunities for visitors and residents, regional and local employment, extension of the visitors' stay in the destination, more extensive distribution of spending, and protection of intellectual property [15], [16], [17], [18].

3. METHODOLOGY

The purpose of the study is to identify the role of the local gastronomy in the Czech destinations with regards to food tourism development. To receive an overview of the state of the food tour local gastronomy the following steps were conducted:

- Evaluation of state of the local gastronomy in the Czech destinations;
- Assessment of the conditions for the further development of food tourism in the Czech Republic;

Dr. Iveta Hamarneh

Dr. Hamarneh graduated from the University of Economics in Prague, with the Ph.D. degree in International Economic Relations in 2001.



Iveta Hamarneh is experienced in teaching courses connected to Tourism. Since 1996 she has been a lecturer at multiple institutions including the University of Economics in Prague, University College of Business in Prague and the European Development Agency. Since 2015 Dr. Hamarneh has been appointed as a trainer for guide courses at the Prague City Tourism.

Since 2014 Dr. Hamarneh held the position of the Head of Department of Tourism Economy at the University College of Business in Prague. Currently, she holds a position of Vice-Rector for study at the University College of Business in Prague.

Dr. Hamarneh was the program coordinator of the EU project "M. A. Degree in the Economics of International Trade and European Integration" at the University of Economics in Prague; the project was designed for students of Economics and Business studies pursuing their Master's degree.

Dr. Hamarneh is actively involved in the promotion of the Tourism sector in the Czech Republic through the membership in the Czech Travel Press and the Association of Scientific Experts in the Tourism sector. Dr. Hamarneh regularly attends tourism conferences and is actively involved in the Erasmus activities.

She has experience in research activities within the Tourism Sector and manages to publish in both Czech and English. Dr. Hamarneh was associated with research projects regarding the model of Tourism Development, Tourism Competitiveness, Food Tourism, Sports Activities and Sports Tourism, and Aspects of Quality in the Tourism Sector in the Czech Republic.

- Identification of the main advantages of local gastronomy for the destinations.

According to the objective of the study, the following hypotheses were formulated H1: Local gastronomy in the Czech Republic is receiving very little attention; H2: Local gastronomy can enhance the food tourism development in the Czech destinations.

Literature review, content analysis, in-depth interview [19], [20], and the Delphi method [21], [22], [23] was applied to achieve the aim of the study.

Visitors of the gastronomic establishments older than 18 years were asked to express personal opinions on local gastronomy. Also, representants of all of the thirteen regional authorities and Prague were interviewed with the focus on the regional support of local food and food tourism development.

The outline of questions was prepared and formulated with the help of Patton's [24] six types of interview questions. The interviews were recorded on tape with permission of interviewees afterward analyzed through transcription and de-identified. For each interview, a summary was prepared. Content analysis and standard, systematic, qualitative coding techniques were applied. Given the qualitative nature of the information gathered and the size of the sample, the survey responses were not amenable to statistical analysis.

The Delphi method is a qualitative method combining the knowledge and opinions of experts through a series of questionnaires interspersed with information and opinion feedback to reach an informed consensus on a whole issue. Managers of the gastronomy establishments took part in Delphi conversation.

The specific selection criteria for the purposeful sampling as working in a managerial position in the gastronomy establishment minimum one year were determinate.

4. RESULTS AND DISCUSSION

Fifty interviews were carried out with a sample of domestic visitors of gastronomy establishments in different Czech regions. Additionally representants of all thirteen regional authorities and Prague, the capital were interviewed over a period of the years 2016 – 2017. The representants of all of the thirteen regional authorities stated some activities in the field of gastronomy, however for none of the regions is the support of local gastronomy and food tourism the priority. Prague, the capital, is focusing on the production of gastronomy guides – beer, vine, and cafés. The visitors can find some more information about gastronomy in Prague on the website www.prague.eu.

Four regions reported strong focus on beer – the Pilsen, the South Bohemian, the Ústecký and the Pardubice regions. The gastronomy activities in Pilsen region include the local mini breweries' beer trails; heritage gastronomy focused on Baroque, and production of local recipes books. The Pilsen Urquell beer visitor center is the initiative of the brewery.

The base for the food tourism development in the South Bohemia region is the beer – Budweiser, together with twenty-five small and mini breweries which will be connected in a beer trail. The Ústecký region, the producer of the world-famous hops in Žatec, is in its strategy also focusing of beer and beer trail with twenty-five mini breweries; however thanks to Litoměřice it supports also activities to promote regional vine. The Pardubický region is

supporting local food like gingerbread, honey, and plum brandy by organizing festivals devoted to these products. A region is also a place for the gastronomy festival of Magdalena Dobromila Rettig, the lady who produced the first cookbook printed in the Czech language. The Iron Mountain Gourmand trail enables visitors to experience the local food and drinks. The newly opened visitor center in the brewery that shows the visitors the traditional beer production.

The Central Bohemian region, the Vysočina region, and the Olomouc region supports food festivals and fairs. The Central Bohemian region's activities are oriented on the promotion of the regional food and beverages through festivals and fairs. The region is also organizing farm and press trips, brewery visits, degustations and beer tapping schools.

The Vysočina region's activities in food tourism are concentrated on gastro-festivals and promotion of the regional products on the regional websites.

The Olomouc region is supporting food festivals, farm fairs, beer festivals and a unique cheese festival named after the cheese Olomoucké tvarůžky.

The Moravian-Silesian region's project involves restaurants offering traditional regional specialties and production of a cookbook with traditional recipes. Similarly, the Hradec Králové region supports the presentation of traditional recipes and tasting of local food and beverages.

The Karlovarský region, famous with Bechervovka liqueur and "spa" wafers, supports the regional food and drinks by the creation of the regional food and drinks trail.

The South Moravian region has excellent preconditions for vine tourism; however it supports the entrepreneurs mostly methodical, and most of the activities as food festivals or degustations are organized on a local level. It is the only region with international collaboration through a slow-food project coordinated by the Italian city of Bra.

Two regions, the Liberecký and Zlínský region stated that support of the food tourism is not the region's priority for the near future; however, the Zlínský region promotes regional food on its websites.

The interviews with domestic visitors resulted in the following statements:

- Local gastronomy products are very often integral part of the demand of guests;
- For more than 40 % of respondents is local gastronomy a significant motivator for visiting a destination;
- The most visited Czech destinations for a purpose local gastronomy experience are in the South Moravian Region followed by South Bohemian Region and Prague;
- The projects supporting local gastronomy in the Czech Regions (for example Czech Specials, Heritage Trails, the Regional Food Product) undoubtedly contribute to raising awareness of the destination with local gastronomy offer;
- Among the most popular dishes belong a sirloin of beef combined with a cream sauce, pork-dumplings-cabbage, and duck or goose served with dumplings and sweet red cabbage. Beer is considered the national drink and domestic brand. When it comes to wine, Moravian varieties are enjoyed above all;
- Only a few of interviewees visit the restaurants which offer activities linked with local gastronomy, such as tasting menu, tasting beverages, cooking courses, baking courses;
- The most of the interviewees are positively affected by the offer the local gastronomy products - they will come again to the restaurant alone or with the friends/family, they

are prepared to pay more for local food and beverages, and they are willing to spread the goodwill of the gastronomy establishments.

For the Delphi technique, forty gastronomy establishment managers were addressed over a period of the years 2016 – 2017.

The most of the stakeholders stated that local gastronomy products are very often an integral part of their offer. More than 50 % of managers confirmed that they usually prepare special local menus for various occasions, for example, Saint Martin's feast or Christmas.

Only a few of gastronomy establishment managers claimed the offer of tasting menu or tasting beverages linked with local products. Similarly, just a few of them stated participation in the events related to food and beverages.

The most of the stakeholders also confirmed that the introduction of local gastronomy products had a significant impact on their revenue growth, on the increase of guests traffic, on the improvement of their business' image and on enhancing the average spending of guests.

The most of the managers confirmed that the changing trends in gastronomy would affect the future development of their business e. g. the atmosphere of a given establishment, the emergence of the individual establishment, sustainable development.

5. CONCLUSION

Food tourism is an essential factor in maintaining the viability and sustainability of the destinations. While changing simultaneously with the local culture, gastronomy can adjust to changes in demand and respond to the globalization, localization, or creolization. Local gastronomy is an integral part of tourism and the local heritage in the destinations. It is also a sensitive indicator of a much broader social, political and economic change.

Destinations can, through local gastronomy, gain a global competitive advantage with the further use of local cultural capital. Local gastronomy can be an added value for those visitors who want more and are looking for new experiences.

The results of the interviews with the representants of the regional authorities show that the hypothesis H1 was only partially confirmed. Most of the regions support the local gastronomy and food tourism development; however they do not consider food tourism a priority and have not included it in its strategic development plan. In most of the regions, the initiative comes from the bottom, from entrepreneurs from the small and medium-sized business.

Based on the interviews conducted with domestic visitors and on the results of the Delfi technique it can be stated that food tourism can subsequently increase the income from tourism in regions, enhance the guest's traffic, and improve the destinations' image and the hypothesis H2 has been confirmed. Destinations can, through local gastronomy, gain a global competitive advantage with further use and sustainability of local cultural capital.

In connection with the results of the study, further research can be focused on the innovation of small and medium-sized gastronomic enterprises using local gastronomy as a tool for food tourism development.

Acknowledgement

This paper is based on the research project "The influence of food tourism on the development of small and medium-sized enterprises in the Czech Republic," which is supported by the University College of Business in Prague (FRV 1/2015).

REFERENCES

- [1] Horng, J. S. & Tsai, C. T. (2012). Culinary Tourism Strategic Development: an Asia-Pacific Perspective. *International Journal of Tourism Research*, 14(1), pp. 40-55.
- [2] Kiráľová, A. & Hamarneh, I. (2016). Enhancing tourism SMEs development through food tourism in the Czech regions. In V. Klímová & V. Žítek (Eds.) *19th International Colloquium on Regional Sciences. Conference Proceedings*, Masarykova univerzita, Brno, pp. 1064-1073
- [3] Hall, C. M. & Mitchell, R. 2001. Wine and food tourism. In N. Douglas, N. Douglas & R. Derrett, R. (Eds), *Special interest tourism*, John Wiley & Sons, Brisbane, pp. 307 – 329.
- [4] Rozin, P. & Vollmecke, T. A. (1986). Food Likes and Dislikes, *Annual Review of Nutrition*, Vol. 6, pp. 433-456.
- [5] Numendal, M. & Hall, M. (2006). Local Food and Tourism: An investigation of the New Zealand South Island's Bed and Breakfast Section's Use and Perception of Local Food, *Tourism Review International*, 9(4), pp. 365-378.
- [6] Hjalanger, A. M. & Richards, G. (2002). *Tourism and Gastronomy*, Routledge, London.
- [7] Bessière, J. (1998). Local development and heritage: Traditional food and cuisine as tourist attraction in rural areas. *Sociologia Ruralis*, 38(1), pp. 21-33.
- [8] Corigliano Antonioli M. (2002). The Route to Quality: Italian Gastronomy Networks in Operation, In A.-M. Hjalager, G. Richards (Eds.), *Tourism and Gastronomy*, (pp. 166-185), London, Routledge.
- [9] Hall C.M., Mitchell R., Sharples L. (2003). Consuming Places: the Role of Food, Wine and Tourism in Regional Development, In C. M. Hall, L. Sharples, R. Mitchell, N. Macionis & B. Cambourne (Eds.), *Food Tourism Around the World: Development, Management, and Markets*, (pp. 25 – 59), Oxford, Butterworth-Heinemann.
- [10] Tregear A. (2003). "From Stilton to Vimto: Using Food History to re-think Typical Products in Rural Development", *Sociologia Ruralis*, 43(2), pp. 91-107.
- [11] Hall C. M. (2005). Rural Wine and Food Tourism Cluster and Network Development, In D. Hall, I. Kirkpatrick, M. Mitchell, (Eds.), *Rural Tourism and Sustainable Business*, (pp. 149–164), Clevedon, Channel View Publications.
- [12] Ilín, D. & Gaztelumendi, I. (Eds.) (2013). *Global Report on Food Tourism*, UNWTO, Madrid.
- [13] WFTA (2016). *Who are Food Travelers?* Food Travel Monitor, WFTA, Portland.
- [14] Meredith, S., Willer, H. (Eds.) (2016). *Organic in Europe. Prospects and Developments*, IFOAM EU & FiBL, Brussels.
- [15] Smith, M., MacLeod, N. & Hart Robertson, M. (2010). *Key Concepts in Tourist Studies*, Sage, London.
- [16] Hashimoto, A. & Telfer, D. J. (2003). Food tourism in the Niagara region: The development of a 'nouvelle cuisine'. In C. M. Hall, E. Sharples, R. Mitchell, B. Cambourne, & N. Macionis, (Eds.), *Food Tourism around the World: Development, Management and Markets*, Butterworth-Heinemann, Oxford, pp. 178 – 191.
- [17] Gross M. J. & Brown G. (2006). Tourism Experiences in a Lifestyle Destination Setting: The Roles of Involvement and Place Attachment, *Journal of Business Research*, 59(6), pp. 696 -700.

- [18] Hall, C. M. (2012). Boosting Food and Tourism-related Regional Economic Development, *Food and Tourism Experience: The OECD – Korea Workshop, OECD Studies on Tourism*, Paris, OECD Publishing.
- [19] Breakwell, G. M., Smith, J. A. & Wright, D. B. (Eds.) (2012). *Research Methods in Psychology*, Sage, London.
- [20] Eves, A., & Dervisi, P. (2005). Experiences of the Implementation and Operation of Hazard Analysis Critical Control Points in the Food Service Sector. *International Journal of Hospitality Management*, 24(1), pp. 3-19.
- [21] Veal, A. J. (1992). *Research Methods for Leisure and Tourism: A Practical Guide*, Longman, London.
- [22] Weber, K. & Ladkin, A. (2003). The Conventions industry in Australia and the UK: Key Issues and Competitive Forces. *Journal of Travel Research* 42(2), pp. 128 – 132.
- [23] Linstone, H. A. & Turoff, M. (Eds.) (2002). *The Delphi Method. Techniques and Applications*. Reading, Addison-Wesley Publishing Company.
- [24] Patton, M. Q. (2002). *Qualitative Research & Evaluation Methods*, Sage, London.

THE SIGNIFICANCE OF THE CUSTOMER RELATIONSHIP MANAGEMENT (CRM) SYSTEM IN HOTEL INDUSTRY – FROM THE GUEST TO THE CLIENT

Ivana Deže⁶⁰
Ana Gavran⁶¹

Abstract: *With development of new technologies and growth of internet usage the tourist supply and demand market is more and more dynamic. Customer Relationship Management (CRM) is a useful tool that provides touristic product providers with the ability to acquire, retain, or increase the number of guests and clients. When theorists and scientists emphasize the importance of the CRM system, they connect it with software solutions and highly valuable technologies. However, this system means much more in the context of the growth of competitiveness in the tourist market because it is in fact a precondition for survival of business in a customer-centric economy. It is possible to perceive it as a business approach that integrates people, processes and technologies in order to improve the connections and relationships of all current and potential tourist service providers. The key elements in customer management relations are the processes of identification and interaction with clients, as well as the importance of recognizing the client's current and future values. This paper analyzes the application of the CRM system in the hotel industry and the benefits that result from its usage. The aim of the paper is to reason its significance in hotel business as a part of the strategic process aimed at getting the best acquaintance of guests to meet their wishes and needs. The implementation of CRM in hotel industry contributes to a personalized customer relationship, with the main purpose of the guest becoming a client. It is a business strategy and customer communication strategy whose tasks are to collect and use customer information to increase their satisfaction and loyalty on the one hand and creating profitability on the other hand. In this paper, secondary data from relevant internet sources and scientific and professional papers of domestic and foreign authors have been used. Concluding findings have confirmed and reasoned the significance that is based on the information obtained from the CRM system. It is possible to qualitatively direct the business by building comparative advantages and ensuring the survival and prosperity of the company in order to fully satisfy the preferences, needs and individual requirements of each client.*

Key words: *Customer Relationship Management, hospitality management*

1. INTRODUCTION

*Customer Relationship Management (CRM) represents the latest concept aimed at creating long-term relationship with clients. In the contemporary hotel business, the key factors of efficacy are high-quality and long-term relationship with clients. The clients' satisfaction is realized through quality business collaboration, the investigation and fulfillment of clients' needs and knowing their wishes and habits which at the same time represents the elementary base for realisation of the long-term loyalty. The concept of *Customer Relationship**

⁶⁰ PhD student, Josip Juraj Strossmayer University of Osijek, Faculty of Economics, Trg Lj. Gaja 7, Osijek, Croatia

⁶¹ PhD student, Josip Juraj Strossmayer University of Osijek, Faculty of Economics, Trg Lj. Gaja 7, Osijek, Croatia

Management enables perception of clients' needs and efficient fulfillment of their wishes with clients' satisfaction as the ultimate goal.

Customer Relationship Management is a business strategy that affects the organization as a whole, including all its segments, such as marketing, information department, distribution, finances, production, human resources development and management [9]. Kumar and Werner [4] emphasize the importance of *Customer Relationship Management* strategic level. They accentuate that it is all about strategic processes of client identification and selection respectively, that hoteliers can attend to in the most profitable way possible. This can be achieved through the interaction of hotel and selected clients with optimizing the current and future value of business clients as its goal.

There are four levels of CRM process [6]: a) strategic level as a business strategy that is aimed at obtaining and keeping profitable clients; b) operational level is the automatization of processes aimed at clients, such as: client support, sale and marketing; c) analytical level implies orientation towards the processes of “*data mining*” that are linked to clients and are used for strategic and tactic purposes; d) collaborational level is connected with the implementation of technology in the entire organization with the goal of: optimization of company, partners and client value. CRM represents the implementation of technology in work and client treatment, with the aim of meeting their needs, wishes, habits, motifs and customs that will lead to sustainable, high-quality relationship of hoteliers and their clients.

In former attempts to improve the quality implementation of CRM system, the relationship with guests was explored through procedures of service adjustment when interacting with a guest according to pre-arranged scenario. Hoteliers mainly had finished procedures and behavioural patterns [1]. The perspective is to transform this interactive relationship into a proactive relationship with clients, which implies understanding and accepting the individual behaviour and needs of every guest and the competence of management to solve problems and cater to guests' needs. More specifically, the foundation is to accept the individual behavior and create personalized relationship with guests. The new characteristics of CRM system implementation are based on personalized relationships because the absence of personal connection to hotel is the premise for great loss of clients.

2. THE IMPLEMENTATION OF CRM IN HOTEL BUSINESS

The concept of Customer Relationship Management – CRM, has developed from marketing orientation of hotels, a business philosophy aimed at familiarizing with guests in order to meet their wishes and needs. This concept is a contemporary component of hotel business, more precisely marketing, sale and reservation office, as methods of managing the sale segment of

Ivana Deže

PhD student Ivana Deže (1992) is head of adult education at Janus College from Osijek. She graduated from the Faculty of Management in Tourism and Hospitality in 2014 in the course of Hotel management at the University of Rijeka. At the end of 2015 she graduated from the Faculty of Economics in Zagreb and got a master's degree in economics. Postgraduate study, course Management at the Faculty of Economics in Osijek was enrolled in 2016. She is engaged in scientific and professional work and has so far published four scientific papers that are oral presented at international conferences. The area of scientific interest is hotel management and tourism. She continues to be professionally trainer in the field of andragogy and education in adult education.



business, in this case with permanent guests [2]. Hotel marketing has always put building long-term and close relationships with its guests in the center of attention, and marketing experts suggest that this kind of orientation is a necessary condition for business survival. When implementing this system, knowing the special needs and wishes of individual guests would surely be of great value, and accordingly adjusting the marketing approach to every individual with whom hotel is building the business relationship. CRM basically represents the integral relationship of the provider (hospitality and tourism professionals) and the receiver of the services (guest/client), to create value for the buyer and profit for the provider.

2.1. Transforming the relationship from guest to client

The focus is put on the business relationship that should enable a longer period of collaboration. With such personalized approach hoteliers strive to meet the guests, get to know more about their needs and behaviour in order to develop stronger relationships with them. By creating personalized relationship with guests, hoteliers create preconditions to transform a guest into a permanent client. In the process of transformation from guest to client, it is explained [8] that it is necessary to master the main implementational tasks which are preconditions for adequate creation and management of guest-to-client relationships:

- a) the identification of potential clients,
- b) differentiation – according to their value for the hotel and their needs,
- c) interaction with clients – improving the effectiveness and efficacy in communication,
- d) adjusting services for clients.

Identification represents the process of analysis that determines who the clients actually are and how to distinguish them from guests. It is important to have their wishes, needs and habits in mind, and the value/profitability that these clients have for the hotel business. After that step, differentiation follows, i.e. segmenting the clients according to their value for the hotel and needs they have. The last two steps represent the activity where the interaction with clients is adjusted to current state that was determined through the analysis process. Hotel offer is adjusted to different types of clients, and interaction with them is determined in a way that it reflects their preferences and needs, being the most efficient along with that.

In the process of transformation, it is important to recognize the term “client value”. In the long-term process of creating personalized relationship with guest, “client value” emerges as a key component of CRM. It all begins with understanding needs and wishes, deciding which target group can be best served by the hotel. By creating alluring service, hotel can attract, keep and expand target groups.

Ana Gavran

PhD student Ana Gavran (1989) is a secretary on the College of Applied sciences “Lavoslav Ružička” in Vukovar. She gained master degree at Law Faculty from Osijek in 2013. After gaining law degree she worked at lawyer office in Osijek. She entered into post-graduate studies of Management at Faculty of Economics from Osijek in 2016. She is also engaged in scientific and professional work and has so far published four scientific papers that are exhibited at international conferences. The area of scientific interest is educational management.



In the process of transformation from guest to client, information technology is certainly useful, but fundamental value of every hotel is to have content employees besides content clients. Without educated, responsible and highly-motivated employees, it is impossible to implement Customer Relationship Management. Regardless all the technological achievements, top management makes the strategic decisions and operational management implements them. Consequently, it is extremely important to cognize that employees need to be approached as clients. Liu et al., [5] believe it is necessary to primarily build the relationship with employees so that they could then in a satisfactory manner build relationships with clients. It is unlikely to expect that employees will communicate with clients devotedly and passionately if they themselves don't believe what they are conveying. In order to really convey value in the expected manner, it is necessary to "sell" the idea to them first. The latter has particular significance when it comes to services in hotel business, where contacts between employees and clients are more frequent, and desired outcome actually depends on participation of all the participants. Mainly employees get the financial award in the shape of a bonus or some other addition to salary in case of meeting the target – specified level of sale, income, profit, client satisfaction and loyalty.

Successful implementations of Customer Relationship Management are successful because of people who are involved in the implementation. Significant challenge lies in the fact that path to success requires the formation of teams where the employees from different departments work together on the fulfillment of the common goal.

2.2. The benefits of CRM system implementation in hotel business

There are numerous reasons for implementing CRM system in hotel business. Hoteliers have to focus on the guest in order to create permanent clients in the long-term. They are the requirement for survival in the dynamic business environment. At the same time, it is more profitable to keep present guests with additional services, than to invest funds to make new ones. With development of information technology and application of new software, the method of data collection is extenuated, which contributes to large data base and easier client management. Proactive CRM approach [3], in "*One-to-One*" relationship implies concrete understanding, grasping and accepting the individual behavior and needs of the guest, and competence for problem solving and catering to guests' needs. With successful CRM system implementation, it is possible to achieve multiple benefits:

- a) client benefits: personalized approach and service, a sense of security, constant service quality, content client,
- b) hotelier benefits: accessible data base for every client to every level of management, content employees, detecting and keeping the target clients, lower price sensitivity, giving recommendations and client loyalty.

The more developed the relationship with clients becomes, the more successful and profitable the business gets. The following picture shows the interconnection of client satisfaction and their loyalty, and the effect on the business result.

CLIENT SATISFACTION

- Understanding clients' needs and wishes
- Respecting the client
- The delivery of value to clients

**CLIENT LOYALTY**

- Loyalty
- Loyalty as an attitude

**BUSINESS RESULT**

- Revenue growth
- Client contribution
- Keeping the clients

Figure 1: Creation of the authors according to Meler and Dukić [7]

Numerous research have confirmed the interconnection of client satisfaction and loyalty, that results in excellent business result. According to Johnson and Weinstein [10], this connection is highly significant because it can lead to profitability growth of 25-50%. At the same time, dissatisfied guests rarely complain, they simply leave (96%) and never come back [11]. It is common that most hotels lose from 10 up to 30% of its guests on annual basis, even though the reasons for these losses are not kept track of [12]. Taking the clients' observations into account, the possibility for improving the service is higher on one hand, directly affecting the client loyalty on the other, all that resulting in revenue growth.

CONCLUSION

In hotel business, the significance of CRM system is linked to strategic management. Although numerous scientists and theorists link it to information technologies, the crucial factor are the relationships between people – guests/clients and hoteliers. This system can be perceived as an integration of people, processes and information technology aiming to survive and develop hotel business.

Tourism market trends are strongly interconnected with globalization processes and so exposed to competition, uncertainty and risk. Due to that, the top management needs to comprehend and implement CRM system as the basic strategic business goal. The existence of common business initiative where all the employees are involved is very important. Through vertical and horizontal communication of hotel staff and guests, it is possible to build strong relationships which are the precondition for the superior market position. Focus on personalized relationships contributes to guest-to-client transformation.

With the development of information technology, the dynamics, accessibility and credibility of guest information increases. At the same time, guests become more educated, informed, technically equipped and demanding, and as such, they can become the subjects who initiate system changes. With their preferences and suggestions, guests can be a valuable source of innovations in tourist offer. In the dynamic business environment, it is no longer sufficient to be active in relation to the guests' needs, but it is important to strive towards proactive approach.

In the end, CRM system should be accepted as a form of integrated assemblage of activities which secure the advancement of all the business functions: from client identification, targeted provision of services to new and existing clients, understanding the clients, creating/developing/maintaining long-term relationships with clients, as well as implementing the necessary marketing activities aimed at gathering new information. Such comprehensive activities will result in synergistic effect and bring better results than occasional and individual.

REFERENCES

- [1] Galičić, V. (2009) *Između ugostiteljstva i turizma*, Fakultet za turistički i hotelski menadžment, Opatija
- [2] Galičić, V. (2006) *Informacijski sustavi u turizmu i hotelijerstvu*. Fakultet za turistički i hotelski menadžment, Opatija
- [3] Galičić, V., Ivanović, S. (2008) *Menadžment zadovoljstva gosta*. Opatija: Fakultet za menadžment u turizmu i ugostiteljstvu Opatija
- [4] Kumar, V., Werner, J.R. (2005) *Customer Relationship Management a Databased Approach*, John Wiley & Sons, Inc., USA
- [5] Liu, B. S.-C., Petruzzi, N. C., & Sudharshan, D. (2007) A service effort allocation model for assessing customer lifetime value in service marketing. *Journal of Services Marketing*, 21(1), 24-35.
- [6] Mandić, M. (2015) *Upravljanje odnosima s klijentima – (CRM)*. Ekonomski fakultet Zagreb, Zagreb
- [7] Meler, M., Dukić, B. (2007) *Upravljanje odnosima - od potrošača do klijenta (CRM)*, Osijek: Ekonomski fakultet
- [8] Mueller J., Srića, V. (2005) *Upravljanje odnosom s klijentima: primjenom CRM poslovne strategije do povećanja konkurentnosti*, Delfin, Zagreb
- [9] Peelen, E. (2005) *Customer Relationship Management*, Pearson Education Limited, Essex
- [10] Johnson, W. C., Weinstein, A. (2000) *Superior Customer Value in the New Economy – Concepts and Cases*, 2nd Edition, CRC Press, Boca Raton
- [11] Reed, D. (2005) *Customer Communication Management – The New Focus*, Pitney Bowes, Marketing, Marketing UK
- [12] Roberts-Phelps, G. (2003) *Customer Relationship Management – How to Turn a Good Business into a Great One*, Viva Books Private Limited, New Delhi

INTELLECTUAL CAPITAL AS POTENTIAL AND BENEFITS OF THE STRATEGY OF MARKET SEGMENTATION OF TOURIST SERVICES

Julija Avakumovic⁶²

Jelena Avakumović⁶³

Abstract: *Service industry, especially tourism as a phenomenon of the 21st century, like a global situation. It is one of the fastest growing economic sectors. Authors of this text, have got opinion that isn't country in the world, which had got a greater or lesser extent and develop either domestic or international tourism. The main characteristic of such tourism is a large number of participants - tourists in tourist trips. Travel demand has become a highly informed, personalized with a wide variety of individual requirements and preferences. Intellectual capital, as well as the potential and competitive advantage in the market as there is an inevitable process in delivering the main value of tourism products to tourists. The aim is to show that the system values tourists can influence decision-making and establishing criteria based on which it can make a segmentation of the market of tourist services.*

Key words: *tourist services, intellectual capital of providers, system of values, the behavior of service users, tourist destination, segmentation.*

INTRODUCTION

Market of tourism services can be viewed in multiple dimensions. The first dimension of the tourists as users of services (consumers), and customers who buy tourist services or products. The second dimensions are also tourists - customers, as a legal entity capable of its purchasing power of trusted. The third dimension is their willingness to purchase travel products. The fourth dimension are occurring providers (sellers), services of tourist destination where the most important factor in the quality of their intellectual capital. The fifth dimension is just tourist products such object of exchange. The sixth dimension are the spaces of tourist destinations, where trade have been conducted, and at the end is the seventh dimension like a time, when provides exchange on services market.

The basic elements of the market of tourist services are demand, supply and tourist products (products and services) which have to be exchanged at a certain price in a certain tourist destination at a given time. The market of tourist services has its own characteristics that differentiate it from other markets. These basic characteristics are:

The complexity and heterogeneous of demand, because the needs are heterogeneous;

Demand is focused on tourists and there is no "provision of deals" without the participation of tourists,

It is particularly pronounced resilience of tourism demand in the economic and non-economic factors (change in the price of tourism products, political events, crises, wars, terrorism etc.);

Travel service is intangible and there is no possibility of storage;

⁶² PhD student, University of Novi Sad, Faculty of Economy Subotica, Serbia

⁶³ Fakultet za menadžment, Sremski Karlovci, Serbia

Fixed costs on the supply side are very high (including the cost of quality intellectual capital);

The offer is very cruel and very inelastic;

The offer is very heterogeneous, because there are so many combinations to satisfy the demand of tourists through the services of accommodation, food, collect funds transit, ways of recreation, entertainment, religious tourism, sports tourism etc.;

Tourist market can still be defined as actual and potential demand for tourism services, based on different motives, needs and tourists' wishes.

THE MARKET OF TOURIST DESTINATIONS

According to Kotler, the market is:

The market consists of all potential buyers of services who share a particular needs or wish, and who are willing and able to engage in the exchange in order to meet those needs or wishes. (1)

Size of the market is depends on the number of people who have a need or wish, have the means to engage in exchanges and are willing to offer these funds in exchange for what they want.

Tourists make a decision on purchasing the tourism product - destination (2) based on their perception of the value of the various tourism products offer. In this, precisely the advantage for a better offer and sales of tourist product should be used intellectual capital providers offer.

The market is the most important factor from the macro-environment of the tourist destination. Tourist Destination Management in connection with the determination of market tourist destinations should answer the following questions:

Who are the current and potential tourist destinations,

What is their number on the tourist market,

Where they come and that is a tourist destination mainly directed to tourists,

How long tourist is staying in a destination,

When and under what conditions they choose to purchase (demand),

What time is mostly decide to travel, and

What are their underlying motives in choosing travel destination?

The tourist market can be classified on several grounds. The basic division is the international and domestic market. It can be divided into primary, secondary and potential market. Very often, the division may be onto a purchase (vacations, congress market, the health market etc.).

Julija Avakumović, born on September 9th in Valjevo, Serbia. Graduated on Faculty of Economy, Subotica, University of Novi Sad, Serbia. Master 2nd level finished on English language, on International program organized by University of Belgrade, Serbia, University of Sarajevo and University La Sapienza, Roma, Italy.



PhD thesis on the theme Implementation of marketing management and design, she defended at University Union, Belgrade, in 2007.

Worked and study in Serbia, Italy and Canada (which citizenship have got, too). In Serbia, worked in National Bank of Serbia, Ministry of Energy and Mining, The State College in Belgrade and University of Megatrend (John Nezbit).

Primary research area economics, marketing, management. She is author of dozens scientific papers including several published in leading national and international journals.

ANALYSIS OF TOURIST DESTINATION MARKET

Various methods can be applied in defining of the tourism market, or in the classification, but still remains the main task of management of tourist destinations to analyze that market. Analysis of the market of tourist destinations, can be made based on the following elements (3):

Analysis of market potential and forecasting growth and market development in order to determine the current and prospective situation of tourist destinations,

Analysis of market segments and its homogenizing in the menus in tourists, and homogeneous with each other between the different segments, in order to identify the target groups that will serve in a tourist destination,

Analysis of tourists in all their characteristics, needs, perceptions, preferences and behavior, to provide the appropriate strategies and tactics in relation to known following features.

The analysis of the market of tourist destinations can get answers to the numerous and complex issues on which depends the place of a tourist destination on the tourism market and possible prospects for the development of tourist destination. Only in a market analysis conducted, can get these usefully information and data (4), like as:

What are the dominant motives to stay in a particular tourist destination,

What are the preferences of tourists,

What are the expectations of tourists in selected tourist destination,

What is a performance created on the destination,

What types of transportation used for the arrival at destination,

How much traffic is expected and its seasonal concentration,

What are the areas of interest for destination,

What are the areas favored by tourists,

Demographic, social, and other psychographic characteristics of tourists,

The variety of market segments,

How many tourists staying in the area,

How much is the total energy and the individual tourist, and

Jelena Avakumovic, borne on August 15th 1985 in Belgrade. After she had been received sports scholarship, she finishing High School in Cleveland, Ohio, USA, and was one of the ten winners of the Certificate for the best foreign student, signed by the President Jorge Bush Jr. in 2004. She graduated at the Faculty of Business and Industrial Management, University Union in Belgrade, in 2008. At the same University, she defended her doctoral dissertation on the theme "Management of marketing in terms of research on the implementation of alternative energy sources in Republic of Serbia", on 2013. In this moment, she is In the final year of doctoral studies at Faculty of Economics in Subotica, University of Novi Sad.

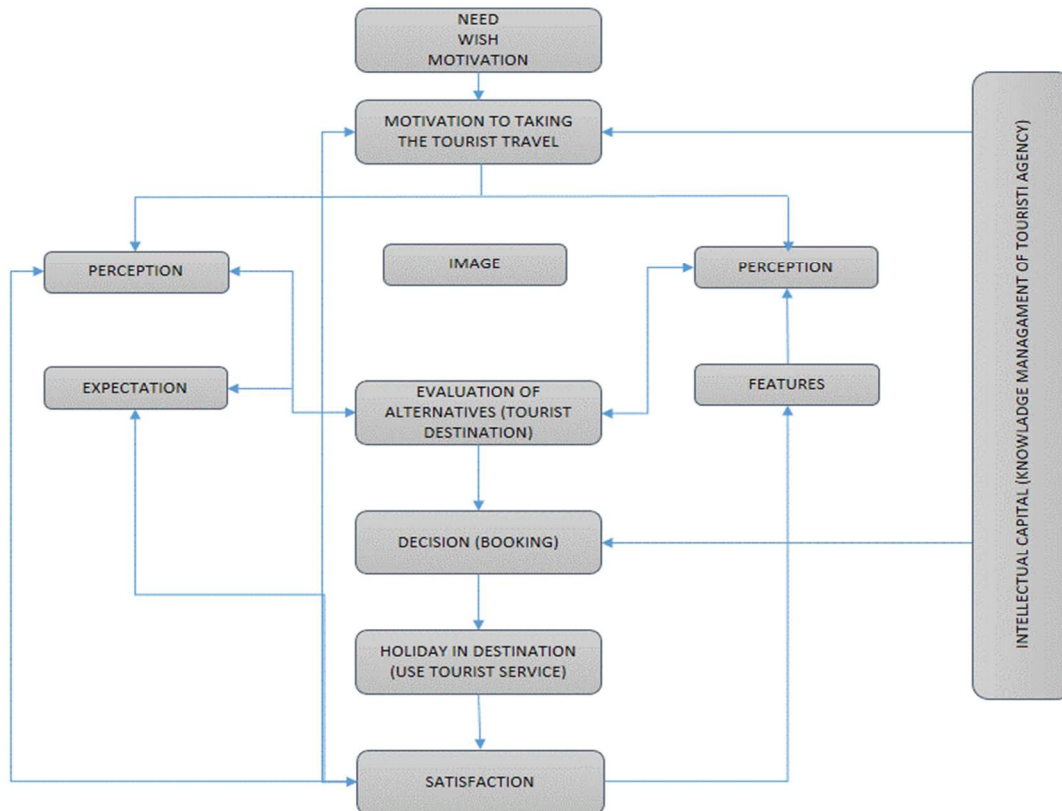


In March 2011 Master's degree at the University of St. Kliment Ohridski - Faculty of tourism and hospitality industry in Ohrid, evaluated by University of Novi Sad, Serbia. Academic career began on 2010 as an assistant at the Faculty of Business and Industrial Management, University Union, Belgrade, in October 2016, she was appointed assistant professor. She works at the State College of Textile Science in Belgrade and on the State College of Rail, Belgrade.

Since 2017 she has been employed at the Faculty of Management, Sremski Karlovci, Serbia, University Union Nikola Tesla. Primary research area economics, marketing, management. She is author of dozens scientific papers including several published in leading national and international journals.

How and how much they used a particular attractive, communicative and receptive capacity.

Some of these factors will be crucial, and for the process of decision taking tourist travel like choice of specific destinations, such as needs, motives, preferences, expectations, image, the ability to offer like as on Picture 1. Advantage of providers of tourist services are in its intellectual capital.



Picture 1: Process of decision (Author Julija Avakumovic)

STRATEGY OF MARKET SEGMENTATION OF TOURIST SERVICES AND BENEFITS OF INTELLECTUAL CAPITAL AS A POTENTIAL THAT OWNS SERVICE PROVIDER

Segmentation of the market of tourist services was planned and strategic layering - a comprehensive market division into smaller segments - parts. (2) On this way, management of tourist destinations adjusts tourism products to tourists, to be better than its competitors respond to their needs, wishes and requirements. Market segmentation is based on the non-homogeneity and diversity of tourists, which are manifested in deciding to produce destinations. Market segmentation helps the provider of tourist services allocation of resources to different tourism products. The deployment and use of intellectual capital as the potential and advantages in the application of appropriate strategies is particularly important today, when the market is characterized by rapid change and strong competition. War for tourists represents every issue facing tourism entities. Globalization, technological and market changes in the factors that determine the contemporary market.

Socio-demographic, socio-cultural, economic, political, and environmental and other changes, generated the need for significant changes in the structure of behavior of tourists. The modern tourist demand is based on educated and knowledgeable tourists, who know where and how to be properly informed about the trip. Such tourists have the experience, adaptability, flexibility and independence in making decisions about travel. In a dynamic and stressful environment in which mobile users a new tourist services, it is essential to continuing training, education, flexibility and willingness to change faster and by the tenderer tourist services. In this could be as a major potential intellectual capital of a service provider like as a major competitive advantage. (7)

Tourist satisfaction leads to loyalty, repeating purchasing travel arrangements, success of branding, as well as the positive verbally communication. (8)

Today, tourists are seeking "something more" that requires an integrated approach that starts with the search for personal identity and recognition of its own comparative advantages over the choice of an attractive assortment of offerings, sales message design and trademark, to the invention of the market-accepted and recognized brand. (9)

The offer of tourist products can include a variety of tourist services: tourist accommodation services, catering services, transportation to the selected destination, services, rental of transport, services of travel agencies, booking services, recreational services and spa offers, services and sales of souvenirs etc. The tourist product should be seen integral, because it is complex and composed of different services, and a partial service tourists perceive as parts of a single continent.

ACCESS TO THE TOURIST SERVICES

Market segmentation in tourism is a strategic means to reduce heterogeneity, clustering tourists in the respective groups (segments) that include tourists similar in some ways among themselves, but different compared to people from other segments. Market segmentation is a tool for enabling competitive advantage. Segmentation in tourism can be made at the level of different stakeholders in tourism: tourist destinations, hotels, travel agencies, tourist attractions, spas, sporting events, etc. In this paper, this strategy will be presented as a SWOT analysis of tourist destinations.

Tourist destinations have in common is that they represent a place attracts visitors to staying in it temporarily from the tourist reasons. Destination must be positioned properly and build a prestigious brand in the minds of tourists in the competitive environment marked. (10)

SWOT analysis of tourist destinations

SWOT (Strengths, Weaknesses, Opportunities, and Threats) represents an analysis of the results from the region, market, and meet competitive analysis of internal resources (with a power of Intellectual Capital) or in accordance expected changes, trends and trend of the entire environment of the tourist destination. In order to study the success of SWOT analysis is necessary:

Identify current trends in the macro environment in all its areas (economic, sociological, technological and others).

To determine the importance of each of the trends, because all changes will have equal importance for the tourist destination,

Details of the impact of relevant trends to offer a tourist destination,
 To carry out long-term and short-term forecasting of trends and their impact in the long and the short term the direction and speed of changes in the tourist destination,
 Identify new opportunities that trend analysis provides faster development of tourist destinations.

Analysis of internal resources (power of intellectual capital) as the basis for the SWOT analysis was done on the case of the city of Valjevo, western Serbia.

Valjevo City as a tourist destination is not enough located in the tourist market of the Republic of Serbia. The basis for a change of such a situation is the determination of the weak and the strong points of the tour product and analysis of their relationship with the determined current market trends. (Table 1).

Table 1: SWOT analyze of City Valjevo, West Serbia

STRENGTHS	
1.GENERAL APPROACH	good Geographic location
2.TYPICAL	- openness - friendly people - helpful
3.ATTRACTIVENESS	- geographical situation - macro location - capital of region - accessibility - attractiveness built on past time - new shopping mall - swimming pool
4. TOWN VALJEVO AS A TOURIST DESTINATION	- cultural and historical center of region - cross of the road - old town Tesnjar
5.CULTURE	- long history - culture and historical heritage - museum and gallery - ethnics manifestation - cultural events
6.ACCOMMODATION	- hotels - rural developed tourism - rural accommodation
7.INFORMATION	- information center - existence of local radio and TV station - trade ties - commercial representation
8.TRANSPORT	- close to the City of Belgrade - close to the airport Surcin - nearly is one small sport airport Divci - international road and rail links
WEAKNESS	
1.Image of City	- incomplete image - disorganization
2.Tourist destination	- low interest in the integrated tourism product - low creativity - low innovation - low promotion activity
3.Bad investing	- need investments in accommodation facilities - new invention in restaurants, sport hall, recreation hall and entertainment
4.Accommodation and Catering	- have to done standardization

	<ul style="list-style-type: none"> - differentiated product - offer new product
5. Touristic staff	<ul style="list-style-type: none"> - improve services - to achieve creativity and innovation - to take advantage of intellectual capital of young people - promote and facilitate foreign language
6. Transport	<ul style="list-style-type: none"> - better organized urban transport - better organized taxi - to increase parking spaces
OPPORTUNITIES	
1. SOURCE OF DEMAND	- domestic and foreign tourist
2. SEGMENT OF DEMAND	<ul style="list-style-type: none"> - business people - wellness tourists - organized groups (mountaineers, caving) - young people (Research Center of Petnica)
THREATS	
Some threats	<ul style="list-style-type: none"> - businessmen indifference - indifference operators to export - the lack of a specific range of tourism product - inflexibility of working hours - bad knowledge of foreign languages (low level of intellectual capital)

When positioning the city of Valjevo as a tourist destination, we should take account of the coordinated use of basic tools of marketing and management strategies of tourist services, with extensive work of intellectual capital as well as potential employees (existing and future) in the sector of providing tourist services.

The above mentioned analysis, at least a framework can affect the advancement of the industry and the development of a competitive advantage, with appropriate changes, which are the most important in view of the weak points.

CONCLUSION

Tourism like part of the economy are growing fast. It is not easy to reach and convince tourists to visit just our tourist destination. To deciding where and how to travel, tourists take into consideration a number of factors. The decision in most cases depends on the values that are manifested in the social environment in which the tourist lives and works. It is important to carry out an analysis of potential tourists and focus on the right segments, which are complementary to customize with your specific offer.

Depth of tourism is a specific service, but tourists, as a user of this service is better educated, more demanding and choosy. This is why the importance of intellectual capital, which is reflected in the knowledge management of human resources as the main carrier of sales and providing tourist services.

LITERATURE

- Kotler Ph., Marketing Management, The millennium 10th edition, Prentice Hall International Inc., New Jersey, 2000.
- Avakumović Č., Avakumović J., Strategijski marketing, Visoka škola za poslovnu ekonomiju, Beograd, 2015.
- Bakić O., Marketing menadžment turističke destinacije, Edukson, Sremska Kamenica, 2009.
- Mill C., Morrison A., The tourism System, Prentice Hall, New Jersey, 1985.
- Goodall B., Ashworth G., Marketing in the Tourism Industry – The promotion of destination, Rutledge, London, 1998.
- Moutinho L., Strateški menadžment u turizmu, Masmedia, Zagreb, 2005.
- Edwards R., Strategy 2006-2011, Sussex, UK, 2006.
- Bradley F., Strategic Marketing in the Customer, Driven Organization, Willey, West Sassex, 2003.
- Sintes, F.O., Mattson J., Innovation behavior in the hotel industry, Roskilde University, Denmark, 2007.
- Veljković S., Đorđević A., Brendiranje destinacije i stvaranje vrednosti za turiste, Ekonomske ideje i praksa, broj 3, Beograd, 2011.

URGENT NEEDS FOR THE EDUCATION OF NEW WORKERS EMPLOYED IN ALBANIA'S TOURISM SECTOR

Mirela Ballhysa⁶⁴
Valbona Belshaku⁶⁵

Abstract: *The problems of tourism in Albania have increasingly become a topic of debate in the recent years. As a result of the proliferation of tourists from neighboring countries such as Macedonia, Poland, Czech Republic, Serbia and Italy, issues regarding developing infrastructure and overcoming deficiencies in customer service and experience have become topics of discussion.*

The tourism industry, which is primarily labor-oriented, is regarded by specialists as the most crucial business sector determining the future of Albania. The country is at a crucial moment where providing education to the labor force will greatly benefit the sector.

The object of our study is to conduct a study of the limited tangible state of experience Albania in this area. It also focuses on the methods and forms of educating staff and people in order to prepare them to serve in this field of work. The education of tourism workers is a key element that will not only determine the competitive advantages within the local tourism sector, but will also distinguish Albania's tourism sector from its foreign competitors.

Through our method of analyzing the history and Albanian tourism industry we will see that Albania has a limited tradition of tourism services. Historically, the communist regime strove against the concept of a consumption society, where the provision of recreational services and entertainment was considered foreign and micro bourgeois, and where culinary art was not able to develop because of the country's poverty. Albania has struggled with this lack of experience developing new and modern infrastructure, and it is still lagging behind in its ability to provide a high level of tourism services.

Therefore, through our analysis and comparison of the foreign experience, we conclude it is necessary to invest in the ability of staff, such as waiters, cooks, hoteliers, managers, etc. — people who are closely involved and invested in this sector, to provide high levels of quality service.

Finally, we conclude that the level of customer service is not only influenced by the experience of education, but also by the school itself that provides this education and training.

Key words: *tourism, experience, school, education, perspective.*

As a result of the proliferation of tourists from neighboring countries such as Macedonia, Montenegro, Serbia and Bosnia, issues regarding tourism in general and preparing Albania for this type of tourism have increasingly become a topic of debate. This debate becomes even sharper when speaking about the demands of tourists coming from Poland, Ukraine, Czech Republic, Italy and England. Despite their number, they have higher demands and expect better accommodations and better service unlike Albanians who do not have such demands.

So far, public discussions have focused more on the visible parts of tourism such as infrastructure and accommodation capability.

⁶⁴ Shkolla "Salih Ceka", Elbasan, Albania

⁶⁵ Shkolla "Salih Ceka", Elbasan, Albania

Little attention or importance has been paid to service, people (the labor force), behavior of local people, new types of traditional hospitality, and its connection to the market economy.

As a light industry, tourism is distinguished by the intensive involvement of the labor force. This is the 'first matter' that experts consider to be the most important factor that is needed and will be faced by this industry over the years to come.

But the quality of service and optimum fulfillment of customer needs is looked upon at a lower level, unlike the buildings, accommodations, infrastructure in development etc., which have radically changed compared to a few years ago and have the tendency to change for the ever-growing good.

Visitors pay to enjoy and to have their expectations met in Albania. It is time to fully evaluate their opinion, to encourage them to come to our country instead of going to other countries that have the same climate as Albania. Better service and pricing are two factors that will give the competitive advantage within local tourism sector, but will also distinguish Albania's tourism sector from its foreign competitors.

There are luxurious hotels, in some cases even more luxurious than abroad. There are also expensive restaurants, bedrooms and bathrooms. What are we missing?

We miss the cleanliness of expensive bathrooms, and lack of a variety of dishes in the luxurious restaurants. Light and water are interrupted from time to time. They tire the guests and tourists, which doesn't help assure to return visits. The behavior of waiters, receptionists, and hotel staff is not great, as they do not know how to communicate in foreign languages and are afraid to greet tourists in the same way in other places which provide higher level of tourism services. This keeps customers away and diminishes the desires for adventure in an exotic country in Europe such as ours.

All these affect the culture of service and impact on the image of service in Albanian tourism sector.

Through our method of analyzing the history of the Albanian tourism industry we see that Albania has a limited tradition of tourism service. We have struggled with this lack of experience for over 40 years during the communist regime and strove against the concept of a consumption society, where the provision of recreational services and entertainment was considered foreign and micro bourgeois; where culinary art was not able to develop because of

MSc. Mirela Ballhysa works as teacher at the Vocational School of Tourism and Catering in Elbasan, Albania. She is a teacher with professional experience in food and catering area.



Mirela Ballhysa holds two Masters of Science in "Merceology" and "Biology". She has worked as a manager in the social service in the food and catering sector. For several years she teaches at the Vocational School of Tourism and Catering.

She teaches the subjects of "Kitchen technology and aesthetic" and "Restaurant special service".

Her pupils often participate in several national and international activities for food in modern and traditional restaurants.

Many of the graduates are now kitchen specialists and master chefs in some of the most famous restaurants and hotels in Elbasan city and in Albania.

Many of them work in neighbor countries as Master Chefs, Hostesses and Tourism Managers.

the country's poverty; where the level of service existed at the social food restaurants and the hotels were mainly constructed by 1970s in the big cities when there was an indispensable need to develop the foreign exchange.

Also this shows that people do not have a great interest in the tourism sector. Even though this sector has developed in the past ten years, it has remained standstill within the framework of political propaganda during the months of the tourist season.

In fact, more than a complete awareness of tourism potentials in our country, there is confusion and ambiguity both in the public and private sectors. No one is able to say what direction our tourism will take.

And consequently, Albanian students who are able to study abroad prefer not to study tourism. Someone who spends a lot of money for their education does not yet consider tourism as an important sector, thus the industry does not gain enough development in order to guarantee that student can afford a decent lifestyle in tourism.

But if our governors does not give such type of guarantee (because they have no idea what will happen to tourism), it should be the private sector that needs to do more. It is their task to try to create a new generation of managers, because they need to look at the long term prospects for a profitable tourism industry. The country should provide education in collaboration with the Tourism and Education Ministries.

The only solution to tourism problems comes up with the contemporary levels of education.

So, to make up for lost time especially these last two decades, there is an urgency to start preparing the new managers in the Albanian tourism.

There is a huge gap between the call for managers and the educational capabilities in the tourism industry. The Albanian professional schools cannot prepare these managers as they are still far from the reality and terrain where the tourist and his "servant" operate in everyday life. Even universities that offer a management degree do not adress issues and concerns of tourism within the curriculum of their programs. In their programs the management is considered to be a theoretical enterprise and unrealistic for the few businesses that really deal with tourism which already have an experience. Thus, both stages of education, high schools and universities, need to change the curriculum of their programs, and their objectives to prepare tourism managers just like European schools. We face this reality each time we meet with people who have studied in countries with good tourism, such as Italy, Croatia, Malta, England, Spain etc.

Ma. Valbona Belshaku
works as a teacher at the Vocational School of Tourism and Catering in Elbasan, Albania. She holds MA degree in "Chemistry".



Ma. Belshaku teaches of subjects "Knowledge for drinks", "Business Organization and Tourism".

She has long work experience in the food analysis lab and teaching in this field.

Their pupils often participate in several national and international activities for food in modern and traditional restaurants.

Many of the graduates are now kitchen specialists and master chefs in some of the most famous restaurants and hotels in Elbasan city and in Albania.

Many of them work in neighbor countries as Master Chefs, Hostesses and Tourism Managers.

It is time to think seriously about professional tourism schools which will play a key role in preparing the next generation of managers in this sector. Programs of management in some Albanian universities still consider tourism and its management with little importance, as it is with the production or import/export enterprises. Therefore, there is a need to increase not only the care of tourism management in such economic faculties, but also the investment for these future managers. They should have the possibility to practice it in order to grow and develop everyday in a modest or empirical way. It is worth considering this as a kind of experience. Also, we could include in these programs the foreign experience which is delivered to universities or management programs in a general way and tourism in a special way through a combination of lectures: special syllabuses, guest lecturers, double degrees, and projects among local and foreign universities.

We need to look for different ways (to precede the near tourism season) to prepare new managers until such schools will open, and in the meantime the faculties will raise and strengthen.

There are several possibilities: the first is the absorption of students who have completed or are pursuing tourism management studies abroad, in places with tourism that have better and longer experiences than Albania.

Of course, these professionals would not be satisfied to be receptionists or waiters. They know even more than the hotel and resort owners. A position as a manager with a better salary, just like other places abroad, would be the best way to absorb them and gain the knowledge and experience they have from attending schools abroad.

Tourism companies that are still at the beginning of their business should benefit from these professional students coming from other countries or local economic faculties. The rise of quality service for the local and foreign tourists provide revenue growth. Therefore, the specialist plays a key role in the tourism sector, which is the manager of the tourist entity.

In terms of running the local product, it offers more income and guarantee in the future. Also, it gives students the opportunity to put their knowledge into practice; and this can be a reason for them not to expect to earn the same salary.

There are some ways to sponsor the best students in the tourism sector in Albania to study abroad. This can be done through private sector co-operation (individually or organized) with relevant schools in the country. Being mediators, students can help in signing contracts where different companies can pay a scholarship (based on the past experiences companies do not pay large sums of money). On the other hand, students must attain satisfactory results and return to work for the Albanian company after they complete their studies. This is achieved by cooperating with the authorities that issue the student residence permit and by making this residence permit subject to return.

It is time to think seriously about human resources and the culture of service before the traditional Albanian hospitality becomes commercialized and transformed into a culture of carelessness, poor service, or extortion, facing the irreparable consequences of non-return and decreased numbers of tourists.

Right now it is for sure that this experience has started to show the first signs. On the beaches of Durrës or in the South, hotels and hostels operate and work with the motto of immediate profit and working day by day without thinking that tomorrow it will be detrimental to them

and to all the tourism operators in the country. Referring to the impressions and opinions of the tourists of different ages from other countries (mainly from Eastern Europe), you will find that they are largely unsatisfied with the service in the culture, through difficulties with communicating about quality of food standards, etc. All this comes from ignorance, lack of experience and greed etc. Evaluating the importance of this sector through the government's particular care over this it would bring considerable profits to our economy and individuals or companies that operate and deal with tourism sector.

THE IMPACT OF LOCATION PRODUCT PLACEMENT ON TOURISM IN SELECTED COUNTRIES

Bianka Chorvatova⁶⁶

Abstract: *Tourism is a source of relaxation, or the source of income for millions of people in the world. Each country has its specific types of tourists, whether it is its own residents or foreign visitors. Location product placement is not a new phenomenon in the film industry. Its influence on tourism has begun to be analyzed more in depth. Many countries have attracted hundreds to thousands of tourists to their film destinations. Film induced tourism helps not only with country's economy. It can bring financial resources to support infrastructure, reduce unemployment and create positive awareness of the film location. Location product placement places could be the same attraction for film lovers as spas, nature, historical sights. They can meet a movie star, visit a shooting place, or attend a special event dedicated to the movie at a specific place. The issue of product placement itself lies in its legislation, as it is considered as hidden advertising in many countries. Yet, the specific features of this phenomenon should be analyzed outside of the advertising itself. And its use could be made more effective. When we talk about location product placement, New Zealand and Croatia are currently "in the spotlight". Thanks to trilogies, such as Lord of the Rings and Hobbit filmed in New Zealand. And the Game of Thrones series in Croatia. Thousands of film tourists allow agencies to hire new employees and invest money in tourism development. The analysis of available data about the location product placement in selected countries has identified potential of location product placement in Slovakia. Especially it helped to create a strategy model of film tourism in the Slovak market. The analysis concerned the location product placement and its impact on tourism in New Zealand, Croatia, Montenegro, France and Slovakia.*

Key words: *Location product placement, film-induced tourism, tourism, film destinations*

1. LOCATION PRODUCT PLACEMENT AND FILM INDUCED TOURISM

The Lumière brothers, French inventors in the world of photography and movies, created the first movie using product placement in 1896.[1] Nowadays, we distinguish two groups of product placement. The classical and the new types of product placement, which can be found in Table 1.

Classical types of product placement	
Type	Characteristics
Product displacement	Hiding real brands or using unreal
Barter product placement	Free or unpaid
Virtual product placement	Additional product or service addition
Digital product placement	Additional product or service addition
Product placement prostitution	Over notification of products
PC games product placement	Placing products and services into PC games
Internet product placement	Placing products on the internet, hard to distinguish from advertising on the internet

⁶⁶ Faculty of Management, Comenius University in Bratislava, Odbojárov 10/A, Bratislava, Slovakia

Location product placement	Destination placement
Movie product placement	Placing products and services into movies and series
Reversed product placement	Choosing the best placement offer in post-production
New types of product placement	
<i>Type</i>	<i>Characteristics</i>
CGI product placement	Additional product or service addition using generated imaginary
Virtual reality product placement	Placing products in non-existing world
Augmented reality product placement	Special product and services placement in existing environment

Table 1: Classical and new types of product placement

Location product placement is a very smart tool for tourism development. It is a type of product placement where the product is a destination, city, or a specific location. It can also be a restaurant, or university that cannot be found anywhere else.[2] The term "destination product placement" can be represented by a specific destination, city, location, company, restaurant, etc. in an audiovisual artwork. The term "location product placement" includes also the placement of products on the shelves in shops and business chains. Location product placement leads us to the term "film induced tourism". International studies have shown that film induced tourism can have different types of positive impacts. For example, one of the main economic benefits is constant revenue from tourism. Movie locations can be a year-round attraction that improves seasonality in the tourism industry. Another significant contribution of film tourism is the enhancement of the cultural value of the film destination. However, the impact of audiovisual artworks on tourism is not always positive. There are several implications that need to be carefully analyzed to make the most of their impact or reduce their effect. For example, the impact of movies on tourism has a perilous impact on the environment. Another negative impact could be the increase in prices and the exploitation of the local population. One of the most effective strategies that can attract filmmakers is joint campaigns with the film industry. The success of movie destinations depends on the success of the movies themselves. Some movie destinations are much more popular than others. Although movies have many positive impacts on tourism (economic, cultural, destination awareness and the image of the country), considering negative aspects is crucial. They include a loss of privacy for local residents, the difficulty in accessing movie locations, traffic jams and environmental destruction. Another issue may be the attitude of local residents towards the influx of production and movie crews, and a large number of tourists.[3] Almost 40 million tourists are inspired to travel year after year thanks to their favourite film. People tend to travel to places based on certain images, memories, associations, and emotional ties to cities and places. The most frequent reasons for movie tourism include following the steps of a favourite actor, placing oneself in the movie, interest in the history of the film destination, hosted programs, attractiveness of the scenery for foreign tourists, and loyal fans.[4] Film-induced tourism identifies the process of attracting visitors by displaying different places and events in movies, videos, or television. This is a process where a tourist visits a destination or an attraction because of seeing it on television, video or in cinema. Film induced tourism is a form of business that benefits from attracting visitors to the beautiful scenery of places used or located in the movie and stories of connection to these locations. This is done through advertising of movie sets and destinations through a tourist program or as a guided tour. Film-induced tourism freely falls under the auspices of cultural tourism. Traditionally, in this group were older tourists or educated professionals who wanted to learn more about the history and culture of the place or city. However, the movie appeals to a broader range of tourists in current cultural tourism. The movie fan can be anyone from one person to the whole family.[5]

2. IMPACT OF LOCATION PRODUCT PLACEMENT ON TOURISM

Based on the work of Doctor Choibamroong, we define tourists as people who travel far from their usual places to other places. They may be classified according to the nature of their travel or their consumer behaviour. Typology of tourists is used not only to identify the tourists themselves, but also to identify the behaviour of each group of people in a particular tourist destination. Knowledge of such behaviour is not just an academic interest, but can also serve as valuable information for managers' practice for effective planning. Understanding the behaviour of tourists as consumers is very useful for the development of tourism products. They are also an integral part of the information source for product support and the sale of tourism products, especially in terms of the impact of global factors and mass-media on travel. Tourists are products of changing population demographics and are more experienced, more flexible and more independent than ever before. They have changed their values and lifestyle, which ultimately influences tourism demand. For example, American tourists are looking for culture and knowledge, Singapore tourists are looking for new achievements and entrepreneurship. In this regard, tourism products in the US are for domestic tourists

focused on culture and education. In Singapore, due to geographic limitations, they focus on smaller business travel products. However, the profiles of Asian travellers are changing as well. They are looking for value-added holiday and prefer city holidays. Shopping and food have become their main motivators. Therefore, it is not surprising that in Singapore, Hong Kong and Macau in recent years they built a large number of modern business houses and luxury multinational restaurants. In the Western countries, they try to associate tourism products with health and nature protection. The European Travel Data Center shows that European travellers prefer nature as part of their holiday. For example, German tourists - up to 60% of them confirmed that visiting nature is a major part of their holiday. Due to these specifics, travel agents have developed special tourism products such as spa, nature resorts, eco-tourism destinations, and more. The baths are a great attraction, for example, for Thai tourists. All these trends and motivational factors point to the important role of tourists' behaviour as consumers in the development of tourism products. Therefore, if we understand the behaviour of tourists as consumers, it can have a very positive impact on the development of tourism products in order to increase demand for tourism. In the era of globalization, tourists tend to worry about their safety and health, which affects them the most when traveling. Therefore, some travel agencies and companies have focused on health tourism products such as baths, health clubs,

Bianka Chorvatova

In the past years, she has gained experience in creating reports, analyzing data and research, as well as presenting the results from the obtained data.



During her stay in the pharmaceutical company, she managed to cope with stressful situations, adapt to changing circumstances, and she has gained the experience of manipulating confidential information. Work at the Center of Science has taught her how to manage multiple activities at the same time, as well as to work with different people and organizations. During her marketing work placement in Croatia, she has learned how to work with Google AdWords and analyze keywords on websites. She has also got some experience with translating the web pages. Work in international company and abroad has enhanced her communication skills in English. Her main interests are computer games, playing piano and writing short stories, marketing communication (especially product placement and its use), and tourism. During her studies and for the theses, she was analyzing product placement, law and ethical aspects of product placement, and impact of product placement on tourism.

and so on. In 2001, Professors Douglas and Derrett found that more than 20 million people visited spas in Europe. For example, German tourists are divided into regular spa visitors (up to 1.4 million) and occasional spa visitors (up to 13 million). So, if we take an example of German tourists, understanding their incentives to travel can result in positive economic outcomes for the country. If all stakeholders pay attention to tourism behaviour, they can promote and sell their products at a lower risk. Of course, every type of tourist has different preferences. For example, "backpackers" require other information and types of holiday as "mass" tourists. Appropriate approaches to the provision of services for each type of tourist are a necessity for travel agencies and other companies. Improving the quality of services can also help with technology, but it should be taken into account that it may not be suitable for all types of tourists. For example, free Wi-Fi or buying tickets over the internet can speed up services and make it more transparent, but still a large number of tourists require human access and human contact that no technology yet replaces. Therefore, it is necessary to analyze the behaviour and preferences of selected types of tourists and adapt tourism products accordingly.[6]

Now we should look at the beautiful example of location product placement and film-induced tourism – New Zealand. New Zealand is successfully named "100% Midwest, 100% Clean New Zealand" and has received great attention during filming the Lord of the Rings trilogy. Between 1998 and 2008, the number of foreign visitors increased by 52%. "The International Visitor Survey," which ended in 2004, found that 6% of New Zealand visitors reported the Lord of the Rings as the main reason for visiting New Zealand. One percent of visitors said the Lord of the Rings was the only reason for their journey to New Zealand. In finances, one percent of the visitors are equal to about 32.8 million New Zealand dollars invested in the territory of New Zealand. In 2004, 63 200 visitors attended the attractions of the Lord of the Rings in New Zealand. Since 2004, approximately 47 000 visitors a year visit New Zealand movie locations.[7] New Zealand's strategic priorities for 2014-2016 included an international collaboration, enabling conversions and expanding marketing reach in terms of tourism and tourism agencies.[8] The interest in New Zealand as a tourist destination is rising. The statistics are focused on foreign tourists, but it would be interesting if New Zealand's government focused on domestic residents as well. It is also interesting, that even though New Zealand is an island country, it is visited by millions of foreign tourists every year. The largest number of tourists is looking for New Zealand as a holiday destination, or they go to visit family, friends, or travel for work. If a New Zealand visitor arrives for a holiday to visit a movie destination, it is harder to measure the film-induced tourism impact. New Zealand laws define the boundaries how and where to use the product. However, product placement remains legally unlimited, allowing for more free use for producers, but it may have a negative impact on final consumers and viewers.[9]

Another phenomenon is the Game of Thrones series filmed also in Croatia. The Central Adriatic region is a place where tourism has been popular for over a century. Visitors are fascinated not only by natural beauties but also by rich historical heritage. It is an area where up to 3 UNESCO sites can be found within 20 kilometers: Diocletian's Palace in Split, Stari Grad on Hvar Island and the historic center of Trogir. Salona, the largest archaeological site, is located near Split (formerly the capital of the Roman province of Dalmatia) and is part of the village of Solin. These interesting places and historic sites have been selected as places to shoot the fourth series of The Game of Thrones. The cellars of the Roman Emperor Diocletian in Split have created sets for attractive scenes, intrigue, betrayal and revenge.[10] Dubrovnik residents, during a personal inquiry in the pre-screening process mentioned, that they prefer renting their apartments for disproportionately high prices. Nearly no residents actually live in Dubrovnik,

but they own the shops and apartments they offer to visitors. The whole city currently lives only from tourism - shops, film maps and walkways, guided tours. Even a part of Star Wars movie was filmed in this city, and domestic residents had a unique opportunity to attract tourists to their real estate to meet the stars of the movie. An example of negative impact on tourism is that Dubrovnik almost lost its UNESCO heritage status due to an enormous number of tourists coming to the city every day destroying the unique historical sites.

James Bond: Casino Royale is an amazing example of faux location product placement - the location used in the movie (Czech Republic) represents another location (Montenegro). Even though no scene in Casino Royale was shot in Montenegro, it has brought unprecedented glory to this country. Hotel Splendido can be found in Kotor, but it's not the one used in the movie - the key scenes were shot in a spa town of the Czech Republic. However, Montenegro is just as beautiful as any film footage, which is confirmed by a large number of tourists visiting Montenegro after watching Casino Royale.[11]

The most important destination for the Da Vinci Code movie was the Louvre Museum in Paris, France. In addition to the destination product placement, we can also find other products in the movie - SmartCar, Smirnoff vodka, Nescafé instant coffee, Disney animation. For example, SmartCar was also mentioned in the book, so DaVinci Code is a very interesting project in terms of product placement.[12] Because the movie uses almost exactly locations from the book, it is possible to visit these places and connect them to the scene from the movie. One of the other most popular filming location is the Hotel Ritz in central Paris, where Robert Langdon was staying.[13] Interestingly, the "Robert Langdon Road" can be found on Google Play as an app. This guided tour is called "The Da Vinci Code Walk in Paris", and it's a walk through the six biggest destination attractions of the movie. These include the Ritz, the Comédie-Française, the Le Palais Royal, the Louvre, the Pont des Arts and the Saint-Sulpice.[14]

The model of destination marketing activities applied on the Slovak market uses the actual parts of the model made by Assoc. Prof. Hudson and Prof. Richie. One of the crucial steps are destination marketing activities prior to the release of an audiovisual artwork. This includes an appointment of an executive or Public Relation specialist who will communicate directly with film studios; first-hand information is always the key to success. Active support of movie studios means the construction of new and modern studios that can attract more filmmakers to Slovakia. High-quality equipment and facilities are the attraction not only for domestic but also for foreign production teams, directors, actors and others. Offering subsidies and tax incentives to support production companies to take advantage of a specific shooting destination needs to be transparent. The Slovak Audiovisual Fund supports a large number of movies annually. Selling movie props such as requisites and souvenirs is always a way to attract tourists. Linking this activity to movie set replicas and meeting movie stars could motivate visitors from all over the world to travel to Slovakia. Replicating or maintaining movie sets and authenticity scenes would make a huge difference to occasional tourists as well. Destination attributes and specific movie factors has to be considered very carefully in order to obtain the most of it.[15]

Overall, location product placement and film-induced tourism can be very powerful means of communication. Tourism is crucial for many countries and it can provide employment and income that can be then used for development. Using such a powerful tool as movie itself is can be an obnoxious task, but is definitely worth it in the long run.

REFERENCES

- [1] Hesková, M., Štarchoň P. (2009) *Marketingová komunikace a moderní trendy v marketingu*. Praha: Oeconomica, Vysoká škola ekonomická, p. 33. ISBN 978-80-245-1520-5
- [2] Kürschner, J. (2015) *Product Placement Definition*. In Placedise.com. [online]. Available on the internet: <<https://www.placedise.com/product-placement/>>
- [3] Țuclea, C., Nistoreanu, P. (2011) *How film and television programs can promote tourism and increase the competitiveness of tourist destinations*. In Cactus Tourism Journal. p. 25-30. ISSN 2247-3297
- [4] Niziol, A. (2015) *Film tourism as a new way to market a destination*. In Scientific Review of Physical Culture, p. 149-156. ISSN 2083-8581
- [5] Editorial board. (2015) *Film Induced Tourism*. In Digital Renaissance. Available on the internet: <<http://www.rinascimentodigitale.it/film-induced-tourism.html>>
- [6] Choibamroong, T. (2006) *Knowledge of Tourists' Behavior: A Key Success Factor for Managers in Tourism Business*. Available on the internet: <http://www.bu.ac.th/knowledgecenter/epaper/jan_june2006/Teardechi.pdf>
- [7] Niziol, A. (2015) *Film tourism as a new way to market a destination*. In Scientific Review of Physical Culture, p. 149-156. ISSN 2083-8581
- [8] New Zealand tourism. (2013) *Tourism New Zealand Three Year Marketing Strategy FY2014 - FY2016*. In Tourismnewzealand.com. Available on the internet: <<http://www.tourismnewzealand.com/media/1543/tourism-new-zealand-3-year-marketing-strategy-fy14-fy16.pdf>>
- [9] Van Caenegan, J. (1991) *The legality of product placement*. In Austlii.edu.au. Available on the internet: <<http://www.austlii.edu.au/au/journals/CommsLawB/1991/33.pdf>>
- [10] Stella, J. (2016) „*Game of Thrones*“ in Central Dalmatia. In Dalmatia.hr. Available on the internet: <<http://www.dalmatia.hr/en/game-of-thrones-in-central-dalmatia/game-of-thrones-in-central-dalmatia>>
- [11] Goddard, J. (2011) *How James Bond put Montenegro on the map*. In Express.co.uk. Available on the internet: <<http://www.express.co.uk/life-style/property/353403/How-James-Bond-put-Montenegro-on-the-map>>
- [12] Castillo, D. (2006) *Davinci Code Product Placement*. In Productplacement.biz. Available on the internet: <<http://productplacement.biz/200612082128/news/davinci-code-product-placement.html>>
- [13] Editorial board. (2000) *Filming Locations for The Da Vinci Code*. In The Worldwide Guide to Movie Locations. Available on the internet: <http://www.movie-locations.com/movies/d/DaVinciCode.html#.WOSrN_mGPiV>
- [14] Editorial board. (2017) *City Walk: The Da Vinci Code Walk in Paris, France*. In Gpsmycity.com. Available on the internet: <<http://www.gpsmycity.com/tours/the-davinci-code-walk-in-paris-1414.html>>
- [15] Hudson, S., Ritchie, J. R. B. (2006) *Promoting Destinations via Film Tourism: An Empirical Identification of Supporting Marketing Initiatives*. In Journal of Travel Research. 387-396. ISSN 10.1.1.510.4944

THE INFLUENCE OF THE SHARING ECONOMY IN ROMANIAN TOURISM. CASE STUDIES ABOUT AIRBNB AND UBER

Budz Sonia

Abstract: *Nowadays, the internet and technology are indispensable elements for all individuals worldwide, being utilized on a daily basis to improve and ease people's lives. The expansion of technology led to the emergence of new business models and economic branches, such as the sharing or collaborative economy. These branches help towards the development of the digital infrastructure, which facilitates a better interaction between consumers and providers, improving quality of services and products.*

The scope of this paper is to discover to what extent Airbnb and Uber influences the Romanian tourism industry through the platforms they provide, in terms of accommodation, prices, transparency, correctness, future trends. As well as to find out the impact of the collaboration between stakeholders concerning quality of touristic services, and upon the sustainability of relationships between consumers and providers.

The methodological section of this paper will contain two case studies on the Airbnb and Uber business models. These companies are the pioneers in their domains, facilitators of the sharing economy emergence, by being involved in the economic transition.

This information is useful for all individuals or legal entities involved in the Romanian tourism field, in order to improve their business strategies regarding quality of services, generating national growth of this industry. Digital infrastructure and collaboration could be assets for Romania with regards to tourism.

Key words: *Tourism, economy, sharing, quality, business, collaboration.*

1. INTRODUCTION

Nowadays, access to information and the possibility of processing it, is unlimited due to the existing technologies. The internet facilitates the attraction of potential customers, depending directly on the service providers' speed of reaction and response. The quality of services offered by a provider can be correlated with the image of the social media. Due to the features and technologies of today's society, the new consumer has the opportunity to get in touch with service providers and other consumers through online platforms, sharing views and information regarding their experiences derived from the quality of the received services.

The new consumers are more sophisticated, demanding, populating an interactive market. They have a value-centered philosophy that focus on defining, creating and delivering the value that they want to buy from an organization. The reciprocity of benefits obtained by both parties is recognized, establishing a symbiotic relationship. Managing the new relationship between the organization and the consumer, requires an alternative approach in command and control practices of the production-based era. Consumers look for value because they have "power to see and understand things, imaginative penetration, knowledge and practical awareness." The service provider may begin the process of connecting with consumers in a way that will provide him a sustainable competitive advantage. This competitive advantage is based on building and

maintaining reciprocal relationships that have significant long-term implications and therefore affects the strategic and marketing planning of the firm.⁶⁷

Zohar (2005) interprets social capital as an asset that makes communities and organizations work efficiently for prosperity. It can be defined as the ability of people to work for common purposes in groups or organizations. Social capital is born of trust and common ethical values and is reflected by the type of relationships the human being builds in family, community and organization, and by the extent to which one fulfills his/her responsibilities towards the community. Therefore, social capital, in the context of a technology information era, can be associated with the social media. The latter refers to collaborative or media-sharing products and networked communities. Social media applications are interactive, giving users the opportunity to share their experiences, insights, perspectives about the consumed services. Responsible social and ecologic marketing in business, including the online environment, focuses on meeting the current needs of consumers and businesses, while preserving and developing the ability of future generations to meet their needs. Starting from the idea that in the digital age business is done on the Internet, Kotler proposes that through social marketing, businesses deliver value to customers through a middle way: to improve and maintain both the welfare of the consumer and society. (Kotler, 2012, Principles of Marketing)⁶⁸

The digital era is a social force that has created new opportunities, challenges and behaviors in business. It is not disputed that the Internet is a powerful channel of information and sales. Companies can collect complete and diversified data about consumers, prospects, outlets and competition. (Kotler, 2012, Marketing Management). The technological development and financial crisis of 2008-2009, have led to changes in ownership and transformation of the co-owner model into the co-sharing model. If people were accustomed to the co-ownership model, they now have to get used to sharing cars, bikes, apartments, washing machines, and so on (Lietaert, 2010), emerging the phenomenon of "product as a service". The symbiosis between a product and a service creates a sustainable business environment for all parties involved.⁶⁹

Big companies such as Philips and Microsoft have begun to adopt this concept because it generates improvements of resource productivity in innovative ways. This concept is an alternative to the traditional "buy and own" model. The products are used by one or more consumers through a lease contract or payment agreement for use, resulting longevity, reuse and sharing, not being seen as cannibalization risks, but as income and cost drivers. Promoting these services based on a sharing economy, has created a change in the possession of goods culture.⁷⁰

Although the exchange of products or services between people is an old process, since mankind, the reason for the emergence of a sharing model was detected in the Western countries, by the decline of incomes in the middle-class (Hacker and Pierson, 2011). This has led to lower consumption. People have begun to realize the costs of ownership and the sub-optimal use of cars, real estate and others. They no longer need the actual products, but their benefits. Among

⁶⁷ Farronato, C., Fradkin, A., (2015), *Market Structure With the Entry of Peer-to-Peer Platforms: the Case of Hotels and Airbnb*, Stanford Univ., U.S.A.

⁶⁸ Kotler, P., Armstrong, G., (2012), *Principles of Marketing*, Ed. Pearson Prentice Hall, New Jersey

⁶⁹ Kotler, P., Keller, K., L., (2012), *Marketing Management*, Ed. Pearson Prentice Hall, New Jersey

⁷⁰ Accenture, (2017), *Circular Advantage: Innovative Business Models and Technologies That Create Value*, from <https://www.accenture.com/us-en/insight-circular-advantage-innovative-business-models-value-growth>

the first collaborative economy applications, were the sustainable goods, such as cars and apartments (rentals) (Dominic, Roblek and Lombardi, 2016).⁷¹

The sharing phenomenon differs significantly from classical trading prototypes. Because it involves interactions between strangers and surpasses a geographically defined community. Exchange is most often monetary, systematized in a business model and facilitated by technology through platforms. The emergence of these peer-to-peer platforms, collectively referred to as "sharing economy", allowed individuals to collaboratively use underutilized inventory through cost-sharing. Consumers have so far enthusiastically adopted the services offered by companies such as Airbnb, Uber, Lyft and TaskRabbit. The rapid growth of peer-to-peer platforms was obviously due to two key factors: technological innovation and demands flexibility. Technological innovations have simplified the market entry process for suppliers, have facilitated search lists for consumers, and maintained low overall transaction costs. Demands flexibility is another distinctive sign of these platforms: Uber drivers can add or withdraw themselves from the available offer of drivers with an application, and similarly other vendors can easily list and remove the selection of goods or services they put at service.⁷²

Jeremy Rifkin (2000) says in his influential book "The Age of Access", that temporary access to possessions becomes more important as effective property over a good. Such business models become attractive innovation opportunities in a wide range of areas.⁷³

2. STATE OF KNOWLEDGE

The collaborative economy is growing globally. It should be outlined, that the boom of a sharing economy has occurred and takes place in Asia and South America, where urbanization has had an important influence (Shanghai, Seoul, Rio de Janeiro), where most of the Y generation lives, and where smart phones are particularly popular (Australia is in the same category).

However, in emerging countries, the main limitation of economic growth is simply poverty, low levels of education and poor Internet infrastructure (Euromonitor International, 2014). Access to new technologies motivates small entrepreneurs to reconsider how they manage and develop their customer relationships. Even if this has happened, it is not enough to bring just value to the consumer, but also sustainability, stability, due to the competition. When purchasing a product or service, people are not only influenced by reasoning, seeking only the best value-for-money ratio to convince them to make the purchases, but also they are influenced by feelings and perceptions.⁷⁴

On February the 2nd, 2014, Amsterdam launched its Amsterdam Sharing City campaign and officially became Europe's first sharing city. This was not at all an isolated initiative in a country that has a long history of pluralist and community based politics. Other major cities, such as San Francisco, Paris, London and Singapore, have opened doors for political reforms that could facilitate the collaborative economy. While exchange economies, donations, and bargaining have always existed in small communities, the confluence of multiple conditions has facilitated

⁷¹ Roblek, V., Štok, Z.M., Meško, M., (2016), *Complexity of a Sharing Economy for Tourism and Hospitality*, Tourism & Hospitality Industry 2016, Congress Proceedings, Croatia

⁷² Zervas, G., Proserpio, D., Byers, J.W., (2016), *The Rise of Sharing Economy: Estimating the Impact of Airbnb on the Hotel Industry*, Journal of Marketing Research, U.S.A.

⁷³ Dredge, D., Gyimóthy, S., (2015), *The Collaborative Economy and Tourism*, Tourism Recreation Research, Ed. Routledge, Aalborg University, Denmark

⁷⁴ Roblek, V., Štok, Z.M., Meško, M., (2016), *Complexity of a Sharing Economy for Tourism and Hospitality*, Tourism & Hospitality Industry 2016, Congress Proceedings, Croatia

the exchange of experience and collaboration on a much wider scale (Belk, 2014, Botsman & Rogers, 2011). The dispelling effects of the financial global crisis, starting with 2008, have also led to an increase in demands for alternatives in unsustainable consumption and industrial capitalism (Ranchordás, 2014). In this context, the emergence of the sharing economy in 2010, caused the Time magazine to claim that it is one of the top 10 ideas for changing the world (Walsh, 2011). The sharing economy incorporates: (1) models of economic systems (circuit, regime, networks and links, transactions, relationships); (2) cultural and moral perspectives on human coexistence (negotiation, lifestyle, administration, prosocial / altruistic behavior, collaborative symbiosis); and (3) ideas of efficiency and creation of increased values (zero marginal costs, total interconnection, direct exchange, optimized capacity utilization, re-circulation of unnecessary resources). The term "collaborative consumption" was first conceived by Felson and Spaeth (1978), who were interested in studies on joint and social consumption activities such as the common purchase of a large beer container as a more effective option than the purchase of individual glasses. Published 20 years before the Internet, there was clearly no explicit focus on the mediation process or technological platforms in their work. Botsman and Rogers (2011) have taken over and reinterpreted the term to include sharing, negotiation, loan, trading, donation and barter, publicized by both automated and market means. For Botsman, the collaborative consumption is a superior and enlightened economy: "a system that activates unused goods resources through models and markets that allow for a greater efficiency and access." More recently, a new notion of collaborative economy has taken a step forward in recognizing that these constellations of collaboration extend beyond consumption. Collaborative economy denotes the use of the internet technologies in order to connect groups of people territorially dispersed, for a better use of skills, goods and other useful things (Stokes, Clarence, & Rinne, 2014).⁷⁵

Innovations in digital and web technologies include e-commerce as a new dimension of business. E-commerce offers an opportunity in various fields, because the internet technologies influence hundreds of millions of people. With the explosive growth of online technologies that took place in the 1990s and the beginning of the 21st century, there has been a growth of online service offerings in all areas, especially in tourism and transports. This portals have emerged as sites like Booking.com, booking and information portals, railway portals (Trenitalia, DB Bahn, etc.) and airline ticket providers (Expedia.com). Customers were offered the opportunity to search online and compare offers from various travel agencies, destinations, hotels, airlines and other service providers. With the peer-to-peer model, the collaborative economy has changed the additional value chain. In this case, providers temporarily share their resources with consumers, either free of charge or against a change (financial or non-financial). The digital platform acts as an intermediary between them (Dervojeda et al., 2013). Digital platforms (such as Airbnb) that have launched the collaborative consumption, succeed especially when the process gets more efficient by means of technology. Knowledge management processes are becoming more and more dependent on search processes, data collection, processing, evaluation, information and concepts that are outside the organization. Service users disseminate information regarding the satisfaction or dissatisfaction communicated by "word-of-mouth", and their behavior and preferences are coordinated on the basis of information received from other consumers, service providers, media etc. Workers in the travel and hospitality industry need to adapt to the new web - digital (for example, a hybrid digital signage system and mobile technologies). It is recommended that they incorporate into their strategies, technologies, mobile applications (mobile application development, QR codes, discount coupons, purchases and transactions through mobile applications), which allows time and space

⁷⁵ Dredge, D., Gyimóthy, S., (2015), *The Collaborative Economy and Tourism*, Tourism Recreation Research, Ed. Routledge, Aalborg University, Denmark

flexibility and leads to the growth of interactive marketing services in real-time. Oral electronic transmission of information plays an important role in the services marketing and performance sector. Litvina, Goldsmith and Pan (2008) discovered that the most important source of information is obtained when consumers make decisions about purchasing services and products. The authors point out that viral marketing can be a cost-effective use as a marketing tool in this industry evolution. In this case, consumers (users of on-line technologies) become the new marketers (viral marketing: communication is verbal + Web 2.0 and higher forms), with a significant influence on public opinion as to the reputation and quality of each service or product.⁷⁶

In the current concept of the World Tourism Organization, "tourism covers the activities of a person who travels outside her / his ordinary environment for less than a specified period of time and whose purpose is other than the exert of a paid activity at the place of visit." Tourism is a stimulating factor for the global economic system.⁷⁷

Tourism is the set of activities whereby an individual spends his spare time in other places or countries than his/her residence. Tourism is considered to be a form of recreation alongside other leisure activities, "the temporary movement of people to destinations, outside their usual residence and the activities carried out at those destinations."⁷⁸

The tourist is the backbone of the tourism sector. "All the travelers who engage in travel are described as visitors" (Goeldner, Brent Ritchie & McIntosh, 2000). Goeldner defines visitors as "people traveling to a country other than the one in which they live for a period of maximum 12 months, whose main purpose is other than the exert of remunerated activities within the visited country." There are two categories of visitors: 1 day visitors (excursionists) and tourists.⁷⁹

Tourism is a dynamic and competitive industry that requires the ability to adapt constantly to customers' changing needs and desires, as the customer's satisfaction, safety and enjoyment are particularly the focus of tourism businesses.⁸⁰

Benckendorff (2008) found a shift towards global standardization in tourism. Bramwell (2011) examined the effects of tourism's impact on the earth's resources, which was applied to management in the context of responsible tourism. Bramwell et al. (2000), Bramwell (2006), and Dodds and Butler (2010) discussed this element of management responsibility as presented through sustainability and policy creation, towards a network control system which continues to evolve. Duffy and Moore (2011) presented principles to explore should there be a need for a strategic globally unified community of an ethical collective communication knowledge network.

Social media have fundamentally changed consumer processes (Hudson & Thal, 2013). The decision cycle that traditionally located in brick-and-mortar services is now shifting towards online agreements for travel. Hudson and Thal (2013) found social media savvy distribution

⁷⁶ Roblek, V., Štok, Z.M., Meško, M., (2016), *Complexity of a Sharing Economy for Tourism and Hospitality*, Tourism & Hospitality Industry 2016, Congress Proceedings, Croatia

⁷⁷ Neaguț, S., Vlăsceanu, Gh., Bran, F., Popescu, C., Vlad, L., B., Neacșu, M., C., (2006), *Geografie Economică Mondială*, Ed. Meteor Press, Bucharest

⁷⁸ Minciu, R., (2005), *Economia turismului – Editia a III-a revăzută și adăugită*, Ed. Uranus, Bucharest

⁷⁹ Nur, I., M., R., Saniah, A., Z., Syed, M., H., (2013), *Between tourism and intangible cultural heritage, Cultural sustainability in the built and natural environment*, Ed. Elsevier., from www.sciencedirect.com

⁸⁰ <https://www.go2hr.ca/bc-tourism-industry/what-tourism>

systems will be the future of emergent brands, with notation this changing digital environment is influencing the entire delivery system of travel services. Hudson and Thal (2013) stated that technology and new channel penetration will drive business applications further into new dimensions of tourism product innovation and tourism economies are currently on the brink of new dimensions and will require cultural effect through innovation. Characteristics of the firm, market, and the range of choices a service delivers will influence international expansion opportunities for hospitality and tourism entities (Philippe & Leo, 2011). Technology driven systems and e-business network solutions are creating an easier entry mode into new markets, providing reasons for why Expedia and other travel trade companies have expanded further into international markets through technology (Philippe & Leo, 2011). Raposo, Estevão, Mainardes, and Domingues (2010) inferred that market orientation is based upon the whole company, and that the hotel sector is considered to be the most important contributor to global tourism economies. Jelassi and Enders (2008) reframed that technology can streamline processes through the exploitation of economies of scale, and mass customization activities, which may act counter-intuitively. Jelassi and Enders (2008) constructed that soft customization of the polycentric configuration of online customized booking modules for individualized tourism customer profiling could formulate the future process of tourism. Healy and Nelson (2006) alluded to such a fact in their article—There’s Room at the Inn, But How to Tax It?—which indicated that online booking patterns are gaining prominence: almost 20 percent of global accommodation bookings are conducted by online consumers; for example, AirBnb is becoming a market disrupter. Healy and Nelson (2006) suggested that the issue continues today with defining between state taxes and lodging taxes, and are under review as to which collection should be mandated within a new proposed structure of global online charges. For these authors, a lot of money is at stake within this area of tax considerations. Various authors in this literature have indicated that human resources, the physical infrastructure, and technological communications are all indicators of tourism system defragmentation, for one author, Higgins Desbiolles (2010) for example, cautioned about the confusion present within the tourism system. Wijesinghe (2014) stated the commercialism and capitalist globalization continue to challenge the survival of the world as morality concerns toward responsible sustainability are at cross-roads with development. Therefore, the control of tourism continues to be challenged within the many areas and entities of tourism management. For long-term global tourism economic approaches to success, Bramwell (2010) stated a need for cultivating governance and collective stewardship; as tourism industry actions of alignment in knowledge, power, resources, and rules are needed to bring upon good governance. The leaders of MarketLine (2012) indicated tourism market segments, targets, and sector positioning are ongoing competitive factors in tourism’s complex revenue channels system and structure.⁸¹

3. METHODOLOGY

Airbnb and Uber, are providers of travel accommodation and transportation, and are the pioneers of the sharing economy.⁸²

The companies describe themselves as trusted community marketplaces for people to list, discover, book unique accommodations around the world, have means of transport, and exemplify peer-to-peer marketplaces in the sharing economy. Prospective hosts list their spare rooms or apartments on the Airbnb platform, establish their own nightly, weekly or monthly

⁸¹ Gellatly, J., P., (2016), *A global tourism qualitative descriptive multiple case study of consequences of industry defragmentation*, Ed. ProQuest, U.S.A.

⁸² Zervas, G., Proserpio, D., Byers, J., W., (2016), *The rise of sharing economy: estimating the impact of Airbnb on the hotel industry*, Boston University, U.S.A.

price, and offer accommodation to guests. Airbnb derives revenue from both guests and hosts for this service: guests pay a 9-12% service fee for each reservation they make, depending on the length of their stay, and hosts pay a 3% service fee to cover the cost of processing payments. Since its launch in 2008, the Airbnb online marketplace has experienced very rapid growth, with more than three million properties worldwide and over 160 million guests. Airbnb's business model currently operates with minimal regulatory controls in most locations, and as a result, hosts and guests both have incentives to use signalling mechanisms to build trust and maximize the likelihood of a successful booking. To reinforce this behavior, Airbnb has built an online reputation system that enables and encourages participants to rate and review each completed stay. Guests use star ratings to rate features of their stay, e.g., cleanliness, location, and communication, while both guests and hosts are encouraged to post public reviews of each stay, on the platform. The new review process makes it easier for guests to provide feedback, giving more valuable information. Hosts get this feedback via email, once the guests have left a review.⁸³

Airbnb accommodations provide guests with a feeling of “home”, thus creating a sense of belonging (Guttentag, 2015). Airbnb’s philosophy is to make guests feel at home and connect with the local people. Accordingly, the host is encouraged to “treat guests like friends or family”, “share favorite places with guests”, and “teach guests something local and unforgettable” because no one knows the place and the neighbourhood better than the host (Airbnb, 2015a). Indeed, the desire for social belonging is a fundamental human need (Baumeister and Leary, 1995). To attract consumers, Airbnb highlights a wide range of “atypical places to stay” in its marketing communication, such as the artist mirrored house, the seashell house on a Mexican island, and charming castles (Airbnb, 2015b). People have a fundamental need to differentiate themselves from others (Lynn and Snyder, 2002; Snyder and Fromkin, 1980), and Airbnb’s idiosyncratic offerings provide guests distinctive lodging experiences that are different from traditional hotel stays. Indeed, as individual uniqueness is highly valued in general (Bellah et al., 2007; Kim and Markus, 1999), consumers tend to signal their uniqueness through distinctive consumption choices (Ames and Iyengar, 2005; Berger and Heath, 2007; Chanet et al., 2012; Lynn and Harris, 1997; Mead et al., 2011; Wan et al., 2014; Xu et al., 2012). Airbnb provides an opportunity to satisfy the need for uniqueness. To summarize, the essence of the Airbnb concept is the “belongingness” and “uniqueness” brought to the guest’s experience.⁸⁴

Uber has become the most recognized alternative to traditional taxi cabs. At the moment it activates in 84 countries and 737 cities all over the world. Uber drivers do not possess special licenses; they use their personal vehicles to offer discounted fare rides. Ride-hailing and payment are all handled through a smartphone app. Uber drivers cannot pick up street hails, which is the biggest reason Uber is not exactly a taxi provider. Instead, Uber is a kind of car-for-hire service that relies on smartphone tech as its dispatch and fee manager. It is intended to be easier than using a taxi. The Uber Process consists in the installation of the app on a smartphone and create an online Uber account. One's credit card will be attached to the account, so one will never need to handle any cash. When needed a ride, the app usage will tell Uber the pickup location. The phone’s GPS can help with this. There are also text message and mobile website alternatives to using the app. In return, Uber will text one to confirm how many minutes he or she will wait. Rides are commonly 3 to 10 minutes away in major centers. Uber will then

⁸³ Zervas, G., Proserpio, D., Byers, J., W., (2016), *The rise of sharing economy: estimating the impact of Airbnb on the hotel industry*, Boston University, U.S.A.

⁸⁴ Liu, S., Q., Mattila, A., S., (2016), *Airbnb: Online targeted advertising, sense of power, and consumer decisions*, Ed. Elsevier, U.S.A.

text when the ride has arrived. One can find all the Uber fare prices in each city by the city link in each fare estimate. The booking in advance is not possible. The Uber app will also show details of the driver, his/her name and photo, and the type of car he/she drives. When taking the ride, it is optionally possible sharing the ride with any other Uber user, this can split the fare electronically between the riders. The payment is handled invisibly, with no tip required. One can just step out of the car at the end. After the ride, the driver is rated on a scale of 1 to 5 (politeness, safety, cleanliness). Similarly, the driver rates the passenger from 1 to 5 (politeness). The Uber experience is designed to be very simple and convenient, but with the attentiveness of tracking and customer feedback.⁸⁵

There are 4 active Uber cities in Romania and the ridesharing experience is fast growing all over the country. These cities are Bucharest, Braşov, Cluj and Timişoara.⁸⁶

The collected information below is from airbnb.com, regarding the number of rooms and apartments listed for rental, on the complete set of users, in several Romanian cities. Each host has a photo, a personal statement, their listings, guest reviews of the properties, and Airbnb-certified contact information. Similarly, each listing relates photos, location, availability, price, a brief textual description, capacity, check-in and check-out times, cleaning fees. As well, the additional collected information is from insse.ro on accommodation units, number of overnights and arrivals from several cities in Romania, in order to have an overview of the touristic traffic as well. Unfortunately, the Airbnb's number of overnights and arrivals, cannot be quantified yet, due to the system and legislation. Airbnb is not covered by any specific regulation. Therefore, we cannot estimate the correct number of listings.

The accommodation service, is one of the most demanded basic tourism services that makes up the touristic package. The accommodation unit, is any individual or legal person, who is offering accommodation services.⁸⁷

The number of overnights, is the number which represents the periods of one night, spent in a touristic unit.⁸⁸

The number of arrivals, represents the records, in the tourist registers, of each person accommodated in a touristic unit.⁸⁹

<i>No. of guests / City</i>	<i>Bucharest</i>	<i>Constanța</i>	<i>Braşov</i>	<i>Timişoara</i>	<i>Iași</i>
1 guest	306	90	128	51	34
1 guest + 1 child	306	88	122	49	26

Table 1: Data from August the 4-5th, 2017

Sources: adapted from https://www.airbnb.com/s/bucharest/homes?checkin=2017-08-04&checkout=2017-08-05&allow_override%5B%5D=&s_tag=Vlri5I6w

⁸⁵ <https://www.lifewire.com/how-does-uber-work-3862752>

⁸⁶ <https://uberestimator.com/country/romania>

⁸⁷ <http://statistici.insse.ro/shop/index.jsp?page=tempo3&lang=ro&ind=TUR101C>

⁸⁸ <http://statistici.insse.ro/shop/index.jsp?page=tempo3&lang=ro&ind=TUR105H>

⁸⁹ <http://statistici.insse.ro/shop/index.jsp?page=tempo3&lang=ro&ind=TUR104H>

<i>No. of guests / City</i>	<i>Bucharest</i>	<i>Constanța</i>	<i>Brașov</i>	<i>Timișoara</i>	<i>Iași</i>
1 guest	306	95	210	66	34
1 guest + 1 child	306	96	204	66	34

Table 2: Data from November the 20-21th, 2017

Sources: adapted from https://www.airbnb.com/s/Ia%C8%99i--Ia%C8%99i-County--Romania/homes?guests=2&adults=1&children=1&place_id=ChIJu9059nz7yKARPPUmVNqAy3w&refinement_path=%2Ffor_you&allow_override%5B%5D=&s_tag=CqKwViWG§ion_offset=6

From the tables above, we can see that Airbnb is extending in the Romanian market, as well, due to the low prices and better offers. The biggest number of rentals is in the capital of Romania and are maintaining, followed by the second number, in Brașov, which grew compared to the previous period, due to the season probably and low prices. Bucharest has increased offers, demands of alternative accommodation and touristic traffic.

<i>Acc. Units / City</i>	<i>Bucharest</i>	<i>Constanța</i>	<i>Brașov</i>	<i>Timișoara</i>	<i>Iași</i>
Hotels	119	100	57	44	25
Boarding houses	4	8	86	37	23
Total	123	108	143	81	48

Table 3: Number of accommodation units, 2016

Source: <http://statistici.insse.ro/shop/index.jsp?page=tempo3&lang=ro&ind=TUR101C>

The two units listed in the table above, are most affected by the platform rentals, in general. The number of boarding houses is lower than the number of hotels in all listed cities, except Brașov, which is opposite. Many business travels happen in Bucharest and Constanța, due to their location.

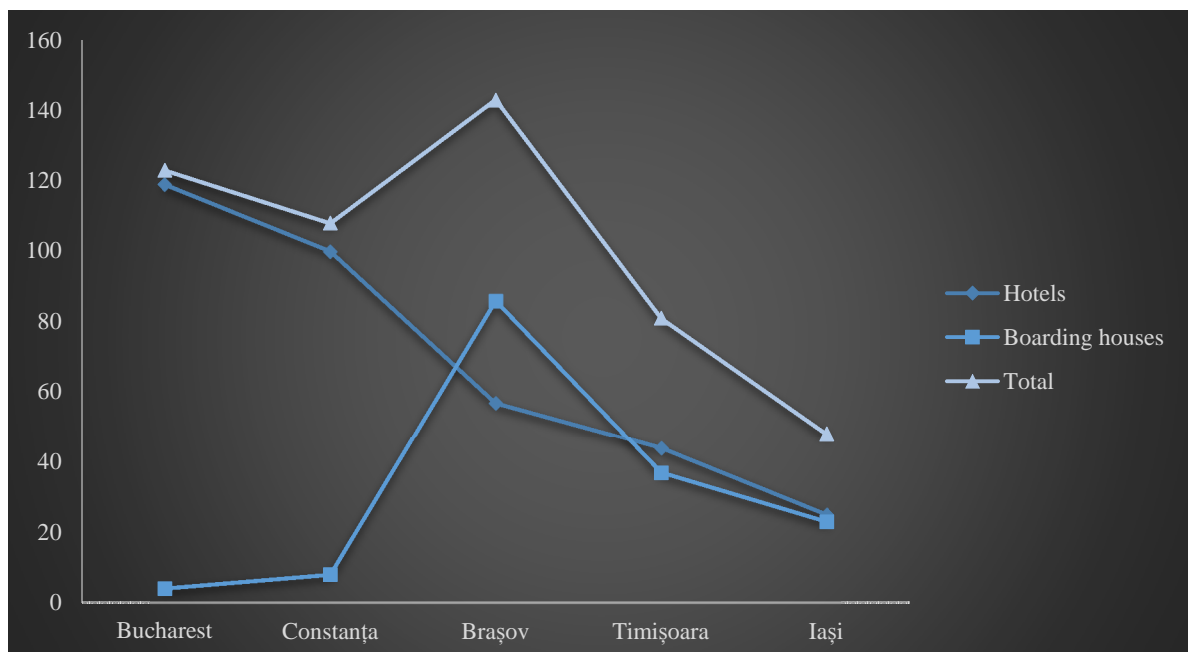


Chart 1: Number of accommodation units, 2016

Source: Author

Braşov has the biggest value in the number of the selected accommodation units above, in comparison with the other cities. Which means that the infrastructure is good and people demand for familiar, cozy spaces, near the mountains, where is season for all year.

<i>No. of overnights stays / City</i>	<i>Bucharest</i>	<i>Constanța</i>	<i>Braşov</i>	<i>Timișoara</i>	<i>Iași</i>
Hotels	286643	212435	75133	46213	42827
Boarding houses	1691	576	13286	7005	3476
Total	288334	213011	88419	53218	46303
Average per day	9611	7100	2947	1774	1543

Table 4: Number of overnights in June, 2017

Source: <http://statistici.insse.ro/shop/index.jsp?page=tempo3&lang=ro&ind=TUR105H>

The most frequent traffic is in Bucharest and Constanța, due to the summer season and holidays. There are great demand for hotel accommodation in all the cities above. Hotels offer better stay conditions sometimes.

<i>No. of arrivals / City</i>	<i>Bucharest</i>	<i>Constanța</i>	<i>Braşov</i>	<i>Timișoara</i>	<i>Iași</i>
Hotels	177963	78341	40025	25250	23243
Boarding houses	653	368	7465	3603	2527
Total	178616	78709	47490	28853	25770
Average per day	5954	2624	1583	962	859

Table 5: Number of arrivals in June, 2017

Source: <http://statistici.insse.ro/shop/index.jsp?page=tempo3&lang=ro&ind=TUR104H>

Bucharest has the biggest number of arrivals, followed by Constanța, due to the summer holidays. In Bucharest, there are many types of tourism, such as business, city-breaks, historical, cultural, educational, recreational. The city is becoming more popular in Europe due to its beautiful architecture, history, kind people, great monuments, night life etc. The number of Europeans tourists who visit Romania is increasing from year to year.

Budz Sonia is currently a Ph.D. student at The Bucharest University of Economic Studies. Broadly, the topic of her research during doctoral studies is about the sharing economy, quality of services, social media and the relationship between them. She is a specialist in the tourism and services fields, since she graduated both master and bachelor in these domains, within the same University.



At the same time she works in a corporation as a manager assistant, this allowing her to have a more flexible schedule.

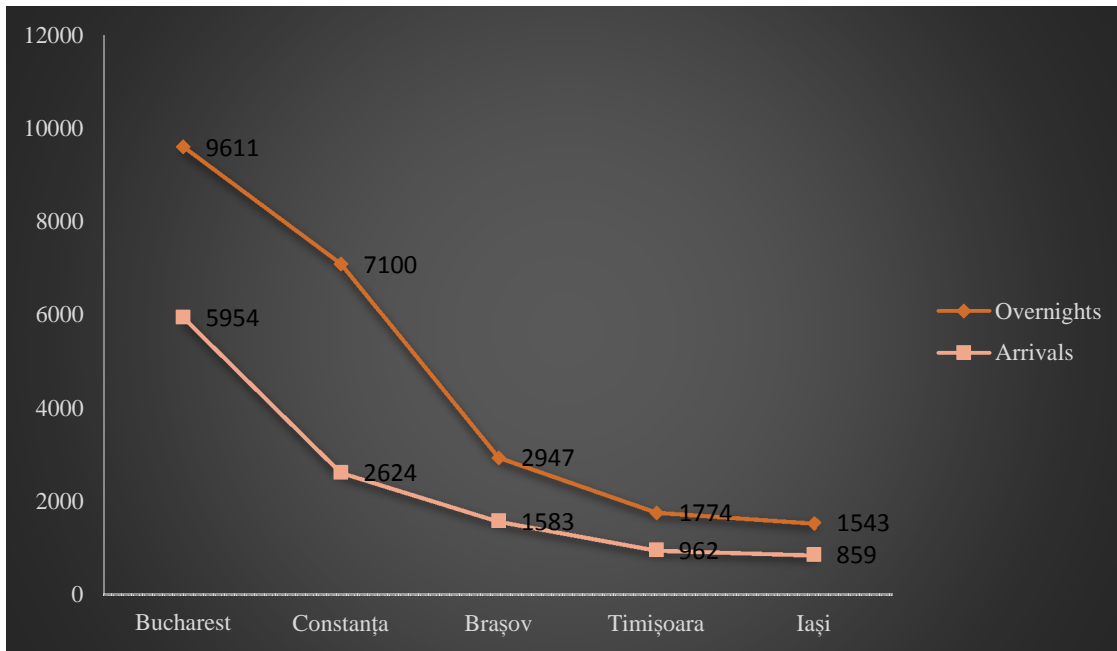


Chart 3: Average per day of overnights and arrivals in June, 2017

Source: Author

From the table above, it can be seen that half of the tourists are in transit, or accommodated at relatives.

<i>Purchased cars</i>	<i>Bucharest</i>	<i>Constanța</i>	<i>Brașov</i>	<i>Timișoara</i>	<i>Iași</i>
New	58113	2227	1973	2187	1786
Imported	26698	7078	9401	13467	9168
Total	84811	9305	11374	15654	10954

Table 6: Number of purchased cars, 2016

Source: <http://statistici.insse.ro/shop/index.jsp?page=tempo3&lang=ro&ind=TRN102A>

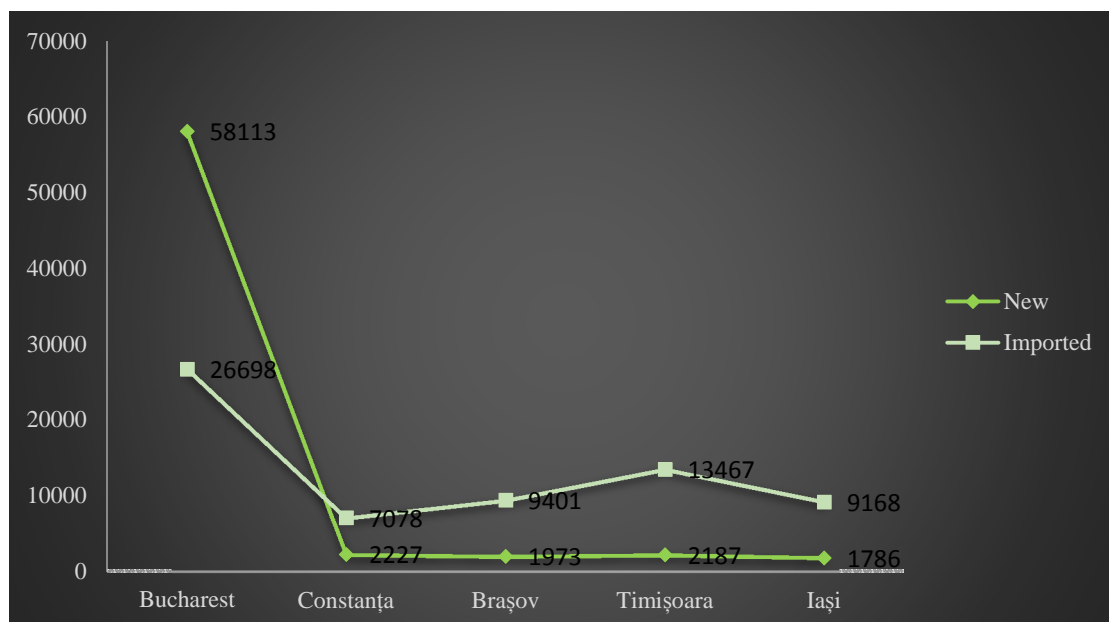


Chart 3: Number of purchased cars, 2016

Source: Author

From the table above, we can see that the capital demands most cars, due to the number of population, Timișoara being the second, in terms of car demands. It can be deduced that some of the bought cars are utilized by Uber drivers, mostly in Bucharest.

Unfortunately, there is not much data about Uber in Romania, even though most Romanians choose Uber instead of regular taxis.

4. CONCLUSION

In conclusion, the sharing economy is growing in Romania as well, bringing lots of benefits and challenges regarding the national tourism. This generated a change in the customer perception, needs, in the consumption pattern and on competition growth, by lower prices, alternative accommodation and transportation, new jobs, increased social welfare. These peer-to-peer platforms fulfil a variety of needs, both customers and providers. They encourage small entrepreneurs, the usage of unused goods, customer safety, better interaction and collaboration between all stakeholders, increased quality due to the personal possessions that owners provide to clients, knowledge of other environments and cultures, different habits, traditions, innovative technological infrastructure and so on.

Airbnb and Uber offer opportunities of travel and transportation at low prices, even by last minute booking, personalized quality services, such as shopping (Uber), transparency, interaction opportunities between all stakeholders, sustainability and quality, due to the provided availability of the owners personal possessions, discounts, gift cards etc. Airbnb may have a negative impact on local hotel revenue, in terms of holidaymakers accommodation, and due to the viable, familiar types of accommodation. But mostly, the business travels and accommodation are not affected, which demand standardized hotels. As far as Uber is concerned, it brings great opportunities and challenges to the tourism industry. It facilitates tourists transportation in the cities and puts them in contact with normal people, such as locals, who can recommend anything in terms of restaurants, monuments etc. Airbnb and Uber bring challenges and opportunities in terms of infrastructure and instant accessibility.

The Romanian tourism industry is direct affected by the sharing economy. The number of Romanians who are users on these platforms is increasing and others start to open up to the online environment and services. This main cause is the interaction with foreign tourists, innovative technologies and easy access to anything on the internet. The collaborative economy, as well as the Romanian economy are in the growing stage. The principal problem here are the low incomes. Therefore, the demand for alternative accommodation is increasing, making space for intermediaries, such as Airbnb, to grow.

As far as future trends, most of the holidaymakers will choose Airbnb due to its transparency and correctness in terms of online information. Big hotel chains or hotels could direct their offers to companies, promoting business tourism. With regards to small hotels, they will collapse sometime in the future due to the disparity between the reality and the online information. The only problem faced by Uber at the moment is the current legislation. Despite this, more people opt Uber due to the transparency, driver information and feedback, transportation conditions, payment method, arrival speed.

These pioneers already have a great impact on tourism and all economy, changing people's perception towards higher standards in life, bringing better quality and sustainability.

REFERENCES

- [1] Farronato, C., Fradkin, A., (2015), *Market Structure With the Entry of Peer-to-Peer Platforms: the Case of Hotels and Airbnb*, Stanford Univ., U.S.A.
- [2] Kotler, P., Armstrong, G., (2012), *Principles of Marketing*, Ed. Pearson Prentice Hall, New Jersey
- [3] Kotler, P., Keller, K., L., (2012), *Marketing Management*, Ed. Pearson Prentice Hall, New Jersey
- [4] Roblek, V., Štok, Z.M., Meško, M., (2016), *Complexity of a Sharing Economy for Tourism and Hospitality*, Tourism & Hospitality Industry 2016, Congress Proceedings, Croatia
- [5] Zervas, G., Proserpio, D., Byers, J.W., (2016), *The Rise of Sharing Economy: Estimating the Impact of Airbnb on the Hotel Industry*, Journal of Marketing Research, U.S.A.
- [6] Roblek, V., Štok, Z.M., Meško, M., (2016), *Complexity of a Sharing Economy for Tourism and Hospitality*, Tourism & Hospitality Industry 2016, Congress Proceedings, Croatia
- [7] Dredge, D., Gyimóthy, S., (2015), *The Collaborative Economy and Tourism*, Tourism Recreation Research, Ed. Routledge, Aalborg University, Denmark
- [8] Neagu, S., Vlăsceanu, Gh., Bran, F., Popescu, C., Vlad, L., B., Neacșu, M., C., (2006), *Geografie Economică Mondială*, Ed. Meteor Press, Bucharest
- [9] Minciu, R., (2005), *Economia turismului – Editia a III-a revăzută și adăugită*, Ed. Uranus, Bucharest
- [10] Nur, I., M., R., Saniah, A., Z, Syed, M., H., (2013), *Between tourism and intangible cultural heritage*, Cultural sustainability in the built and natural environment, Ed. Elsevier, from www.sciencedirect.com
- [11] Gellatly, J., P., (2016), *A global tourism qualitative descriptive multiple case study of consequences of industry defragmentation*, Ed. ProQuest, U.S.A.
- [12] Zervas, G., Proserpio, D., Byers, J., W., (2016), *The rise of sharing economy: estimating the impact of Airbnb on the hotel industry*, Boston University, U.S.A.
- [13] Liu, S., Q., Mattila, A., S., (2016), *Airbnb: Online targeted advertising, sense of power, and consumer decisions*, Ed. Elsevier, U.S.A.
- [14] ***Accenture, (2017), *Circular Advantage: Innovative Business Models and Technologies That Create Value*, from <https://www.accenture.com/us-en/insight-circular-advantage-innovative-business-models-value-growth>
- [15] ***<https://www.go2hr.ca/bc-tourism-industry/what-tourism>
- [16] ***https://www.airbnb.com/s/bucharest/homes?checkin=2017-08-04&checkout=2017-08-05&allow_override%5B%5D=&s_tag=Vlri5I6w
- [17] ***https://www.airbnb.com/s/constantia/homes?checkin=2017-08-04&checkout=2017-08-05&allow_override%5B%5D=&s_tag=NSDTAXaD
- [18] ***https://www.airbnb.com/s/brasov/homes?checkin=2017-08-04&checkout=2017-08-05&allow_override%5B%5D=&s_tag=iOeV8wGC
- [19] ***https://www.airbnb.com/s/timisoara/homes?checkin=2017-08-04&checkout=2017-08-05&allow_override%5B%5D=&s_tag=kVoy229w
- [20] ***https://www.airbnb.com/s/iasi/homes?checkin=2017-08-04&checkout=2017-08-05&allow_override%5B%5D=&s_tag=15gHVJBm
- [21] ***https://www.airbnb.com/s/paris/homes?checkin=2017-08-04&checkout=2017-08-05&allow_override%5B%5D=&s_tag=ciPD9GcL§ion_offset=16
- [22] ***https://www.airbnb.com/s/berlin/homes?checkin=2017-08-04&checkout=2017-08-05&allow_override%5B%5D=&s_tag=4rx4tJSM
- [23] ***https://www.airbnb.com/s/rome/homes?checkin=2017-08-04&checkout=2017-08-05&allow_override%5B%5D=&s_tag=66sZBqnL

- [24] ***https://www.airbnb.com/s/amsterdam/homes?checkin=2017-08-04&checkout=2017-08-05&allow_override%5B%5D=&s_tag=DbpJhIsU
- [25] ***https://www.airbnb.com/s/athens/homes?checkin=2017-08-04&checkout=2017-08-05&allow_override%5B%5D=&s_tag=jLGVrB62
- [26] ***<http://statistici.insse.ro/shop/index.jsp?page=tempo3&lang=ro&ind=TUR101C>
- [27] ***<http://statistici.insse.ro/shop/index.jsp?page=tempo3&lang=ro&ind=TUR105H>
- [28] ***<http://statistici.insse.ro/shop/index.jsp?page=tempo3&lang=ro&ind=TUR104H>
- [29] ***<http://statistici.insse.ro/shop/index.jsp?page=tempo3&lang=ro&ind=TRN102A>
- [30] ***<https://www.lifewire.com/how-does-uber-work-3862752>
- [31] ***<https://uberestimator.com/country/romania>

THE IMPACT OF SOCIO- DEMOGRAPHIC CHARACTERISTICS OF TOURIST PARTICIPATING IN GASTRONOMIC ACTIVITIES: THE CASE OF SHKODRA CITY

Romina Dhora⁹⁰
Mersida Bala Mokçi⁹¹

Abstract: *Tourism is one of the essential service industries, part of the world economy, in which food plays an integral part. Part of this importance is related to the connections that this product has with the output of other industries like transport, accommodation, food, information, insurance services and financial services. In the recent years, a growing emphasis has been placed to tourism experiences related to food.*

One of the main factors which stimulate the connection between food and tourism is its role in the local development. Not only tourism, but also food has connections with other industries of the local economy, raising in this way the value of tourism and food in the local economy.

Food in tourism has the potential to generate higher incomes for business owners, for food producers and food service providers. The idea is putting to formerly products or industries together and creating a new product or industry. A large number of destinations use gastronomy as a tourism marketing tool and vice versa, using tourism to promote gastronomic offer. Sometimes these marketing efforts aren't so much effective, because of the separation of the two fields, tourism marketers often do not understand gastronomic products and gastronomes do not understand tourism. More information is needed for the gastronomy tourism market.

The aim of this paper is to analyze the socio demographic impact in gastronomic tourism participation of tourists visiting Shkodra region, a city located in North Albania.

Because we have demographic variables that are measured in categorical way and then have been coded in ordinal way, we have implicated non- parametric test.

The instrument used to gather the primary data from the tourists is the survey, which has been manually distributed by the researcher. The analysis shows interesting finding related to the impact of the socio-demographic characteristics in the tourist interest related to food tourism.

Key words: *socio - demographic characteristic, touristic activities, food tourism*

Food is considered as a crucial attribute of the destination image, based on the demand changes that created the fourth generate of tourism (Lebe and Milfelner 2006) where the market is compound of tourists in search of new experiences. This is the reason why the tourism industry fits in with these changes and offers the travel package that fulfills the new demand (Kivela, J. & Lebe, J.C. (2005). The new touristic destinations are creating modular products which offer alternative forms of tourism that are in the stage of entry in the product life cycle, presenting a high level of attractively, in a low level of competition.

The use of local food shows a great influence in the sustainability of a destination in a direct and indirect way. By consuming the local food, the destination stimulates the support of

⁹⁰ Lecturer of Marketing and Tourism, Department of Tourism, "Luigj Gurakuqi" University, Shkoder, Albania

⁹¹ Lecturer of Marketing and Tourism, Department of Tourism, "Luigj Gurakuqi" University, Shkoder, Albania

agricultural activities and food production. The local community profits by creating new jobs, by generating the pride and reinforcing the destination identity. Food can also develop the attractiveness of the destination (Du Rand, G. E., & Heath, E. (2006).

The tourists of today are part of the fourth generation of the tourists market (Lebe, Sonja & Milfelner, Borut. (2006) where these consumers are always searching new experiences based on their personal needs. This is the reason why the touristic industry is moving toward the creation of the travel packages (Alvino 2003), in search of fulfilling the demand, paying close attention to feelings and hedonic consumerism, in creating holistic impressions with the scope of forming the destination image (Greaves and Skinner 2010).

The change of the tourist demand is caused by the demographic changes, with a sensitive increase of the average age of the population, which are more focused on experiences rather than just “things” (Jonsson, Kvist and Klefsjo 2006). As a result, touristic destinations are trying to create innovative products in the first phases of their life style cycle.

The tourist market holds different types of tourist; this is the reason why it is difficult to create an adequate profile of the target market. The touristic market consists of different types of consumers, with individual characteristics of personality, ideas and cultures. Tourists that choose to take part in activities relating to food and beverages essentially are called cultural tourists. These tourists have some common characteristics. They savor food and beverage and are interested also in knowing the production methods. Culinary tourists are considered to have a high level of education and knowledge. Another differentiating characteristic is the fact that this group is open to new experiences and sees food as an alternative way of studying new cultures and lifestyles. Culinary tourists usually plan by themselves their vacations and have high expectations relating to the place they visit (Croce E. Perri G. 2010).

According to Paolini (2000) the market is divided into two categories: food trotters and foodies. The first segment is an exclusive market with tourists that their primary motivation of visiting a destination is the gastronomic experience, experiencing a gastronomic adventure and places a little attention to the other touristic attractions. A foodie is a tourist who evaluates the gastronomic experience as his primary motivator of travelling but also considers important the other attractions of the destination.

Culinary tourists relate the gastronomic experience with the cultural approach. Their evaluation is based on the level of education, the expectations for the regional resources change based on their gastronomic culture:

- Cultural users. This category of tourists are perfectly informed about organoleptic characteristics, they know everything related to the earth, regional production and cultivation.
- Culture vultures. They hope to become better acquainted with the world of gastronomy. Their interest in visiting a production region is real and tangible and they are open to making new discoveries and experiences.
- Friendly types. Although not particularly interested in food or wine, they like to stay with the group on a visit to a winery, olive oil mill or dairy farm. Once involved in the visit, if their senses are awakened they may discover a real passion for the gastronomic subject. From the tasting session, people can discover a new interest in the product and explore the region further.

Another division of the market is realized based on the level of knowledge regarding food and beverage, knowledge and interests and integrating the cultural experiences with other experiences in tourism. Tourist who rarely visit places where food or wine is produced, who have little or no curiosity beyond the confines of their own experience, who are suspicious of any technological innovation are not included in this classification. Based on these variables the classification includes:

- Novices. These are visitors who do not have any specific knowledge or culture, they are often unaware of the opportunities offered by this kind of tourism experience, they are not particularly driven to make new discoveries and tend not to have high expectations on a food and wine destination.
- Experts. They are extremely knowledgeable about gastronomic subjects, they have little inclination to combine their interest in food and wine with other activities.
- Multi-interest visitors. This group particularly likes to combine two or more different elements into their leisure activities.
- Technicians. They have specialist knowledge and technical skills in the sector. They consider a visit to a farm business or wine estate as a way to learn more about production in the region.

RESEARCH METHODOLOGY

The research question studied and presented in this paper is:

Do Socio-demographic characteristics influence the participation of tourists in gastronomic tourism related activities?

Tourists were asked regarding their socio-demographic characteristics. The variables used in this study are: age, gender, occupation and education. Age is operationalized by asking tourists regarding their age. Gender (female or male), education (high school, college, university, post-university) and occupation (full time job, part time job, self employed, student, unemployed, retired). All these variables are operationalized as categorical variables.

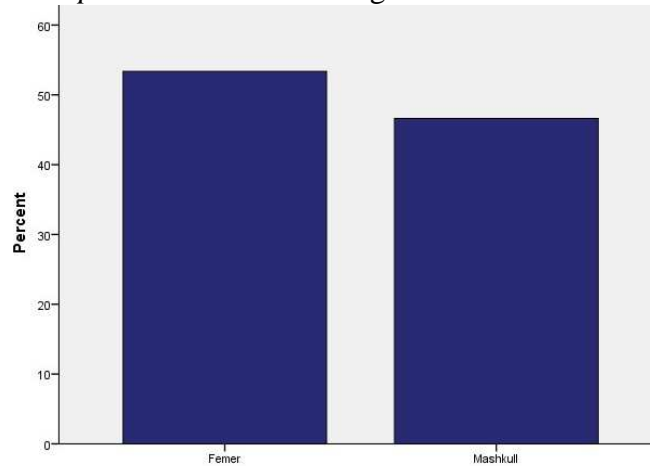
Demographic changes of tourists

Demographic characteristics are age, gender, place of origin and socio-economic variables are occupation, education and incomes. A large number of studies show that these data are important and influence on the attitude toward local food.

Age and income are the main characteristics that influence on food selection (Dodd & Bigotte 1997).

Regarding the sample used in this study, it has been noticed a tendency of refusing to declare the level of income. As a result it has not been possible to analyze this question.

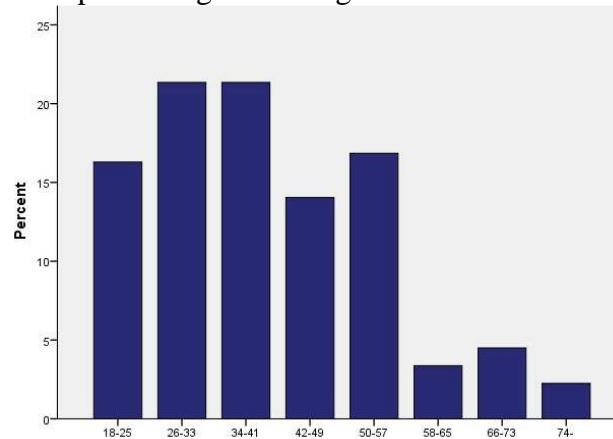
Tourists that show a high interest toward local food are up the average age (Ignatov & Smith 2006), a study that is supported also by other studies in different regions.

Graphic 1 Gender and the gastronomic demand

In the sample chosen that consists of 178 tourists it can be seen that females have the highest percentage of 53%, meanwhile male represent 47% of the overall sample.

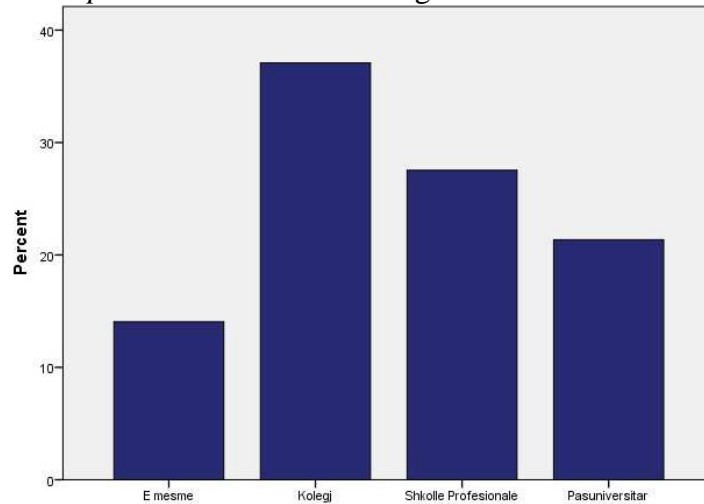
In the sample selected there is a representation of all age groups, but the highest percentage of tourists are between the 26-33 group, followed by the 34-49 group. Studies show that age is an important indicator for showing the interest of tourists for local food and drink (Dod & Bigotte 1997; Carmichael 2001; Ignatov & Smith 2006;).

According to these studies the age that shows higher interest for this kind of recreational activities is above 45. In the actual study there is no evidence about this fact, but this can be a result of a small sample in comparison with the other mentioned studies.

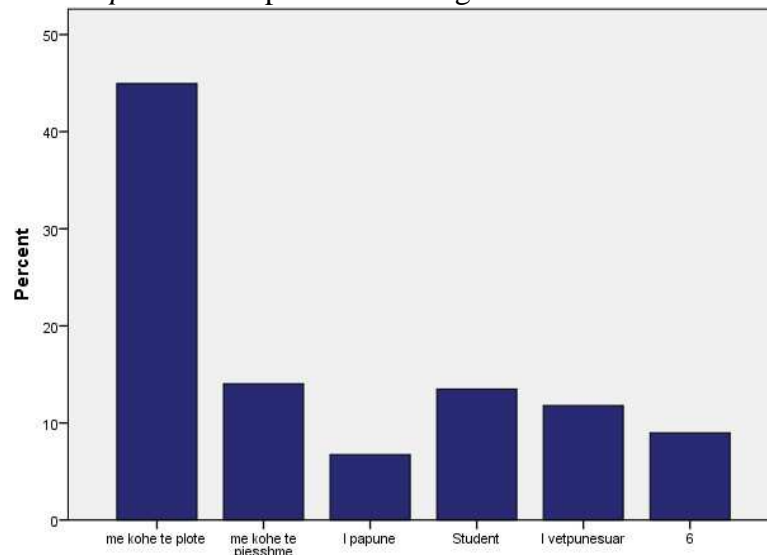
Graphic 2. Age and the gastronomic demand

Education is another important predictor of the tourists participation in gastronomic tourism activities (Cai, Hong & Morrison 1995). Tourist with a high degree of education is more probable to be part of culinary tourism activities (Ignatov & Smith 2006).

Regarding the education variable it can be seen that the highest percentage have tourists that hold a college degree, but there is representation of all the groups in the sample chosen.

Graphic 3 Education and the gastronomic demand

Occupation is an indicator closely related to the income variable. Tourists that visit the region of Shkodra, part of the sample chosen have a full-time job, part-time job or self-employed.

Graphic 4 Occupation and the gastronomic demand

There are two theories that analyse the gastronomic tourists, the *theoretical analyse* and the *impirical investigation*.

The theoretical analyse proposes theoretical structures that study the attitude of the culinary tourist, meanwhile the empirical findings support the idea of a continuous specter of culinary tourists. The most common variables used in the empirical findings are knowledge and interest (Hall 1996; Corigliano 1996; Charters & Ali- Knight 2002; Mitchell 2004).

Hypothesis presented in this paper:

Tourists with different socio-demographic data show different level of gastronomic demand.

H1. There is a difference between the tourists' gender and their participation in gastronomic activities

H2. There is a difference between the tourists' age and their participation in gastronomic activities

H3. There is a difference between the tourists' level of education and their participation in gastronomic activities

H4. There is a difference between the tourists' occupation and their participation in gastronomic activities

Because of the presence of demographic variables that are measured in a categorical way and then coded in an ordinal way, we can apply only non-parametric tests. This because their values are discrete and there is no significance to talk about the mean of the variable, but only for mean of the sub-compound of the variable in relation to the gastronomic demand.

Non-parametric analyses do not require any strict suppose of the distribution (Tabachnick & Fidell 2001).

In the sample of 95 female and 87 male, t independent student test shows a difference statistically important between the average gastronomic demand of female ($M=.897$, $s=.086$) and male ($M=.872$, $s=.107$), $t(116)=1.415$, $p=.025$, $\alpha=.50$.

- Age and the gastronomic demand

One way Anova between the subjects does not show any statistically valuable effect of the different age groups in the gastronomic demand $F(7,110)=.927$, $p=.489$, $\alpha=.50$.

- Education and gastronomic demand

One way Anova between the subjects does not show any statistically valuable effect on the tourists with different level of education and the gastronomic demand $F(3,114)=.285$, $p=.836$, $\alpha=.050$.

- Occupation and the gastronomic demand

One way Anova of the variance between the subjects does not reveal any valuable effect statistically important between tourists with different occupation status and the gastronomic demand $F(4,113)=1.474$, $p=.215$, $\alpha=.050$.

The hypothesis has been refused. The socio-demographic variables do not have any statistically important implication in the gastronomic demand.

The socio-demographic variables are the most used variables to predict the tourists' attitude toward the local food where the main social and economic indicators used in empirical studies are education, occupation, income, age, gender and social status (Richards 2002).

Studies about the influence of social and economic variables on the tourists attitude can be found in Bourdieu (1984); McCracken & Brandt 1987; Warde 1992; McIntosh 1996; Germov & Williams 1999; Warde & Martens 2000). The importance of these variables is more evident in wine tourism. Tourism is a recreational activity and the commitment to them depends on the level of income. The absence of the data related to the income variable is a limitation for this study, this is due to the rejection of the sample to offer data regarding this variable or due to some fake data, as a consequence this variable is not part of the actual study.

Tourism literature suggests that food consuming by tourists may not be influenced by socio-demographic variables. In their study, Tse & Crotts (2005) found that age does not influence

the number or quality of culinary exploring. Kim et al., (2009) identified that age, gender, and education as three socio-demographic variables do not influence on food consuming for tourists.

BIBLIOGRAPHY

- [1] Lebe, Sonja & Milfelner, Borut. (2006). Innovative organization approach to sustainable tourism development in rural areas. *Kybernetes*. 235-239
- [2] Du Rand, G. E., & Heath, E. (2006): Toëards a frameëork for food tourism as an element of destination marketing. *Current Issues in Tourism*, 2006, 9(3): 212-214.
- [3] Kivela, J. & Lebe, J.C. (2005): Gastronomy tourism: a meaningful travel market segment. *Journal of Culinary Science & Technology*, 2005, 4(2/3):42-43.
- [4] Alvino, E. H. (1999): **Factors affecting food decisions made by individual consumers.** *Food Policy*, 1999, **24(2-3)**: 287-290.
- [5] Croce, Perry (2010) **Food and Ëine tourism, Integrating Food, Travel and Territory:** Cabi tourism texts: 2010
- [6] Ignatov, E., & Smith, S. L. J. (2006): **Segmenting Canadian culinary tourists.** *Current Issues in Tourism*, 2006, **9(3)**: 239-240.
- [7] Hall, C. M., & Sharples, L.: **An introduction, food and ëine festivals and events around the world.** In *Food events, festivals and farmers' markets: Development, management and markets;* Oxford: Butterëorth Heinemann;2008: 16-17
- [8] Mak, A. H. N., Lumbers, M., & Eves, A. (2012): **Globalisation and food consumption in tourism.** *Annals of Tourism Research*, 2012, **39(1)** : 186-187.
- [9] Lubke, Gitta H.; Muthen, Bengt O. (2004): **Applying Multigroup Confirmatory Factor Models for Continuous Outcomes to Likert Scale Data Complicates Meaningful Group Comparisons.** *Structural Equation*
- [10] Wang, C-Y., & Hsu, M. K. (2010): **The relationships of destination image, satisfaction, and behavioral intentions: an integrated model.** *Journal of Travel and Tourism Marketing*, 2010, **27(8)**: 829-843.
- [11] Tse, P. & Crotts, J.C. (2004): **Antecedents of novelty seeking: international visitors' propensity to experiment across Hong Kong's culinary traditions.** *Tourism Management*, 2004, **26**: 965-968.
- [12] Everett, S., & Aitchison, C. (2008): **The role of food tourism in sustaining regional identity: A case of Cornëall, South Ëëst England.** *Journal of Sustainable Tourism*, 2008, **16(2)**: 157-158.
- [13] Fields, K.:**Demand for the gastronomy product: Motivational factors.** In A. Hjalager and G. Richards (Eds.) In *Tourism and Gastronomy*: Routledge; 2002: 39-40.

KEY RESOURCES MANAGING IN EU TOURIST DESTINATIONS

Svetlana Božović⁹²

Abstract: *Considering the fact that resources represent driving forces of tourist activities in destinations, resources are also the most difficult component in their economic verification managing process. The aim of the paper is to prove the economic staggering of the material and immaterial options of destination using key resources. The paper is based on the following hypotheses:*

- 1. If key resources are representing the part of tourism conversion function in destinations, then tourism must be measurable and controlled commodity at every period of time, and*
- 2. If EU tourist destinations present penetrating part of world tourism, then these destinations' resources must remain leaders in physiognomy of their tourism.*

Research results must demonstrate sustainability of key resources and EU tourist destinations.

Key words: *resources, managing, EU, destination, key*

1. INTRODUCTION

Through creating a global system of socio-economic development of the world, globalization carriers have neglected resource identities of individual countries and thus provoked struggle between the major manufacturers and the largest consumer of world resources. Tourism, as a system of systems, and the economy of all economies, valorize resources in several ways, including:

- as attractiveness managing resources in the original, natural state;
- as modified resource base with respect to benchmarking model of managing of tourist destinations, and
- as highly-modified resource base, i.e. using Kajsen-costing, re-engineering, total quality and the competitive managing model.

Analyzing the key resources in tourism of the EU managing tourism destinations faces questioning tangible and intangible elements such resources into tourism products, i.e. subordinates the leadership role of high-modified resource and the base function of anthropology, demography, and their continued education.

Trying to fully delineate what is Janis face of tourism, or to establish a consensus plagues and satisfaction in the use of key tourism resources, there is a requirement that the managing of these resources at anytime be strategically minded, prepared tactically and operationally precise.

⁹² PhD Student, Faculty of Economics, University of Kragujevac, Serbia

2. KEY TOURISM RESOURCES THEORETICAL AND PRACTICAL CONCEPTS IN CONTEMPORARY MANAGING

When Richard Lecomber [6] wrote the book *Economics of natural resources*, began a serious theoretical and practical discussion about the resource potential. Place in these discussions also had found key tourism resources, which are set to the highest level of sustainability, i.e. their evaluation in the transition from conflict to coexistence and symbiosis with all their producers and consumers. More detailed conceptions we find in work of Professor Skinner [13], which raises the question of limitations of these resources and opportunities for their adequate substitution. However, for managing of basis resources in tourism of the European Union, we think that some of these conceptions are important:

- Holder of spatial theoretical discussion of tourism resources, the French scientist Defert, [2] said: "Tourism resources include facilities space that can stimulate tourism trends, dividing them into natural and anthropogenic resources." From this it follows that base tourism resources determine directions of tourist movements which in modern tourism provides the basis for macro-regional clustering of tourism and entrepreneurship deployment to numerous forms of tourism specific requirements;
- At the beginning of 90-ies of twentieth century, key tourism resources are treated as attraction, which has a higher capacity for a compelling motivation tourists and accurate recognition of the importance of a tourist destination. Inskeep said that "attractiveness characteristics of a country or region are a basis for the development of tourism, they are the most important element of the tourism product" [5], or "tourist attraction is a place named

Svetlana Božović



WORKING EXPERIENCE

01 June 2008 – 01 December 2012

Position: Junior Accounting Assistant

Cooperative "Zubin Potok" Agricultural

Kolasinskih knezeva 51, 38228 Zubin Potok

01 December 2012 – 01 July 2013

Position: Team Leader

Water Polo Club "Radnicki" Kragujevac

Bazenska BB, 34000 Kragujevac

01 May 2013 – 01 May 2015

Position: Project Manager

U. P. Zubin Potok

Kolašinskih kneževa 51, 38228 Zubin Potok

01 September 2013 – 15 May 2014

Position: Volunteering as Accounting Assistant

NGO "Centre for Ecology and Rural Development"

Arsenija Čarnojevića bb, 38228 Zubin Potok

19 May 2014 – 01 February 2015

Position: Hostel Manager

METROPOLIS MUSIC COMPANY doo – METROPOLIS HOSTEL

Makedonska 21, 11000 Belgrade

01 February 2015 – 01 February 2017

Position: Project Manager

U. P. Zubin Potok

Kolašinskih kneževa 51, 38228 Zubin Potok

15 March 2016 – Present

Position: Accounting Manager

Student Center Priština

Džordža Vašingtona 6, 38220 Kosovska Mitrovica

EDUCATION AND TRAINING

01 December 2014 – Present

Economist - PhD Degree

Faculty of Economics (Business Management),

University of Kragujevac, Kragujevac (Serbia)

01 November 2011– 16 April 2014

Economist - Master Degree

Faculty of Economics (Management in Tourism),

University of Kragujevac, Kragujevac (Serbia)

01 October 2007–24 September 2011

Economist - Bachelor Degree

Faculty of Economics (Economy in Tourism and

Hospitality), University of Kragujevac,

Kragujevac (Serbia)

with specific anthropogenic or natural features, which is a major focus for visitors and managing attention" [11]. It follows that resources are (attraction) factors of the tourism product, and they will determine the identity of the tourism on which it will be formed appropriate managing model;

- Tourism development, in conceptions of world economics, in 2002. was introduced into the analysis services, as upgrade of all key tourism resources with the constant shaping of tourism destinations capacity and tolerability of all destinations in the EU [3];
- Very interesting perception we find in Caccomba and Solonandrasana [1] who attractions classify into one of two categories - the discovery and escape, or D-attractions and E-attractions. This understanding fits completely modern and post-modern tourism or "tourism of capital-stress", which in a fugitive and discovery actually try to find the identity of tourists;
- For the modern EU and its resource base of tourist destinations emphasize the following theoretical and practical view: "Managing of "small" attraction, which has the most, often has a problem with high fixed costs, the problem of seasonality in the business and not enough marketing knowledge and skills in sales today their products on very sophisticated tourist market" and "Big attractions such as the world famous festivals and theme parks, as a rule, are professionally managed. Often, managing and marketing of these attractions are entrusted to management companies that are not directly involved in the property. In many countries, there are management companies that specialize in the managing of attractions," [8].

As we can see from the presented key conceptions of tourism resources, with the passage of time, always appears new observations, so that the managing of tourism resources has been continuously developing category. Insight into the current literature, which deals with tourism resources, would show that there are about 1200000 of published papers, which means that the universal perception of these resources and their socio-economic evaluation does not exist.

3. MANAGING OF TOURIST DESTINATIONS IMPACT ON BUSINESS RESOURCE ORIENTATION IN THE EU

In today's modern world, managing has an important role in the economic and social life. On the other hand, society has manifested and has significant influence on managing, or, in other words, society manifest request for competent managing.

Tourism resources managing objectives are to create the highest effect of using these resources, increasing the living standards of the local population in order to prevent its dispersal and create such environment in the tourism business, which brings interest, development, growth and function of the target - profit. Such managing of tourism resources aims to create the best possible environment for business and development, as well as the expansion, i.e. diversification of new and existing tourism businesses, a range of tourism products and new markets in new areas.

Managing of tourism resources in the EU destinations include such a process that directs the activities to be based on the analysis and anticipation of possible opportunities and different forms, from the one hand, and the comparative values and stated weakness of tourism, on the other hand, determine the optimal growth rate and development of tourism resources available. Also, managing should institutionalize the organizational structure of tourism enterprises, methods for effective managing of resources, direction of their best evaluation, and to determine and build the appropriate business structure.

In managing tourism resources, it is best to start from four component parts of managing:

1. Procurement managing starts with precise identification of quality, research, market value of natural, labor, material and information resources. Here, as the original information appears economic price, accounting price, energy-slave, marginal utility of natural and economic resources, factors and components of tourism products. The supply managing of base tourist resources in destinations of the EU was established good business relations between suppliers of primary and secondary resource parts and customer, i.e. manufacturers and suppliers of tourist products. For primary resource suppliers are countries, regions, local government, and population of destinations, and for secondary - associations, tourism societies, trade unions and all other DMO-s. Also, in this form of managing vision is to keep all the key tourism resources in the long term for present and future generations of tourists, tourist operators and local residents. The mission is a long-term sustainable development of tourism the EU in co-existence with other sectors and industries, and guidelines are built to the point that they are manifested through quality systems, regulatory, entrepreneurial initiatives, cluster projections and the like;
2. Production managing in tourism has the prime objective of forming tourism products on the basis of the best combination of all resources at low cost, or cost optimal, with demographic, geographic, economic and prestigious parameters of tourist demand to be met. In this managing vision is permanent quality tourism product in destinations of the EU with the use of key resources. This product must continually to follow marginal costs and marginal benefits, so that incremental benefit unit increases while lowering costs. The mission, however, varies depending on the situation analysis of the social and economic systems, both in the EU and at the global level, so the use of resources is holder for sustainable tourism portfolio, with appropriate competing risk. The goals and policies in the production managing fit into the goals and strategies of tourism development guidelines, as individual countries of the EU and those provided for its TQM;
3. Turnover managing, which distributes to accepted market while maximizing profits and future demand. In managerial positions of this managing include following premises:
 - Selling price and cost price of tourism products, which depend on whether to apply the British or the Dutch version. Also, in detail is tracked elasticity of tourist demand and supply in relation to changes of tourism product price and this required analysis of primary destination price and competitive destinations price;
 - Revenues from sales in the markets of goods, key resources, and the final realization of the tourism product should be placed in the dynamic and static relationships, i.e. relations of reproduction and final consumption resources, with the one hand, and the multiplier effect of the income earned on the other hand. Managing in the EU destinations has not yet achieved an optimal balance between natural and anthropogenic resources, because, in the initial stages of tourism development, EEC used too natural, and today in the EU use mostly anthropogenic resources;
 - Observed managing always strives to fulfill obligations to customers and destinations as the suppliers. This means that the competitiveness has been placed on healthy legs, i.e. cut from the analysis are opportunity costs and all methods of modern marketing managing were integrated into competence TQM, and
 - Income distribution in such managing of key resources encourages constant travel demand and tourist offer and the model of choice is always a multiple in cost-benefit analysis in tourist destinations all over the EU, and
4. Financial managing, as allocator efficient and effective managing of financial resources for the purpose of tourism development opportunities. The main feature of this managing is that at any time he has adequate funds available for new programs and new investments, economic and socially desirable, because it meets all of those in the tourism activities of the

EU's and long-term airy, i.e. gives everyone a chance to make your own tourism business [9].

Properly and successfully managing the development tourist destinations in the EU assumes overall actual results that are greater than the sum of individual results that can be implemented by individual business subjects in the tourism industry, which is particularly evident in the case of unique tourism market of the EU. The very success of tourist destinations will be increasingly dependent on the sensitivity of destinations in relation to the intensity of the flow around her, and the realization of its objectives of business skills destinations to satisfy desires and needs of tourists using appropriate combinations of instruments market performance, that is it will depend on finding their optimal combination through choice of strategic alternatives. Strategic managing, thus, from available tourism resources receives information about state and development of these resources, available capital resources which can in next stage to invest in profitable development programs. The process of making strategic decisions in tourist destinations managing of the EU consists following phases:

- identification, inventory and find the best resources that determine the final options for making strategic decisions;
- identification and accepting the best output elements of system analysis for the strategic review and final valorization;
- assessing and controlling implementation of strategic decisions, especially those that have the force of economic action, and
- creating projects rated successful functioning of strategic plans and actual results of destination economic valuation [10].

Since managing involves the integrity of the tourism resources, which is managing of:

- Natural tourism resources,
- Commercial tourism resources,
- Human (labor) tourism resources,
- Information Resources,
- Fiscal trends,
- Monetary policy and
- Other forms of resource managing control, it should be the highest authority in the field of managing. Thus producing two types of entrepreneurship and managing of resources, that is external and internal managing. The key elements that form the basis of modern tourist destination managing that guide resource business orientation are:
 - how to "create" new visitors, and then their return visit;
 - creating performance standards and monitoring tourism business; and
 - readiness for future changes in terms of needs and expectations of visitors (tourists) [7].

From the aforementioned follows that managing of the EU destinations is a complex process that has a significant impact on resource business orientation, taking into account the large number of member countries, and more destinations are the EU and the specifics of their individual efforts to develop tourism sector and achieving goals. Reflections of resource base managing can be seen through the definition and implementation of tourism policy, which is focused on providing measures contribute to more efficient use of tourism resources and the realization of benefits for all stakeholders in the tourism development of the EU.

EU countries represent attractive touristic areas, whose comparative advantage stems from the abundance of natural and anthropogenic resources and a long tradition in tourism development.

In this sense, we give examples of good practice tourism managing destinations of the EU based on managing of key tourism resources:

- Spain, and its good examples of managing of specific destinations, which are due to destination managing and appropriate and successful managing of a number of natural and anthropogenic resources, experienced prosperity. Some of the measures that have contributed to this: Plan E also its plan, "Renove Turismo" as an example of good practice that focuses on the integration of SMEs in the development of tourism offer of Spain; plan "FUTURE", in order to define a model of development tourism in accordance with the challenges of climate change, managing Andalusia, a rural tourism destination, through working together a network of enterprises that jointly manage key tourism resources and on that basis develop a collective approach that contributes achieving the objectives and product placement to tourist markets [12];
- Austria, because holders of the tourism sector of the EU Member States have realized that they have to manage increasingly frequent crises, and it is therefore crisis tourism managing Austria gained importance. Through a series of this managing measures overcome one of key problems in tourism mountain resorts of Austria, which is seasonality. Thanks to destination managing laying on the base of tourist resources of the Austrian mountain resort in the Alps are increasingly developing into a rich tourist destination offering its tourist facilities throughout the year, that is strategies of the country destination managing are focused on offering complex holidays, i.e. "inclusion" of natural and anthropogenic resources as well as riches in the area where the tourists find attractiveness and others, which are a product of innovation managing;
- Germany, because its tourism industry is an example of good practice as one of the most organized and well-positioned retail destination. The reasons for this success lies: in the fact that tourism has an important place in the overall economy of the country, in financial aid numerous tourist destinations and attractions, in fact that organization of the Germany tourism sector represents an extensive network of institutions, which are responsible for the planning, development and promotion of tourism activities and in the fact that all existing tourism resources in Germany (the coast of North and Baltic Seas, the peaks of the Alps, plains, rivers, lakes, mineral and thermal springs, urban centers, national parks, cultural and historical heritage, etc.) were develop in complex and integrated tourism products [4]; and
- In other EU countries, managing of key resources tourist destination has the same or similar orientation with some outstanding features: projects, providing optimal methods for assessment of all key attributes and potential of tourism (one example is the project "Slovenian Tourism Strategy 2007-2011") then work of tourist institutions on the level throughout the state, which must, in addition to their standard duties, also to anticipate events development at the global, regional and national tourism market (this is the practice of tourism institutions of France, which is on the top most visited tourist), the increasing orientation to social tourism, tourism that goes beyond recognizable cities and reviving traditional ethnic motifs derived from base resources (for example, in England, Scotland and Ireland) and the like.

Resource key managing of tourist destinations in the EU is the managing that must from utilized attractions and already aging culture of the EU pull those elements that can be superior with intangible part of the tourism product converted to identifiable tangible parts of the same product.

4. CONCLUSION

Tourist destinations of the EU represent attractive tourist area, which have competitive advantages of natural and social resource base (temperate climate, hydrographic resources - seas and many freshwater resources, diversity of relief and landscape forms, flora, fauna, exceptionally rich cultural and historical heritage, etc.) and its comparative advantage lies in the diversity of the potential for the formation of tourism offer that meets requirements of tourists. However, the very existence of attractiveness tourist resource base is not sufficient for attracting and retaining tourism demand in the increasingly competitive environment. What is essential is creation and continuous improvement of key resources managing in the destinations of the EU in order to provide an opportunity of quality and unique event for tourists on journey. Essential concept for achieving and maintaining the competitiveness of the EU destinations in the global tourism market includes continuous planning, organization and control of tourism resource base, to ensure that their use will not grow in overexploitation of them, both by tourism and by other activities. Also, the efficiency and effectiveness of key resources managing in the destinations of the EU depends on the type of attraction, their location, availability, the tourist markets, tourist expectations, managing skills, partner cooperation at the global, regional and national levels, and the like.

Fundamentals of key resources managing in tourist destinations of the EU is increasingly relying on use the relevant rules of economic behavior, such as:

- "Pigu's tax" or the "polluter pays" principle, in order to fully maintain the balance between natural and anthropogenic tourist resources;
- "Coase rule", that is comparison of two different destinations and resource use in one and making a profit, and, in the second - creating costs that make use of those resources;
- Rule of "free riders" is more influential on managing of tourist destinations in the EU, because those countries that are examples of good practice actually become leaders in tourism industry throughout the Union, and
- The principle of "non-yielding", that is creation of permanent educational managing of human resources with constantly improve their knowledge, creativity and skills of all stakeholders in order to develop entrepreneurship, partnerships, constant innovation and similar.

REFERENCES

- [1] Botti, L., Peypoch, N., Solonandrasana, B. (2008) *Time and tourism attraction (Research note)*, Tourism Managing, 29, pp. 594–596.
- [2] Defert, P. (1972) *Les ressources et les activites*. Aix-en-Provence: Centre d'Etudes du Tourisme.
- [3] Gunn, C. A., Var, T. (2002) *Tourism planning: keys, concepts, cases*, Routledge, New York & London.
- [4] <http://www.germany.travel/en/index.html>, (10.11.2017.)
- [5] Inskip, E. (1991) *Tourism Planning: An Integrated and Sustainable Development Approach*, John Wiley & Sons, New York.
- [6] Lecomber, R. (1979) *Economics of Natural Resources*, Billing&Sons, Guildford, London.
- [7] Martin, B., Mason, S. (1993) *The future for attractions – meeting the needs of new consumers*. Tourism Managing, 14, pp. 34-40.
- [8] Middleton, V.T.C., Clarke J. (2002) *Marketing in Travel and Tourism*, Butterworth Heinemann, Oxford.

- [9] Milenković, S. (2011) *RESURSI u ekonomskoj sadašnjosti i budućnosti*, Ekonomski fakultet Univerziteta u Kragujevcu, 452, Kragujevac
- [10] Milenković, S. (2009) *Turizam i ekonomija*, Ekonomski fakultet Univerziteta u Kragujevcu, 216, Kragujevac.
- [11] Pearce, L. P. (1991) *Analyzing Tourist Attractions*, The Journal of Tourism Studies, Vol. 2, (1), pp. 46–55.
- [12] Polo, A. I., Frias, D. (2010) Collective Strategies for Rural Tourism: The experience of networks in Spain. *Consumption and Practice*, Volume 2, No.1.
- [13] Skinner, B. (1989) *Earth Resources*, Yale University.

THE CITIES – OPPORTUNITY FOR INNOVATIONS IN TOURISM

Irena Emilova⁹³

Abstract: *In the context of the theoretical discussions about the development of the cities, an important role takes the creative places, with its specificity, since they are bringing the innovations in the society and are stimulators in the development of the urban tourism, which also demonstrates the added economic value in the field of culture.*

The following research represents an attempt to reveal the opportunities for innovations in the big cities, which are attracting significant tourist flows. This particular aim is achieved through analysis of the urban tourism and report of the benefits for the local economies. The identities of the cities are defined as an opportunity for achieving innovation, based on creativity and knowledge. Lastly, the trends in the development of the urban tourism are outlined, based on the complex interaction between tangible and intangible mobility, functioning on the territory of the tourist destination.

Key words: *city tourism, innovation, regional economics, development, trends*

1. URBAN TOURISM IN THE CONTEXT OF THE REGIONAL ECONOMY

One of the fastest developing sectors in the tourism is the urban sector. It is a consequence of the global competition in the context of acquiring investments simultaneously with the growth of the tourist consumption in the cities.

According to many authors, namely the urbanization is the reason for the fast development of the urban tourism. Taking into account the number of tourists arriving in destinations like New York, Paris, London, Beijing or Moscow, we should note that they attract tourists not only with their super- and infrastructure, assuring the development of the industry, but also with the many entertainment activities and special events, which they offer. Furthermore, the already mentioned cities have developed economies and they offer innovative tourist goods and services, which attract extremely great tourist flows (Emilova, 2014).

According to the analysis of the World Tourism Organization, the net intensity of the travels of the main markets providing tourists, as a factor for development, is in the process of reaching its maximum values. Under the pressure of two main factors – the remotivation of the modern tourist and the increasing intensity of the competition, is realized the targeting of the competitive relations between the providers of the main tourist activities and, at the same time, aiming towards keeping the market positions and redistribution of the market shares.

The development of the tourism in the cities can be taken into consideration as a complex phenomenon of a great importance for the urban centers and their economy, as well as for the tourism industry, creating favorable opportunities for the locals by increasing the working places and their revenues. If the city has the required attractive elements for the tourists, it can successfully turn into a desired tourist destination for the urban tourism.

⁹³ New Bulgarian University, Sofia, Bulgaria

Statistical data from the United Nations states that in 2030 around 5 billion people from the Earth's population would be living in the big cities (WTO, Global report on city tourism, 2012). This forecast for the citizens from Europe and North America is about 80 % of the total population (European Commission, Towards Quality Urban Tourism, 2000). These figures are undoubtedly signifying the rapid growth of the urban tourism.

In terms of urban growth and transformation of the cities, it is of high importance to provide the tourists with products and experiences that meet their expectations and in the same time meet the growing consumer demand.

In particular, this concerns the peculiarities of ***the innovations in the urban tourism*** – offering new tourist products in the cities, the usage of which contributes to the achieving of numerous social and economic goals for the local population.

Furthermore, the tourism creates urban dynamics and also new patterns of change in the urban conditions.

Moreover, tourism connects people, creates relations between them and teaches them how to live near each other.

It is one of the main factors for economic development in a number of countries and it has an important role in terms of employment, revenues and keeping the urban infrastructure and public services at a high quality level.

Also, the tourism reinforces the competitive approach and, in this sense, the destinations, focused on the product offering, become more and more specialized, so that they can retain their position on the market while at the same time reflecting the change, distinctive for the city.

The tourism industry must apply innovative strategies, which ensure the sustainable image of the city, significant revenues, as well as added value for the locals.

In different areas of the world, cities are facing a series of problems. First of all, there is the problem of the growing number of the tourists in the cities, in the context of responsible and sustainable tourism. Also, there must be paid attention to the possibility of improving the quality of life of the locals through the development of the urban tourism. Moreover, it is important to

Assoc. Prof. Irena Emilova, PhD is a lecturer at the Department of Administration and Management, New Bulgarian University. She is the head of the Tourism Department and Program Director of the Department; reads lectures on Touroperators and Travel Agency Activities, Tourism Economy, Tourism Markets and Economic Policy, Entertainment Management in Tourism Industry. Her scientific interests are in the field of city tourism, entertainment industry, competitiveness and management of travel agencies, tourist markets. She is the author of the monographs "The Impact of Company Policies on the Competitiveness of Travel Agencies", "Technology and Organization of Tourist Activities", "Management and Resource Provision Of The Entertainment Industry", "Introduction To Tourism", "Touroperator And Travel Agency Activity", "Specialized types of tourism". She has been actively involved in joint projects between the New Bulgarian University and the Ministry of Education and Science. She is a Vice President of the Bulgarian Chamber of Education, Science and Culture; Expert in the Interdepartmental Council for Tourism Staff and Member of the Legislative Council at the Ministry of Tourism; independent expert in the National Evaluation and Accreditation Agency at Council of Ministers of the Republic of Bulgaria.



clarify the relations and dependencies between the strategies for development of the tourism and the development of the city as a part of the process of decision taking.

Another interesting issue is regarding the combining of suitable information and communication technologies, which would make the cities more competitive, sustainable and accessible. Another thing that should be clarified is concerning the actual way of measuring the economic impact of the tourism on the cities. Last, but not least is the problem, aiming at taking practical actions to reduce the impact on the environment and to promote the benefits of the ecological tourism.

According to the researches of the World Tourism Organization, approximately 65% of Europe's population is traveling at least once per year, as a result of the increase in revenues and people's leisure time (WTO, World Tourism Barometer, 2015). In this regard, big cities should aim their efforts towards offering new and attractive products, at the base of which could be the art. Theatrical festivals, international competitions or concerts have a significant importance in popularizing the cities, where they are held at.

Undoubtedly, France is one of the most preferred tourist destinations in the world. In the last years, due to the climate change, there is a tendency of reduction the active season in the summer, as a result of which the country is specializing in offering urban tourist trips. According to the tourists, the historical heritage of the country, as well as the events, organized there, are offering far more interesting experiences than a traditional weekend at the French Riviera. Precisely through the development of the urban tourism, the tourist industry is reporting growth in the number of tourists visiting the country.

Analyzing the tourism in the European cities, it has been found that, in general, it is growing with 5% annual rate. In addition, there is also an increase in hotel bookings in the cities, despite the unfavorable economic situation. As stated in global studies, London, Paris and Berlin remain the 3 most popular European tourist destinations for travelers for the last few years. On the other hand, Barcelona and Prague realize extremely high growth rates in tourist trips with over 10% annually.

The most visited cities in the world for 2014 by number of international tourist arrivals are: London (18.82 mln), Bangkok (18.24 mln), Paris (16.06 mln), Dubai (14.26 mln), Istanbul (12.56 mln), New York (12.27 mln), Singapore (11.88 mln) and Kuala Lumpur (11.12 mln), Seoul (10.35 mln) and Hong Kong (8.66 mln), (MasterCard, Global destination cities index, 2015).

Sofia is taking the 89th place from 132 cities in Master Card's Global Destination Cities Index 2015 for the most preferred destinations for international tourism. The capital of Bulgaria moves with 2 positions up comparing with the survey from 2013, when it was on 91st place.

The Master Card Global Destinations Cities Index examines the world's 132 most visited cities by tracking trips and providing in-depth analysis of the tourist flows, showing the importance and popularity of the world-famous cities as host destinations and generators of economic growth.

Also interesting are the forecasts of development of the tourist destinations related to the economic development of the cities as a result of the development of the tourist industry (World Tourism Organization, Global report on city tourism, 2012).

First of all, these are the experiences or emotions of the tourists that will lead to more accessible (physical and economic) forms of entertainment, focusing on people from different countries and the relationship between them.

Another focus is the emphasis on entertainment and its demand, which will shift the traditional focus from the price of travel goods and services. In addition, tourism will increase interest in ethics, which will lead to sustainability and increased corporate social responsibility, which undoubtedly has a global significance for people.

The UN's forecast for the population growth in cities of 61% by 2030, or 5 billion people, gives tourism exclusivity, making it a major factor influencing the integrated development of cities.

Moreover, tourism staff should be responsible; it should possess digital capabilities and intercultural skills in the context of a broad range of urban tourism services – an information intensive sector, which, unfortunately, is lacking the adequate transformation of information flows into knowledge. Therefore, there is an important need to create tools and systems to coordinate and manage the knowledge available in the tourism's value chain. The way in which stakeholders share knowledge and information affects the strategic change and sustainable development of the relevant destinations.

In this sense, the priority directions of the tourist destination, which successfully develops urban tourism, are displayed. In particular, these are:

- the economic impact of tourism;
- management and strategic planning;
- promotion and marketing;
- the development of tourism products;
- human resources;
- responsible tourism - cultural heritage and the natural environment;
- innovation;
- visitor experiences.

To summarize, we will point out that the effective management of the urban tourist destination, improving its competitiveness and the quality of life of local residents means managing the economic, social and ecological situation in a highly uncertain and threatening environment. How else can be made and guaranteed the long-term strategies for the development of tourist destinations without taking into account, for example, climate change or scarcity of resources. It is obvious, that past management models need to be re-reviewed to meet the new environmental principles, community values, and high consumer demands.

2. THE IDENTITY OF THE CITIES – AN OPPORTUNITY FOR ACHIEVING INNOVATION

The city is a privileged place both for the production and consumption of cultural heritage for the purposes of the tourist industry. Urban processes are accelerated thanks to the interplay between the cultural industry and the leisure industry.

The attractiveness of the cities is based on local tourist sights and sites that combine their historical and cultural heritage, as well as the links between innovation and creativity, in a more universal and global perspective. Creativity refers not only to the physical-geographic features of specific places but also to the interaction processes that favor the creation of cultural and

social innovations. In this case, creativity is a prerequisite for making changes and giving opportunities for city development.

Creativity can also be represented as the ability to generate new, original ideas based on knowledge. Based on creativity, innovation is, in turn, seen as a basic condition for the possibility of developing new and original solutions as a prerequisite to abandon old ways of thinking or viewpoints and to create new, surprising links between data exchange and structures (Kunzmann, 2004).

Getting to know the identity of the cities is an opportunity for the development of urban tourism and consequently an increase in tourist flows in the destinations. This importance is underlined in the context of creativity - a starting point for cities to achieve economic growth by offering travel services and the opportunity to attract more visitors, especially given the competition of metropolises and other big cities.

Two groups of scientific opinions are identified in the specialized literature, according to the first of which the local economies are highly dependent on the development of the cities, while, according to others, the local economies contribute to the development of the cities (Judd, Fainstein, 1999).

Particular places in the cities are increasing the importance of the production and consumption of specific, individual services (Castells, 1996). In this sense, cities are privileged locations for the production and consumption of tourist goods and services of a cultural nature but also having opportunities for social innovation. Thus, urban tourism, considered as a variation of cultural tourism, with its economy and social effects, contributes to the development of cities.

In the underdeveloped tourist cities that are in the process of accelerated urbanization, the benefits of cultural tourism reveal a potential acceleration of economic development. As a result, a number of beneficial effects arise for communities and their cultures (Besculides, 2002).

The development of tourism in cities around the world implies that there should also be benefits for the local population. Proper presentation of tourist sites would help tourists understand the basic need to restore and preserve cultural heritage. The emerging opportunities make the local economy more entrepreneurial and stable. Annual revenues from tourism can be invested in improving local infrastructure. The cultural exchange of tourists could lead to greater tolerance of cultural differences in multicultural societies. The annual revenues from tourism can also be invested in storing and managing the cultural heritage. This is extremely important for the sustainability of the sites in question, which are attracting large tourist flows.

Tourism can provide cultural exchange, development and even raising the standard of living in cities (Law, 1992).

In terms of globalization, there are ways in which European cities can be upgraded as "attracting tourist destinations", while at the same time implementing the processes of development and preservation of the image of places for recreation, entertainment and cultural tourism. In this sense, the location of the city is of great importance, especially in the context of increased mobility and cultural globalization for tourists practicing cultural or urban tourism. They are looking for the local identity and the atmosphere of the city.

Artistic and cultural cities offer incentives for the creativity of tourists through literature, music and cinema. It is characteristic of them that new technologies have developed innovative ways of organizing the economy, new entrepreneurs and industries. On the other hand, the creative city is one of the essential models of urban development. In order to be attractive for tourists to visit, cities must combine both creative bohemianism and economic success, or the so-called three T's - talent, tolerance and technology, which are at the base of the attractiveness of the most visited American destinations for urban tourism (Läpple, 2003).

Cities provide specific conditions for the creation of innovative tourism products through the formation of cultural knowledge that only affects a part of the social community in the context of new dimensions of work and lifestyle. This potential of cities will inevitably lead to their development.

3. TRENDS IN THE DEVELOPMENT OF THE URBAN TOURISM

The World Tourism Organization's long-term forecast for tourism arrivals growth predicts an annual average increase of 4.1% over the next two decades, with international tourist arrivals expected to reach 1.6 billion in 2020 (World Tourism Organization). The increase in tourist demand in cities has led to an increase in the popularity of urban tourism (Mazanek, Wober, 2010). This trend applies both to organized tourist trips and business trips.

Regarding the tourist patterns of consumption, there is some change (Becker, 2000) - from a yearly and long-lasting summer recreation to a few short trips that take place throughout the year.

In this sense, some of the most favored destinations are mostly larger cities and metropolises (Jagnow, Wachowiak, 2000), providing interesting tourist attractions, a wide range of entertainment and cultural activities, and attractive shopping facilities.

Moreover, the specificity of cities and the higher level of publicity contribute to the success of the tourist destination (Law, 1993). Growth dynamics is at the heart of urban tourism as a resource for development of the local economy. Consequently, we are seeing growing and increasing intercity competition, which is significantly affected by tourism.

However, the key factors for developing successful strategies are the good knowledge of the individual profile and the specific interests and characteristics of the city's visitors. Tourist destination policy should be based on reliable information on tourism trends, visitor activities and tourist mobility within the city.

It has to be accepted that urban tourism and its associated activities is a process that is fully driven by innovation and strong competition. On the other hand, new trends are observed in consumer behavior - tourists are interested in avant-garde destinations and tourist attractions as well as in the practice of new types and forms of tourism. Therefore, professionals in tourism must make a lot of effort in the continuous development of tourist infrastructure, providing innovative services. An example of this may be the organization of major cultural or sports events (Velikova, 2016).

We cannot overlook the fact that, thanks to the enlargement of the European Community, tourist flows in cities are increasing significantly faster (European Travel Commission, 2008).

Traditional cities are those that have not been created thanks to the development of tourism and where the industry has established itself in a changing political, economic, social and cultural environment. Tourism activities interact with other activities carried out in the city as elements of the system of flows and interconnections (Laws, 1993). In addition, cities represent dynamic networks of various tangible and intangible mobilities (Mazanec, Karl, 2010) - tourists, locals, economic activities, capital, investment, culture and knowledge, that constantly reformulate and change urban space, tourism organization, the city and the brand as a tourist destination.

From this point of view, not only the competitiveness of tourism in the city depends on the attractiveness of natural and anthropogenic resources and the quality of tourism-related facilities, but also the development of these network mobilities. The analysis and assessment of the competitiveness of tourism in a modern city requires the development of a model that takes into account the factors considered.

According to recent surveys, the cities considered as tourist destinations have been transformed from "locations" into "streams" (Castells, 2000; Manente, 2000), representing a complex network of relationships and interdependencies between different types of spatial and virtual mobility at local and global level. Spatial mobility is determined by various factors - population growth/decrease, migration, growth in the consumption of transport services and tourist travels, changes in the urban economy structure, tourist flows. Its development implies that cities are in constant motion, examples of which are infrastructure, economic activities, services, hotels, etc. created or closed as a result of this transformation. The movement of locals, employees, tourists and others is happening within the city and also undergoes dynamic development depending on the spatial planning and the dynamics of the city's development. In addition to material mobility, cities also feature intangible mobilities - capital, investment, information, knowledge, ideas, memories, photographs. The growth of these mobilities is accelerating thanks to the development of information and communication technologies.

Tourism is an element of this complex system of mobilities. In recent decades, the dynamic development of tourism flows also has an impact on city development in terms of physical geography of certain destinations. In this sense, tourist mobilities, both tangible and intangible, affect the dynamic development of other mobilities.

At the same time, non-tourist mobilities (eg increasing foreign investment, developing creative industries, reorganizing urban space, organizing cultural events in the city) influence urban tourism development (rapid emergence of new market tourism segments, expanding the scope of business tourism). They affect how tourists move around the city, how they perceive it and what they experience (Baerenholdt, 2004).

Consequently, cities can be considered as dynamic "places of movement" (Hetherington, 1997; Crouch, 2000). They are not fixed or stationary, but "playgrounds", which evolution depends in part on what is happening and what is being practiced in them (Haldrup, 2004). They can be considered as derivatives of the multiple network mobilities - capital, staff, objects, symbols and information (Sheller, Urry, 2002; Coleman, Crang, 2002). In this sense, there is also the question of turning cities into "playgrounds" or maintaining that position if it is achieved, which, however, depends on the constantly changing interaction between tourism and political, economic, social and cultural activities.

In other words, the development of the systems of mobility and the interactions in which they are located is important for the functioning of a city as a tourist destination, as well as for

maintaining its level of competitiveness, taking into account the impact on the city brand as a tourist destination, as well as its positioning on the international tourist market.

In conclusion, urban tourism is a complex phenomenon with growing importance for both cities and the tourist business as a whole. It provides opportunities to increase investment in certain regions, which also benefits the local population by increasing employment and locals' incomes. This type of tourism is a stable source of revenues for the cities. The efforts made by cities to develop tourism cause competition for attracting the same market share, which in turn requires many destinations to compete and gain competitive advantage in offering the same tourist attractions. If a city has the necessary natural and anthropogenic resources, it can be turned into a preferred tourist destination offering urban tourism.

BIBLIOGRAPHY:

1. Емилова И., в съавт., 2014. *Устойчиво развитие на градския туризъм*, сборник доклади, международна научно-практическа конференция България – Бавария, НБУ, С., с.215.
2. Baerenholdt, J., Haldrup, M., Larsen, J., Urry, J., 2004. *Performing Tourist Places*. Aldershot: Ashgate.
3. Becker, C., 2000. Freizeit und Tourismus in Deutschland: Eine Einführung. In: Institut für Landeskunde, (ed) *Nationalatlas Bundesrepublik Deutschland: Freizeit und Tourismus*, vol. 10, Spektrum, Heidelberg, pp. 12 – 21.
4. Besculides A., Lee M., McCormick P., 2002. *Residents' perceptions of the cultural benefits of tourism*. *Annals of Tourism Research* n. 29, pp. 303–319.
5. Castells M., *The Rise of the Network Society*, Blackwell Publishers, Malden Massachusetts, 1996.
6. Castells, M., 2000. The Space of Flows. In: *The Rise of the Network Society*. Oxford: Blackwell., pp. 407– 459.
7. Coleman, S., Crang M., (eds.) 2002. *Tourism: Between Place and Performance*. New York: Berghahn.
8. Crouch, D., 2000. *Places Around Us: Embodied Lay Geographies in Leisure and Tourism*. *Leisure Studies*, 19: 63 –76
9. European Commission, *Towards urban tourism*, http://ec.europa.eu/enterprise/sectors/tourism/files/studies/towards_quality_tourism_rural_urban_coastal/iqm_urban_en.pdf
10. European Travel Commission, 2008, *European Tourism Insights 2007 – Outlook 2008*. ETC Marketing Intelligent Report No. 1/2008.
11. Haldrup, M., 2004. Laid-Back Mobilities: Second-Home Holidays in Time and Space, *Tourism Geographies*, 6: 434 – 454.
12. Hetherington, K., 1997. *In Place of Geometry: The Materiality of Place*. In: Hetherington, K., Munro, R. (eds) *Idea of Difference*, Blackwell, Oxford.
13. Jagnow, E., Wachowiak, H., 2000. Stadtetourismus zwischen Geschäftsreisen und Events. In: Institut für Landeskunde, (ed) *Nationalatlas Bundesrepublik Deutschland: Freizeit und Tourismus*, vol. 10, Spektrum, Heidelberg, pp. 108 –111.
14. Judd DR, Fainstein SS. 1999. *The Tourist City*. Yale University Press, New Haven/London.
15. Kunzmann K., *Culture, Creative Industries and Urban Development*, Ashgate, London, 2004

16. Läßle D., *Thesen zu einer Renaissance der Stadt in der Wissensgesellschaft*. 2003. In: Gestring N et al. (eds), *Jahrbuch Stadtregionleske*, Leske & Budrich, Opladen, pp. 61–77.
17. Law, C. M., 1993. *Urban tourism: Attracting Visitors to Large Cities*, Mansell, London.
18. Law CM, 1992. *Urban tourism and its contribution to economic regeneration*. *Urban Studies* n. 29, pp. 599–618.
19. Laws, C. M., 1993. *Urban Tourism. Attracting Visitors to Large Cities*. Mansell. London.
20. Manente, M., 2000. Visitor and Mobility Management in an Urban Development Strategy, *Tourism*, 48 (3), 217– 222.
21. Master card, *Global Destination Cities Index*, <https://newsroom.mastercard.com/wp-content/uploads/2015/06/MasterCard-GDCI-2015-Final-Report1.pdf>
22. Mazanec Josef A., Karl W. Wober (Eds.), 2010. Cities to play: Outlining competitive profiles for European cities. *Analysing International City Tourism*, sed. Ed., Springer, pp. 171-189
23. Mazanec Josef A., Karl W. Wober (Eds.), 2010. Visiting activities and Inner city tourist mobility, *Analysing International City Tourism*, sed. Ed., Springer, pp. 213-225
24. Sheller, M., Urry, J. (eds), 2006. *Tourism Mobilities. Places in Play, Places to Play*, Routledge, London, pp. 131–142.
25. Velikova, E., *The Influence of the Events in Tourism*, *Journal of Science and Research*, Volume 1, 9/ 2016
26. World Tourism Organization, <http://www2.unwto.org/>
27. World Tourism Organization, *Global report on city tourism*, <http://platma.org/publication/global-report-city-tourism>
28. World Tourism Organization, *World Tourism Barometer*, <http://mkt.unwto.org/barometer>

THE ROLE OF TOURISM AND CULTURE IN CITY BRANDING: CASE STUDY OF NOVI SAD

Ana Jovičić Vuković⁹⁴
Jelena Damnjanović⁹⁵
Nataša Papić-Blagojević⁹⁶
Ivana Jošanov-Vrgović⁹⁷

Abstract: *In contemporary market conditions branding is a useful tool for differentiating and positioning cities and an important segment of the urban politics. From the aspect of tourism, city branding is a marketing concept whose primary purpose is to create identity of the destination which will be appealing and which will offer the highest perceived value to visitors and consequently it will help the destination ensure competitiveness on the market. Use of culture in city branding ensures that cultural resources are included in the urban planning as culture is an irreplaceable factor of promoting image and preserving the identity of the destination, its revitalization and local economic growth. With Novi Sad as an example, the first city in Serbia which won the title of the European Capital of Culture in 2021, it was pointed out to the process of transformation which has started and the future positive effects on the economy and the image of the city on a national, European and global level this prestigious title will bring.*

Key words: *Branding, tourism, culture, Novi Sad, European Capital of Culture*

1. INTRODUCTION

In modern market conditions branding is the basic concept of promoting local competitiveness. The purpose of branding is to improve the image of the destination as appealing and competitive among the desired target group, in order for it to further affect individual and institutional decisions which will benefit the destination, the city, the region as well as the country.

Destination branding is supposed to help find the way for the culture, history, economic and social development, infrastructure, architecture as well as other components combine into a unique identity which then would be “sold” [1].

Destinations and regions today can get and maintain competitive advantage, position themselves and create additional value and the world can become familiar with them only if there are convincing enough reasons. This is what maintains the community, attracts and keeps the people, organisations, events, visitors and institutions which are needed in order for the place to grow and develop [2]. Thus branding ensures recognisability, distinctiveness, individuality and makes the place irreplaceable in the consciousness of those who come to visit it.

⁹⁴ Novi Sad School of Business, Vladimira Perića – Valtera 4, Novi Sad, Serbia

⁹⁵ Novi Sad School of Business, Vladimira Perića – Valtera 4, Novi Sad, Serbia

⁹⁶ Novi Sad School of Business, Vladimira Perića – Valtera 4, Novi Sad, Serbia

⁹⁷ Novi Sad School of Business, Vladimira Perića – Valtera 4, Novi Sad, Serbia

City branding is not a necessity only for the economic reasons. Development of a city encouraged by branding positively affects demographic flows, enrichment of the cultural content and other important factors of the overall quality of life.

A powerful brand may create an image which will positively affect the community and its potential, create a consistent image of the place, develop and strengthen the local, regional and/or global consciousness and positioning of the city, eliminate negative stereotypes and make the destination more appealing or change its negative image.

Due to lack of relevant information or a clear image on a certain location, global institutions, media or individuals may, without the will of the city or the country affect its image by placing certain positive or negative information. City branding enables providing enough relevant information which prevents misinformation and creation of the public's erroneous opinion.

This is why branding is a way of strategic approach of managing the destination in order to achieve economic, social and political goals. The assumption of successful branding is respecting the historically founded identity of the place combined with the localised content [3].

2. TOURISM DESTINATION BRANDING

Destination branding is a marketing concept whose primary purpose is to create identity of a destination which will be appealing to the market and will help the destination to position itself on the market and ensure competitiveness.

Destination branding is incredibly important when it comes to tourism. Visitors, i.e. the users of services choose a certain brand only when the image that brand creates is in accordance with their needs, values and lifestyle. A well-created brand builds loyalty so it significantly decreases the risk present when buying services characterised by intangibility [4] [5].

A modern tourist is educated, ecological conscious, digitally literate and manages a lot of information which enables the tourists to explore the destination before they arrive and search for better alternatives. The 21st century tourist wishes to maximize the value within the searched prices and the existing knowledge. They estimate which offer will bring them the highest perceived value and respond to it while their satisfaction and the possibility of returning to the destination depends on whether it fulfilled their expectations.

Tourists will find more appealing those destinations which offer the highest value for the money invested or uniqueness, distinction which is impossible to replace or exchange for an alternative

Ana Jovičić Vuković is a lecturer at Novi Sad School of Business. She completed PhD studies in Tourism and Hospitality Management at the University of Novi Sad, Faculty of Sciences. She acquired a bachelor's and a master's degree at two different faculties in fields of Tourism and Hotel Management and Business Economics. She worked as research associate in projects funded by the Ministry of Education, Science and Technological Development, the Republic of Serbia. As a result of the projects she published more than 50 scientific papers in international journals and conferences in the field of tourism and hotel management. Her research interests are HR management, innovation management and sustainable tourism.



destination. It is clear that those destinations which fulfill both of these conditions will be more successful. This is why some tourist destinations must invent innovative and attractive promotional activities in order to outsmart the competition as well as draw attention of the target groups through maximum media attention [6]. In this sense, destination branding is differentiation of a destination in terms of offering unforgettable experience which is accordingly followed by a defined visual identity.

Destinations which win their share of tourists and visitors this way will become more attractive for investment to important tourist and hotel corporations such as international hotel chains. The entering of these companies will provide the destinations with benefits in terms of improving the quality of service, ecological and social standards but also promotion and recognizability on the global market [7].

Strategies used by cities and regions in order to highlight and develop differentiation in tourism can be grouped in several large categories [8]:

Iconic structures, which involve building monumental architectural buildings in order to attract tourists also known as the Bilbao-Guggenheim effect,

Mega events, i.e. organizing big events such as the Olympic games, the Capital of Culture, festivals, etc.,

Thematization - creating a theme as the basis for narrative, and

Heritage mining, i.e. using historical sources to develop tourism, transforming industrial zones into cultural/entertainment districts and organizing all types of events.

CULTURE AND CITY BRANDING

Cultural planning is a strategic direction in using cultural resources in order to ensure sustainable development of the community and the city. Cultural planning is not planning of the culture but ensuring that culture is omnipresent in the branding process. Use of culture in destination branding ensures that cultural resources are involved in urban planning as culture is necessary for promoting an image and preserving the identity of a city, its renovation and the local economic growth [9].

Use of culture in defining the identity of a city overcomes historical monuments, cultural heritage, creative heritage and a mix of sub-cultures which make the place unique and it is viewed within the context of lifestyle. The process of identification of cultural resources of the

Jelena Damnjanovic, PhD, was born in 1975 in Serbia. As the best student in her generation at the Department of Economics Jelena was the winner of the Royal Norwegian Award for the highest academic achievements in 2000. Following her undergraduate studies in Pristina, her graduate studies in international economics (MA and PhD) were in Belgrade. Currently, she is the director of the Novi Sad School of Business (Novi Sad, Serbia) and the professor of international business at the same School. Her major academic interests are in international economics, European Union and its enlargement, transnational corporations, foreign direct investments, globalisation, international trade and competition. Jelena is the author and co-author of four textbooks, more than 40 academic papers (including contribution to the Palgrave Encyclopaedia) and a participant in international and government projects.



community is cultural mapping, which is a prerequisite for cultural branding and marketing of a destination.

Cultural resources include: artistic and media activities and institutions, heritage of the ethnic minorities and other interesting communities, local festivals and other cultural events, tangible and intangible cultural heritage including archaeology, gastronomy, local history, dialects and customs, local image, natural and built surroundings including public and outdoor spaces, variety and quality of places where people can socialize such as restaurants, clubs, bars, educational institutions and research centers, local artistic products and services etc.

The success of cultural planning can be ensured only by promoting creativity and cooperation of all the interested stakeholders.

However, research has shown there is an insufficient involvement of the local community in the decision-making process as well as lack of inter-sector connection which has negative implications in terms of recognizing and protecting the cultural potentials [10], [11]. In order for the cultural heritage to be used for the process of branding and marketing of a destination, it is necessary to ensure that the local community but also the government on all levels, experts and scientists from different areas such as history, sociology, anthropology, psychology and marketing are involved.

4. CASE STUDY: NOVI SAD - EUROPEAN CAPITAL OF CULTURE 2021

The European Capital of Culture programme was founded in 1983 in order to use the European culture as means of bringing the communities closer together. The program was conceived as means of overcoming the national boundaries in two ways: by bringing the people of Europe closer in terms of culture by illustrating their mutual cultural heritage and simultaneously bypassing the central government by delegating the local authorities to highlight the authenticity and cultural heritage of each city. The cities chosen for this prestigious title show strong European dimension and encourage their citizens to be actively involved in contributing to a long-term development of the city.

In the recent years the educational dimension of this program is being particularly highlighted but also the way the program helps reviving the cultural and rich life of the city. This is why in the recent years the choice of the city for this prestigious title is being increasingly related to favourable marketing opportunity which ensures reviving the cultural life and all activities related to it (tourism, hospitality, services, transport), which ensures improving the image of the city on a national, European and global level. Being chosen for the European Capital of Culture helps the cities create a sense of community and achieve long-term benefits for their citizens and economies.

***Nataša Papić Blagojević**, PhD is a Professor of applied business studies and Deputy Director for student affairs at Novi Sad School of Business, Republic of Serbia. Occupational fields are Economic Statistics and application of statistical methods in economic research. As a professor, she teaches several subjects, such as Quantitative Methods in Business, Financial and Actuarial Mathematics and Business Statistics. She finished PhD studies at University of Niš, Faculty of Economics in June 2015.*



In Serbia, with its slogan ‘For the New Bridges’ Novi Sad is the first city which will be involved in this program and which has won the title of the European Capital of Culture in 2021. The project ‘For the New Bridges’ clearly points out to the consequences of the NATO bombing and the need for mutual connection and the parts of this project are ‘New Way’, the ‘Rainbow’, the ‘Freedom’ and the ‘Hope’.

Each theme has sub-themes (streams) to drive the projects – for the first part there are creative ambassadors – a group of artists from Novi Sad and Europe. The key segment of ‘the ‘Rainbow’ are the activities in the Chapel of Peace in Sremski Karlovci which involves a forum of the ministers of culture, philosophers and sociologists but also numerous discussions between (seemingly) opposed social subcultures. The aim of ‘Freedom’ is launching of the *Youth Creative Polis*, an urban creative zone in a momentarily abandoned part of the city which is meant to become the location for organising concerts, exhibitions and book promotions. The basis of ‘Hope’ involves arrangement of the districts in cooperation with the local community, revival of the buildings of the ethnic minorities and bringing artists from all around Europe to creatively transform public urban areas.

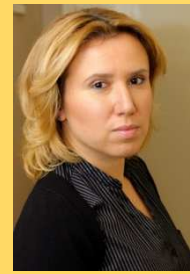
A study of how successful the European Capital of Culture program is, conducted regarding its 30th anniversary, showed that many projects and activities started within the program brought long-term results and truly revived the cultural scenes of the member cities.

The choice for the European Capital of Culture is a great opportunity for the cities to exchange their image and position themselves on the world map, attract more tourists and reassess their development through culture. Practically, winning this prestigious title involves significant investments and cooperation on all levels through building, reconstructing and adapting cultural institutions, industrial heritage, development and organization of numerous events.

Being chosen for the European Capital of Culture has long-term effects, not only on the culture but also in the economic and social sense, both for the city as well as for the region. Namely, a study showed that the number of tourists with overnight stays increases in the year when the city is the Capital of Culture by around 12% compared to the previous year.

For the period before and 9 months after winning the title, the number of tourist arrivals in Novi Sad is shown as well as the number of nights for domestic and foreign tourists, which is graphically shown on Figure 1 and Figure 2. In both cases there was an increase in the number of tourist arrivals and number of nights, both in domestic as well as foreign tourists and the trend of increase of the number of arrivals and stays is being expected in the following period as well.

Ivana Josanov-Vrgović is a lecturer at Novi Sad School of Business. She is the author of the large number of scientific papers and the author of numerous seminars and trainings in the field of communication, human resources management and organizational behavior. Also she is an active participant in numerous domestic and international conferences. In scientific research, she tries to prove the correlation between different aspects of individuals, groups and organizations and organizational performance, as well as the connection between high-quality human resource management practices and organizational performance.



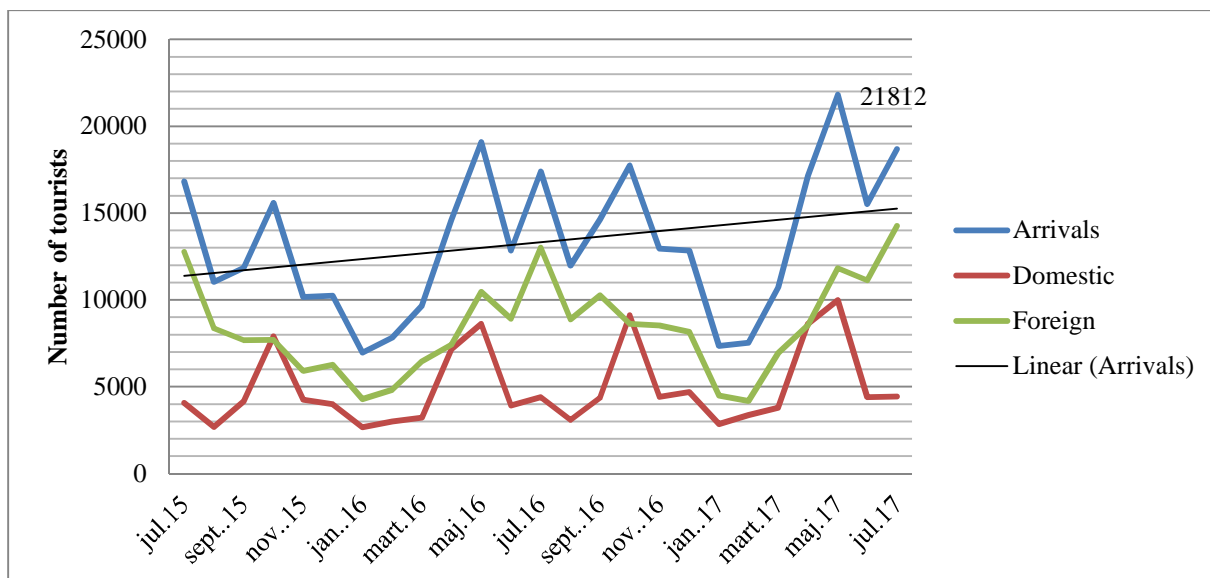


Figure 1: Number of arrivals, domestic and foreign tourist (July 2015 – June 2017)
 Source: Statistical Office of the Republic of Serbia

Between July 2015 and June 2016, a total of 146,677 tourists stayed in Novi Sad, while during the same period of the following year (July 2016 - June 2017) 167,638 arrivals were registered, which indicates an increase of 14.2%. In this period the number of domestic tourists increased by 13.4% from 55,627 to 63,063, while the number of foreign tourists increased by 14.9% from 91,050 to 104,575.

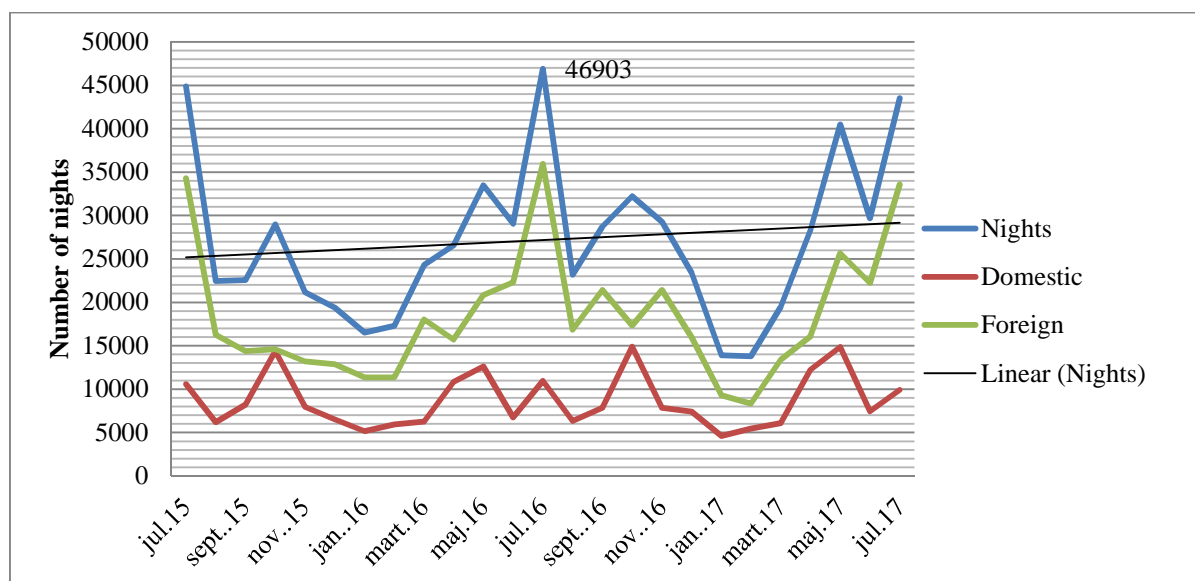


Figure 2: Number of nights, domestic and foreign tourist (July 2015 – June 2017)
 Source: Statistical Office of the Republic of Serbia

In terms of nights between July 2015 and June 2016 their number increased by 7.4% from 306,652 to 329,325 for the period from July 2016 to June 2017. During the same period the number of nights of domestic tourist increased by 4.5% from 101,425 to 105,988, while the number of nights of foreign tourists increased from 205,227 to 213,191 (3.9%).

5. CONCLUSION

Modern citizens, tourists and potential investors are more demanding, more informed, more sophisticated and connected and the competition among the cities is more intense. The already seen messages which refer to tradition, quality and history are losing the battle against the creative promotional campaigns. A brand – clear, irresistible and unique, helps destinations increase their value and create loyal customers who they relate to their characteristics, values and emotions through a unique interpretation.

Cities, places, regions and countries have started a territorial race for new investments, jobs, higher number of residents, students and tourists which is why creation of the most prestigious image is becoming an important segment of the urban politics today.

Positive tangible and intangible effects of branding are quite certain. However it is important to state that destination branding is not a short-term campaign but a long-term and demanding undertaking which requires time, knowledge, wisdom, patience and investments. Novi Sad as the first city in Serbia which won the prestigious title of the European Capital of Culture, will show that investment in branding strategy and the benefits from it may surpass the cost and the invested time and work which is why it is important that branding is treated as a long-term investment and a long-term orientation whose positive effects are still to be seen.

REFERENCES

- Zhang, L. Zhao, S. X. (2009). City branding and the Olympic effect: A case study of Beijing. *Cities*, 26(5), pp. 245–254.
- Mihevc, Z. (2015). Brendiranje gradova kao ekonomska nužnost. *Tehnički glasnik*, 9(2), pp. 198-201.
- Kalađurđević, M. (2011). Identitet Budve sa problematikom brendiranja grada. *Socioloska Luca*, 5(1), pp. 96-115.
- Beech, J., Chadwick, S. (2006). Introduction–The unique evolution of tourism as ‘business’. *The business of tourism management*, pp. 3-18.
- Vranješ, M. Jovičić, D. Gašević, D. (2014). Brendiranje zemlje kao turističke destinacije – Studija slučaja: Srbija, *Ekonomija: teorija i praksa*, 7(4), pp. 50-56.
- Morgan, N., Pritchard, A., Pride, R. (2007). *Destination branding*. Routledge.
- Jovičić, A. Koprivica, M. Petrović, M.: Značaj multikulturalnosti za brendiranje Vojvodine kao turističke destinacije, Zbornik radova 3, IV međunarodni naučni skup Multikulturalnost i savremeno društvo, VŠ Pravne i poslovne studije dr Lazar Vrkatić Novi Sad, mart 2013., Novi Sad, Srbija, pp. 434-444.
- Lidia, A. E. (2012). Using Culture in Defining City Brands. In International Place Branding Conference. Special Edition: Roots–Politics–Methods Conference Proceedings. Utrecht, the Netherlands. 20th and 21st of January, pp. 7-17.
- Kunzmann, K. (2004). Culture, creativity and spatial planning. *Town planning review*, 75(4), pp. 383-404.
- Terzić, A., Jovičić, A., Simeunović-Bajić, N. (2014a). Community Role in Heritage Management and Sustainable Tourism Development: Case Study of the Danube Region in Serbia. *Transylvanian Review of Administrative Sciences*, 10(SI), pp. 183-201.
- Terzić, A. Bjeljac, Ž. Jovičić, A. Penjišević, I. (2014b). Cultural Route and Ecomuseum Concepts as a Synergy of Nature, Heritage and Community Oriented Sustainable Development Ecomuseum „Ibar Valley“ in Serbia, *European Journal of Sustainable Development*, 3 (2), pp.1-16.

CITY BRANDING AS A KEY TO SUSTAINABLE DEVELOPMENT: THE CASE OF HERMOUPOLIS, GREECE

Roido Mitoula⁹⁸
Minas Iosipou⁹⁹
Panagiotis Kaldis¹⁰⁰
Eleni Sardianou¹⁰¹

Abstract: *This paper deals with the city branding in the city of Hermoupolis, Greece. The theoretical part of this study presents the concept, the importance and the critical success factors of the city branding in Greece as well as in European Union. There is also a special reference for the city of Hermoupolis. A survey was carried out and a sample of 150 questionnaires was collected. The aim was to recognize and promote the value of the city through its inhabitants. Finally, the results of the research presented the major stages of the construction, design and implementation of the city branding for the city of Hermoupolis. In conclusion, Hermoupolis appeared to be a city of high ability in values, which are mainly related to its cultural heritage and its particular architecture. This could be the focus of the city's branding design, since it appeared to be the main elements of differentiation and its competitive advantages over other tourist destinations.*

Key words: *Sustainable Development, city branding, culture, development, tourism, innovation*

1. INTRODUCTION

The term sustainable development is an evolving concept. Nowadays, it is an objective for local societies, the achievement of which contributes, among other things, to increasing the attractiveness of a city and its international projection. In this context, cities are engaging in the development of branding actions and their international projection. City branding has become a key tool for sustainable urban development and serves as a means of achieving competitive advantage in order to increase domestic investment and tourism. This goal of city branding is achieved by enhancing the local identity and identifying the residents with the characteristics of the city. City branding as a term incorporates a series of beliefs and of course, cultural, economic, social and psychological traits that are related to the city and its identity [1].

The design and implementation of city branding is based on concrete steps taking into account many different factors. This particular tool aims to differentiate the projected city and to show its values as competitive advantages over other tourist destinations. It aims, through the exploration of the market and the city brands by the city branding teams, to mobilize the appropriate leadership mechanisms and to promote effective partnerships with the responsible bodies of the city. In more detail, a key point is the balance between local operators and political leadership with the city branding design and organization teams, as well as the active

⁹⁸ Harokopio University, El.Venizelou 70, 17671, Kallithea, Greece

⁹⁹ Harokopio University, El.Venizelou 70, 17671, Kallithea, Greece

¹⁰⁰ ATHENS TEI, Agiou Spiridonos 28, Egaleo, 12243, Greece

¹⁰¹ Harokopio University, El.Venizelou 70, 17671, Kallithea, Greece

involvement of residents in this process, since they themselves will be representatives of the values of their city.

At the same time, the objective is to assess with the appropriate tools the capacity of the city, the elements that highlight and distinguish it and to explore whether these are used and exploited by the city. More detailed analysis and assessment of the characteristics of the city, such as its identity and brand name, as well as its culture, is needed, with the latter playing a key role in shaping the city's brand. Ultimately we would say that city branding incorporates a series of beliefs, natural, cultural, economic and social traits, which are related to the city and determine its identity.

The key to the success of city branding is the utmost collaboration of management, marketing and advertising agents, as well as of the public and private sector, together with the contribution of residents to the whole process. Vision and design and strategy teams are among the critical factors for the success of city branding, as they will provide the appropriate communication framework to showcase the dynamic distinct presence of the city and its assets as advantages over other cities. In conclusion, we would say that city branding refers to all the activities carried out to convert a city from a region to a tourist destination. Successful branding has the potential to turn a city into a place that people will want to live, work and visit [2].

In this research we will study the creation and implementation of city branding in the city of Hermoupolis in Greece as an innovative tool for sustainable development. For the study of the identity of the city of Hermoupolis, Syros, as well as a sample survey was carried out in order to capture the residents' view of the city's identity and advantages that could be an element of the city's projection.

2. LITERATURE REVIEW

Designers of projection of tourist destinations have focused on branding strategies to identify, differentiate and communicate the specific features of their city with the buying audience. The brand of tourist destinations is defined as a symbol, name, logo, word or other graphic that identifies and differentiates a destination and gives the promise of an unforgettable travel experience that is only related to the destination, which can also bring pleasant memories of experience in this destination [3].

Identity of a brand identity can create thoughts, recall memories and be recognized by tourists through a set of factors that surround it such as: a) brand image, b) brand character the perceptions of tourists, c) brand culture, d) brand personality and e) brand essence [4].

The image of a tourist destination is an important factor in the decision-making process of tourists to choose the travel destination [5]. A strong image of a brand contributes to strategic differentiation and matching in the minds of consumers [6]. The image of a destination is shaped by the perceptual capacities and emotional interpretations of tourists and is assessed by the prism of the knowledge and feelings of the tourists [7]. The factors determining the assessment of the image of a destination are the history, the culture, the natural environment, the infrastructure, the financial costs and the service of the tourists in one place and these are the ones that ultimately make up the travel experience for this destination [8]. Therefore, the image of a destination has a positive sign in the satisfaction of the tourist and his desire and subsequent visit to the place [9].

Designing city branding involves observing, evaluating and improving special destination features that are critical to the positive readability of the destination and its perceived quality. The special features of a destination like sights and special promotional packages are those that directly determine the tourist's opinion about this destination. With the ultimate, purpose the repetition of the visit and attracting other tourists with benefits in terms of all the economic activities of this destination [10].

The city, which will have a comparative advantage over its competitors, is the one that has managed to show its diversity, that is, the characteristics that make it stand out. Like a corporate brand, a city brand must have credibility, differentiation, smart and easy-to-understand message, excite local market carriers and residents. The involvement of residents and local carriers is particularly important, because if they are the same representatives of their city they will create a very positive feeling and atmosphere for visitors [11]. At the same time, place branding is the new term that includes 1) nation branding, 2) country branding, 3) regional branding, 4) city branding. The concept of place branding is defined as the set of strategies for the constructive public relations of a place in order to consolidate and convey the specific features of its identity. It is thus defined as the set of mechanisms designed to identify and organize all those features that impart the image of a place. It is the process carried out by public bodies and aims to create a variety of networks and associations in the minds of individuals of a particular target group based on the overall expression of the region created through the values and culture of its respective areas [12]. It aims at claiming business interests, natural resources and people in competition with other regions.

Consequently, city branding refers to all the activities carried out in order to convert a city from a region to a tourist destination. Successful branding has the potential to turn a city into a place where people will want to live, work and visit [2]. City branding refers to spatial, economic, hygienic and security issues, aiming at increasing the attractiveness of a city and its international projection. Cities compete with each other to attract new tourists and investors, as well as event organizations. City branding is a new urban development tool for a city by responsible carriers, where branding and identity have a key role [13]. City branding is the set of activities designed to optimally transform the tendency of urban functions to offer local residents, visitors, businesses and tourists [14]. A city brand is what will make a city more desirable. Rainisto [15] proposes a general framework for city branding and that this should focus on the marketing of business locations and in particular on the domestic investment of the site. More specifically, this framework places five factors at the core of creating the branding and marketing strategy of the site: the creation of a planning team, the creation of vision and strategic analysis, the creation of a place and image identity, partnerships between private and public sector and leadership.

Karavatzis [16] proposes a framework for communicating the image of the city. Everything that consists of a city, everything that takes place in the city and is made by the city. In the framework of city branding, all these interventions and actions are both functional and symbolic. According to Karavatzis [16] in city branding, residents are the most important target group. The Karavatzis [16] model shows that urban planning and development are key factors in shaping the city's image. This implies that such activities must be guided in part by people responsible for branding (as is the case with consumer products where the brand is supposed to lead to new product development). In this sense, the importance and the need for a framework that describes and clarifies the processes involved in city branding is equally important for tackling competition for resources, investment, tourism, and critical social issues such as social exclusion and cultural diversity [16].

Trueman and Cornelious [17] propose five areas of intervention in place branding and then city branding for the purpose of recognizing and diversifying the city:

- Presence - architecture and environment combined with local society.
- Purpose - at the limit level in a city.
- Rhythm - the speed at which the region responds to the conditions of the internal and external markets.
- Personality - created from the above in combination with the visual impact of the built environment.
- Strengthening or enhancing change - without this, local communities will not support and adopt the brand name of a city (city brand name).

Braun et al. [12] studied the role of residents in shaping and communicating place brands and consequently city brands and their involvement in the city branding process. In particular, they argue that there is an urgent need for citizen engagement and participation in city branding, as they simultaneously fulfill four different roles in this process. First, they are the group (target for the place marketing), and are an integral part of the city's brand. Along with their characteristics, they can act as ambassadors of the city's brand. They are at the same time citizens, so they are vital for the political legitimacy of the whole marketing effort.

Finally, with regard to e-city branding, it is defined as the implementation of the city branding process with the use of internet tools such as the website, social media and mobile applications. The website of the local government, the city's conferences and visitor bureaus, as well as the city's official websites or other official agencies are the main online tool for the implementation of e-city branding as well as the main promotion tool city brand in the city's stakeholders (residents, visitors, businesses). Initially, through them, the identity of the city is promoted, since they contain the logo and its slogan. Then, they include all the necessary information for the interested parts of the city. They include other links that promote the user to other websites related to the city, but also to social media.

Social media can help cities and their administrations in engaging citizens and trusting the public as they are basically means of interaction. They promote citizens' interactivity and participation. However, while personal social media are expanding globally, city administrations are often deprived of imagination, know-how, organizational flexibility and entrepreneurial mindset to make good use of them [18].

The strategy for city branding should be based on the choice of the stakeholders that affect the identity of a city. In this context, interviews with executives from major city organizations, from the private sector, tourism and civil society can be conducted in order to understand their views and views on identity, brand vision, long-term and long- short-term goals for their city. More specifically, coordination with the aim of creating a strong and diverse image and identity for the city, which will make a significant contribution to its awareness, will be based on four key actions:

- With the cooperation of city administrators and managers,
- With the cooperation of the private sector, businesses and new investors,
- With the active involvement of residents,
- With the cooperation between of all the agencies.

A prerequisite for the success of a city branding strategy is the proper management of the city's name by the stakeholders. The participation of representatives not only from the city government, but also from the private sector, tourism and civil society, is important for the

development and maintenance of a city's competitive identity. Laing et al. [19] point out that the cooperation of all stakeholders and stakeholders is key to shaping the identity of a city as a tourist attraction. Other factors highlighted by Laing et al. [19] are: (a) effective leadership, (b) the willingness of residents and stakeholders to promote change, (c) the trust among stakeholders, (d) the participation in decision-making, e) the procedure of minimizing costs and time and g) legislation [19].

The success of city branding requires a persistent and sustained effort from all stakeholders, and in particular, it is necessary to set up working groups responsible for the proper management and planning of the process [20]. Indicative groups are the process monitoring team, the guidance team to review and comment on the project electronically, the user group to comment on the project, to provide ideas and to inform third parties about the work of the competitive identity, the influence group to disseminate information about the work of competing identity.

3. STUDY AREA

The city of Hermoupolis is located in Greece, in the South Aegean Region, on the island of Syros. The geographical location of Syros in the Cyclades can be described as the center of Greece and a relatively short distance from the port of Piraeus, which connects it with the rest of the mainland. It is the 11th largest among the Cycladic islands and its population is 21,507, of which 10,392 are men and 11,115 are women [21].

As far as historical and archaeological evidence is concerned, Syros has archaeological finds of prehistoric times, more than 600 tombs in Halandrian and the ruins of houses in Kastri. It is also known as the home of philosopher Ferekidis, Pythagoras teacher and inventor of the first solar clock. During the Byzantine period its presence is not particularly evident. After the rule of the Latins, fortress settlements are created, most notably at Ano Syros, and they embrace the Catholic doctrine. The French protection and the establishment of the Capuchins give a European character to the island and help to raise the cultural level of the inhabitants, as is evident today.

With the Greek Revolution and the arrival of refugees, the city of Hermoupolis is being created. The city is organized and becomes the main lever of economic activity. With its commercial development and industrial flourishing, it becomes a model for public health and education, with public school institutes and the first Disinfectant. Then the city gets its name from Hermes, thanks to its sprawling commercial development [22].

Hermoupolis was the center of transit trade in the 19th century, characteristic of this property being the Lighthouse built at that time. Hermoupolis also owes its action to Greek sailing. Absolutely connected with the city is the "Neorion and the Machine Shop of Syros", which showed a special momentum in the shipbuilding sector. Even today, old tanneries and other industries dominate their imposing buildings and remind us of the potential of Hermoupolis in the 19th century. Finally, it is the homeland of the "Patriarch of Rebetiko" and an emblematic presence in Greek music, Markos Vamvakaris, a personality that each of us has connected with the island [23].

As far as Cultural Institutions are concerned, it should be stressed that the cultural life of Hermoupolis is particularly important and intense. The city has museums, a spiritual center, a

municipal library and the emblem of the cultural development of Hermoupolis, the Apollo Theater [23], [24].

The gastronomy of Hermoupolis is also important. The Syrian loukoumas are known to have Asia Minor roots, while their appearance on the island occurred in 1823 when the refugees from Chios arrived. Also, the popular product of the island is the halvadopita, made from local products, one of which is the syrian honey. Also, the Syrian sausage has a characteristic flavor and is particularly aromatic due to fennel. Still, the traditional cheese of the city is the San Michael cheese and comes from the village of the same name, Mihalis of the island which also has a protected designation of origin since 1996. Finally, the caper is formed by steep rocks and the rocky soils of the island, enjoys a special taste and texture as it is affected by the sunshine, the drought of the island and the sea breeze [23].

As far as customs and events are concerned, Easter is known in Hermoupolis as it is one of the most special Christian events in Greece. On Good Friday there is a tour of Orthodox and Catholic epitaphs with a meeting point at the central Miaouli Square. The absolute unification of the Orthodox and Catholic Church with the operation of the Resurrection, with sounds and flashes from the orthodox church and the passing of the statue of Jesus from the Catholic, is impressive. Also known are the Hermoupolias that are organized each year, the "musical routes in the streets of Mark" organized by the Municipality, in Ano Syros, as well as the carnival of Ano Syros, which is well known and through it revived customs from the past that are combined with masquerades, traditional dances and delicacies [23], [25].

The architecture of Hermoupolis is also special. No Greek city presents a uniform, time and typological architectural image as Hermoupolis. The city was born in the 19th century and stands out from all other provincial centers. Its early economic growth, ongoing contacts with European centers, and the fact that many European architects, Germans and mainly Italians worked there in the early years, contributed to creating a rhythm in accordance with the principles of "Romantic Classicism" but more influenced from Western standards [26]. Bavarian and Italian architects and later Greeks influenced by Romanticism and Classicism create the type of buildings we now call the Neoclassical Architecture of Hermoupoli [24]. The surrounding area of the city, especially Ano Syros, is distinctive, as it has the characteristic features of a medieval settlement developed in or around a fortress. The fortification of the houses is visible from Kamara, one is stacked next to each other and they are penetrated by small white washed streets, the "steadia" [22].

As far as the economy is concerned, primary production is low and limited to fertile areas of the island, mainly in the southern part. With regard to secondary production, Neorion is the core of a 550-employee workforce, yet it presents financial problems due to crisis and competition, leading to new solutions such as specialized type construction and urban real estate utilization. Also, Hermoupolis has small craft enterprises, with an average employment size of 2.5 people in the field of processing [27].

With regard to tertiary production, services are the largest part of the tertiary sector, with trade being second and followed by tourist activities (Cyclades Chamber of Commerce). There is also an ever-increasing employment trend in retail trade in Hermoupolis. It is noted that in Hermoupolis there are all the services of regional and prefectural level, of Ministries and DEKOs. Hermoupolis tourism has grown particularly in recent years. Tourists are mainly Greeks but also foreigners, especially during the summer months. The infrastructure for tourism service is quite good with a sufficient number of 44 hotels and other accommodation as well as

for entertainment with the numerous taverns and ouzeries that Hermoupolis has. There are also three exhibition halls in hotel rooms and one in the Cultural Center of the Municipality.

Lastly, since 1997 in Hermoupolis, the Casino operates, where 50 people are employed and the shareholding is shared by the Municipality [27]. In Syros there is mainly cultural tourism, with a keen interest in theatrical performances, cultural events, visits to archaeological sites, archaeological museums and other varieties. Still, religious tourism is observed with visits to Catholic churches and monasteries, many of which are located in Ano Syros. Finally, efforts have been made in recent years to develop congress and sport tourism, with the organization of various events [28].

With regard to accessibility and interconnection, the island's maritime link with the neighboring islands and Piraeus is made daily by passenger ships, with more routes during the summer due to increased tourist traffic. The airport is operated on a daily route to and from Athens International Airport. Land transport is limited to a local island level. The connection within urban network is achieved through public transport and via bus shuttle to the rest of the residential network [29].

Many projects funded by the European Union were also implemented in Hermoupolis, such as the URBAN Program, the Restoration Plan of the Port and the 2006 Decision where most of Hermoupolis is defined as a historical site. Lastly, we should mention the effort that has been made in recent years for the accession of Hermoupolis to the UNESCO World Heritage Sites.

4. RESULTS

4.1. THE STRATEGY OF CITY BRANDING IN CASE OF HERMOUPOLIS

Based on the previous theoretical framework and the axioms that have been developed, Hermoupolis' city branding aims to create a strong and distinct identity for the city and to increase the city's recognition in order to increase the traffic to the island through tourism with a driving perspective being a sustainable development, ie to flourishing the local economy with respect for society, culture and the environment.

With regard to branding opportunities for the creation of a strong brand, the following were identified in the case of Hermoupolis:

- Creating a unique identity (logo and slogan),
- Seamless branding for all organizations and events, Hermoupolis Guitar Festival, Hermoupolia,
- Supporting a brand, where feasible, Aegean Ball Festival,
- Linking the new city identity to existing brands, Hermoupolis,
- Organization and promotion of events according to brand values.

The brand's core values have been identified in terms of competition, the basic need of the public and the necessary condition for brand promise to become reality. More specifically, important values of the identity of the city of Hermoupolis are characterized:

- Unique Architecture: Hermoupolis is the city that is totally interwoven with its particular Architecture, the city of Romantic Classicism.
- Cultural life: Hermoupolis has an intense cultural life, with events that are constantly multiplying.- Religious peculiarity: Catholic and Orthodox coexist harmoniously and the atmosphere is characterized by religiosity and respect for diversity.

- The city of loukoumi and spicy cheese: The city known for its loukoumia and the famous cheese of San Michael.
- City of God Hermes: It took its name from God of Commerce, having experienced a great commercial flourish.
- Shipyard and Industry: Known for its shipyards and industrial development in the 19th century, with images that even today travel to its old glamour.
- Ano Syros: An interconnected fortress settlement with the city that proudly rises from the harbor and has to "narrate" its connection with the European history.
- Markos Vamvakaris: The great "rebetes" with the song "Frankosyriani" fills images and sounds from Hermoupolis and Syros to the travelers.

In the light of the strengthening of the Hermoupolis brand both internally (for its residents) and externally (for tourists, investors, potential residents) special emphasis is given to the organization of cultural events. Hermoupolis is completely interwoven with the organization of events of a cultural nature. After investigation, 4,419 events per year, of any character, were estimated, with 889 being cultural, such as theatrical performances and musical events, and a growing number of sporting events.

The events are a key foundation for the development of a strong city branding, as was shown by the responses gathered, because tourism was considered the main pillar of economic activity. It has also been stressed that tourism has to showcase the cultural heritage and the romantic mood that the city exudes its inhabitants and visitors. Therefore, cultural events and festivals could be improved and become better co-ordinated. Events and Festivals should focus on the city's culture, with the aim of increasing awareness and visibility. Thus creating a city profile with many different festivals, since it has the appropriate cultural elements in order to frame them.

As far as design parameters are concerned, the new identity of Hermoupolis must communicate the values of the brand as a whole (name, slogan, logo, graphics, applications). Its slogan is the first point of communication and must have a simple and comprehensible message that builds an emotional bond. The slogan is one of the primary and most important elements of corporate identity. Its aim is to "explain" the brand vision simply and comprehensibly. It accompanies the name of the city of Hermoupolis, placing the brand in the public consciousness and between the competition. Proper use and visibility contributes effectively to the brand's empowerment [30].

The slogan that was singled out from the questionnaire that fits best in the city is "HERMOUPOLIS, THE CENTER OF AEGEAN". Thus, the city's capacity is estimated among the other cities of the other islands. It is better suited to respondents that this city is a center of diversity and service, as the visitor and permanent resident can enjoy cultural events, European glamorous buildings, sports events, religious culture, the peculiarity of Ano Syros and the musical trips of Mark Vamvakaris "rebetiko", along with the tastes of the famous loukoumi, but also to carry out the issues to be solved in the public and private centers provided by the city as the capital of the Cyclades and also attend the University Foundation available. Concluding, this city is a center in the minds of the people with the implications of the capacity that this word hides.

The third step of the methodology is the creative design of the new city identity. The design of its visual identity can be divided into phases of international environmental research and related discussions, good brand management and development applications of the final solution. The

suggestion that could be implemented is to visualize the slogan to include a plan with the City Hall, the work of Chiller and a trademark of Hermoupolis for many years.

It is also what was distinguished in the answers to the questionnaire “why you know the city of Hermoupolis”. It is therefore interwoven as an image to people, permanent residents and visitors, Hermoupolis for its Town Hall. It is then justified first, by the imposingness of the building, and second that in the courtyard of this building, Miaouli Square, the important events taking place in the city are played and are often transmitted as a first image by the press and the media.

As a suggested idea, it could be a plan with the City Hall, in which its windows and doors will be filled with images with the distinct and different characteristics of the city, which will highlight it as "THE CENTER OF AEGEAN".

As regards the use of e-city branding as a technological tool and its contribution to the sustainability of demand, we should mention the existing Web sites. The official website of the municipality is www.syros-ermoupolis.gr enriched with information about citizens and visitors as well as administrative services, many of which are now also available online. There are also similar links on the websites of other official agencies in the city and official events. Finally, there are web pages such as www.syrostoday.gr, www.syros.gr with enriched material.

Once the official city identity has been established, city branding policy is required online, because it has a single framework. There is a mobility regarding the cooperation of the municipality with the professionals of the private sector, mainly in the context of the events and actions of the city, which could be further enhanced by sources from the rest of Greece or abroad.

Based on the existing infrastructures related to the e-city branding strategy of the city of Hermoupolis and based on the analysis of the factors of the model, it is observed that:

- the web application design and management team might need to be strengthened with more specialized staff or reorganized to become more active,
- the official site of the Municipality of Hermoupolis, although enriched with much information and material concerning citizens and tourists of the city, is not quite useful, since the distribution of its content is peculiar. The main menu does not follow the structure of the successful New York and Paris websites, which are examples of good guidance,
- on mobile applications, the mobilization of city leaders is slow in relation to the ever-growing percentage of citizens and tourists using smartphones,
- there is now a single e-city brand management policy (last year in particular),
- the cooperation of the municipality with the private sector needs further strengthening, as is the case with New York and Paris,
- it is necessary to use the appropriate tools to measure the effectiveness of web applications in implementing the e-city branding strategy.

We can see, therefore, that out of the seven main factors of the e-city branding model, the two do not apply at all (social media and mobile applications), for the latter we do not know whether a relevant tool for measuring the effectiveness of the web pages is used and the rest are at an early stage in their implementation.

The same conclusion came from the results of the questionnaire, in which it appeared that residents, visitors and tourists gave the answer that the city's visibility on the internet is

moderate, so there is need for organizing and designing a single e-city policy branding aiming at the development of city branding.

From the above we conclude that there is a lack of interaction with the inhabitants of the city, since the presence of blogs and social media that form the basis of Internet interactivity is non-existent. In contrast, in the case of New York and Paris, interactivity exists to a large extent and is an important parameter of their popularity.

4.2. STATISTICAL ANALYSIS OF LOCALS' PERCEPTION TOWARDS THE CITY BRANDING OF HERMOUPOLIS

For the needs of the work, an on-site survey was carried out in the city of Hermoupolis, the capital of Syros. The survey was conducted in the period July - August 2017, on a sample of 150 people living in Hermoupolis. The aim was to explore the inhabitants' views on the features that the city possesses and to compose its true image-identity. The survey included the completion of a questionnaire by people, which included 22 questions. The questionnaires were filled in with personal interviews by the researchers. The questionnaire consisted of questions aimed at capturing the opinion of the inhabitants about the particular characteristics and identity of the city of Hermoupolis. The results of the frequency distribution for the opinion of the residents on the city branding of Hermoupolis are presented below.

In particular, the question whether they know the term City Branding, 56% of the sample responded negatively, 38% answered positively while 6% did not express uncertainty. In other words, for the sample of the inhabitants of Hermoupolis, city branding both as a terminology and as a strategy is an unknown concept. When questioning what element they consider to differentiate Hermoupolis from the other Cycladic cities, 71% of the respondents answered that it considers the city's particular architectural and cultural heritage, an answer in some way expected since the city of Hermoupolis and Ano Syros have unique architectural beauty. Secondly, 19% was that it has the largest number of public and private services and this is justified since it is also the capital of the Cyclades. Thirdly, in the preference of the respondents, is the easy transition from the port of Piraeus to 7% and finally with 2%, the presence of a part of the University of the Aegean.

The overwhelming majority (81%) of respondents believe that the image that the visitor views the city is positive. This is not believed but only 2% of the respondents, although 17% did not answer with certainty. As shown below, 18% of respondents consider trade to be a very important economic activity. 73% of the people consider that tourism is the most important economic activity of Hermoupolis, but also the island as a whole. 6% consider the provision of services as a fairly important activity, while the agricultural sector and some other economic activity in the region occupy only 1% and 2%, respectively, in the preferences of the respondents.

The question of where interventions within the city could be of good help to economic activity, the emergence of the cultural heritage comes first with 72%, having a big difference from the others. Second is the introduction of technological innovation in the various structures of the Municipality with 15%, while 7% believe that the quality of life of the city's inhabitants should be emphasized, as well as the protection of the environment with 5%. Finally, only 1% responded that any interventions should be made in the health sector.

The following is how the image of Hermoupolis is evaluated by Internet users. 51% of respondents consider that the city's visibility is moderate, 25% consider it to be sufficient. While 15% and 9% respectively responded that it is inadequate and totally inadequate. Finally, it is remarkable that none of the respondents responded that Hermoupolis online promotion is very good.

In the question, in which target-groups the city's promotion tactics should be addressed to, the percentage seems to be shared. First, with 35% of the respondents are tourists from abroad, while 27% are residents of Greek cities. Then, 20% of respondents believe that investors from emerging markets such as China and Russia should be attracted. The third and fourth answer with 10% and 8% respectively are those who believe in attracting young people and families either for tourist purposes or for permanent establishment. Regarding whether respondents believe that access and interconnection in Hermoupolis is easy and adequate. The majority of respondents responded "good" with 53%, then 17% said that access to and interconnection to the island was "modest". Finally, "Very much" and "not enough" gathered 12% each, while 6% of the sample responded "too little".

Regarding the reasons why Hermoupolis is considered to be a competitive destination, the views of the residents are presented below. According to the sample, the cultural heritage of Hermoupolis is 52%, the second choice with 21% is the easy access to the island, either from the port or from its airport. Thirdly, the island's natural landscape comes at 7%; fourthly, 11% of the sample's preferences are reasonable prices for catering and catering. Fifth, 6% is the quality of the tourist services offered by the city. Finally at a very low level (just 3%) we find entertainment in the city.

The first image that comes to the minds of the respondents with the sound of the name of Hermoupolis. The largest percentage (51%) responded to the particular architecture of the city, then, with a small difference from the rest of the answers, came the churches of Hermoupolis, with 16%. With 15% and 12%, we meet the beautiful sights and beautiful beaches of the island. Finally, with just 6% of preferences, the industrial area of Neorion.

On the question of what is characteristic of the city of Hermoupolis, respondents answered 27% of the town hall, then 14% opted for the neoclassical buildings of the city and the Apollo Theater respectively. 10% chose "For Mark Vamvakaris", a well-known Greek composer. Finally, the remaining percentage was shared by 9%, 8% and 7%, respectively, in the answers of the loukoumia of Hermoupolis, Neorion and as a service center of the Cyclades.

Respondents were asked to answer a question about the identity that Hermoupolis should bring to the world. With much of the rest of the answer options, 61% believe in the emergence of Hermoupolis as a romantic city and a particular architectural heritage, while 13% consider it an ideal destination for summer holidays. Then, according to the respondents, the identity to be displayed is "the city of Neorion and industry". At a lower rate (8%) we find the choice as the city of Mark Vamvakaris. Finally, with 6% and 2% we come across the answers, the city of the Loukoumi and the city of administrative services and health services.

Finally, in the question about the slogan that would best suit the city of Hermoupolis, the largest percentage (41%) of the respondents' preferences was the proposal "HERMOUPOLIS, THE CENTER OF AEGEAN" as the slogan that could be used for planning and the promotion of the identity of Hermoupolis.

5. CONCLUSIONS

The present work concerned the use of city branding as a tool for achieving sustainable urban development by looking at the importance of all aspects of sustainability in the view of residents about the identity of a city. As a case study, the city of Hermoupolis was chosen. The survey confirmed that in order for a city to acquire and maintain its competitive edge, "they should emphasize the distinctive features of each destination and implement an aggressive marketing policy with long-term planning and always placing the consumer at the heart of this strategy". In this respect, the strategy of a marketing plan for a destination city should be based on understanding of the needs of the tourist-consumer, the improvement of the tourist products / services provided and the encouragement of the loyalty of the visitors " [31]. Regarding the importance of the sustainable development sectors, it emerged that the axis of the economy and of the political actions had, as a result of the sampling survey, the largest gravity of the identity of the city than the environment or the social dimension.

Strategic planning for the city of Hermoupolis in order to achieve sustainable development should focus on:

1. Promoting accessibility to the city.
2. Strengthen infrastructure for the movement of visitors within the city.
3. Co-ordinating of the tourist product to promote the activities of the tourists and their best possible service.
4. Consolidating the image of the city as a source of its competitive advantage.
5. Create new attractions for visitors and capitalize on existing ones.
6. Enhancement of balanced development (sustainable urban tourism).
7. Determine the environmental impact of visitors' arrival and find ways to reduce them.

In conclusion, the city has unique identity features that differentiate it from other cities. These unique features can be leveraged in order to lead to long-term sustainable growth. Hermoupolis is a city that has high-capacity brands that focus more on its particular architecture and cultural heritage. The direction of organization and design of city branding should focus on the emergence and enhancement of its cultural character and architectural beauty, as it rightly appeared to be what differentiates it from other tourist destinations and determines its identity. A systematic planning for the sustainable development of the city of Hermoupolis and the formation of a city branding should be based on the recording and evaluation of the specific characteristics of the area as well as the tourist and general infrastructures of the city of Hermoupolis and on the shaping of a specialized marketing plan of the area based on the particular characteristics that make up her identity.

REFERENCES

- [1] Kavartzis, M., Ashworth, G. (2005) City branding: An effective assertion of identity or a transitory marketing trick?. *Tijdschrift voor Economische en Sociale Geografie*, 96: 5, 506-514.
- [2] Jones R. (2008) *The Big Idea, Why every company needs one.*
- [3] Ritchie, J. R. (1998) *The branding of tourism destinations: past achievements and future challenges.*
- [4] Kaplanidou, K., Vogt, C. (2009) *Destination branding: Concept and measurement.*
- [5] Konecnik, M. (2010) *Extending the tourism destination image concept into customer based brand equity for a tourism destination.*
- [6] Keller, K. L. (2003) *Strategic Brand Management. Best practice cases in branding.*

- [7] Baloglu S., McCleary K. (1999) A model of destination image formation: *Annals of Tourism Research*, p. 865-897: Implication for resources, p. 5-12.
- [8] Beerli A., Martin J. (2004) Factors influencing destination image: *Annals of Tourism Research*, p. 656-680.
- [9] Bigne, J., Sancez, M. (2001) Tourism image, evaluation variables and after purchase behaviour: Inter relationship. *Tourism Management*, p. 606-615.
- [10] Zabkar, V., Dmitrovic, M., and Dmitrovic T. (2010) Modeling perceived quality, visitor satisfaction and behavioral intentions at the destination level. *Tourism Management* p. 537-544.
- [11] Maziotis., Kapopoulos. (2008) Article entitled "The Art of Branding a Town". Available in: www.enthesis.net (In Greek).
- [12] Braun, E., Kavaratzis, M., and Zenker, S. (2010) My City – My Brand: The Role of Residents in Place Branding. 50th European Regional Science Association Congress, 19-23 August.
- [13] Citybranding.gr, [blog] Available at: <http://www.citybranding.gr/2012/04/brand.html>.
- [14] Van de Berg (1999) J.P «Models for Warehouse Management: Classification and examples», *International Journal of Production Economics* p. 519-528.
- [15] Rainisto, S. K. (2003) Success Factors of Place Marketing: A study of Place Marketing Practices in Northern Europe and the United States. Doctoral dissertation, Helsinki University of Technology, Institute of Strategy and International Business.
- [16] Karavatzis, M. (2004) From city marketing to city branding: Toward a theoretical framework for developing city brands. *Place Branding*, 1 (1), pp. 58-73.
- [17] Trueman, M., Cornelius, N. (2006) Hanging Baskets or Basket Cases? Managing the Complexity of City Brands and Regeneration In: Working Paper Series of Bradford University School of Management, June 2006.
- [18] Schorr, J., Stevens, A. (2011) Local democracy strengthened by new social media platforms. [online] City Mayors. Available at: <http://www.citymayors.com/marketing/social-media-cities.html/>.
- [19] Laing, J., Moore, S.A., Wegner, A., and Weiler, B. (2008) Identifying Success Factors behind Partnerships for Managing Recreation and Tourism in Urban Fringe Parks. *Annals of Leisure Research*, 11:1-2, 101-122.
- [20] Karahalios, N. (2006) Suggestion: "Creation and management of cultural - tourist areas in medium - sized cities. European experience and best practices", Kavala, 24-25 November. Available in: <http://www.kavalagreece.gr/wp-content/uploads/2008/10/karaxali.pdf> (In Greek).
- [21] EL.STAT: <http://www.statistics.gr/portal/page/portal/ESYE> (In Greek).
- [22] Operational Program of Syros - Ermoupolis 2012-2014 (In Greek).
- [23] Municipality of Syros – Ermoupolis: <http://www.syros-ermoupolis.gr/> (In Greek).
- [24] Agriantoni, X., Fenerli, A. (2000) Ermoupolis - Syros, Historical Travel, Athens, Olkos (In Greek).
- [25] Syros Today: <https://www.syrostoday.gr/> (In Greek).
- [26] Travlos, I., Kokkou, A. (1980) Ermoupolis. The creation of a new city in Syros in the early 19th century, Athens: Emporiki Bank of Greece (In Greek).
- [27] Hatziparaskevaidis, A. (2008) Sustainable development and awareness raising: The case of Syros - Local Union of Municipalities and Communities (TEDK) of Cyclades, Ermoupolis 2008 (In Greek).
- [28] Rural Development Operational Program 2014 - 2020: Syros (2010), South Aegean Region: General Directorate of Regional Agricultural Economics and Veterinary (In Greek).

- [29] Operational Plan for Rural Development 2014-2020, Sustainable Islands Network – Dafni. (2006) Syros, Research project: Sustainable Development Survey in Syros, Scientific Support: National Technical University of Athens - Interdisciplinary Institute of Environmental Research, Athens (In Greek).
- [30] Lahav, T., Avraham, E. (2008) Public relations for peripheral places and their national media coverage patterns: the Israeli case. *Public Relations Review*, 34, 230–236.
- [31] Koutsoulianos, X. (2006) Tourism is a key factor in regional development. *Administrative Update*, No 36, pp. 1-6. Available on the website http://www.specialedition.gr/pdf_dioik_enim/pdf_de_36/KOYTSOYL.pdf (In Greek).

TOURISM UNDER THE ARCHITECTURAL PERSPECTIVE OF VACATION INFRASTRUCTURES

Myrto Stenou¹⁰²

Abstract: *The article focuses on how and when the human need of escaping from the metropolis and the urban building environment was born. How was the Right to the Sea established to such an extent, that today citizens consider coastal vacations as a “must do” almost every summer? The research aims to investigate how the pattern of north-to-south summer migration for vacations was expanded in Europe and what kind of suburban mutations has produced. After the Second World War, consumerism increased dramatically, forming a model which favored the growth of vacation infrastructures as people could gradually afford their departure from town.*

The design of the territories outside the metropolis, called the extra-urban (according to CIAM V entitled “Logis et Loisirs”), is placed in the limelight of the present article. Architects illustrated how the countryside can be constructed as an (urban) infrastructure, even though for a large part of city dwellers, natural landscape was still conceived as unspoiled by the ongoing development of the metropolis. In order to revitalize underdeveloped regions, states proposed to architects to transform the seacoast. European countries encouraged this trend of mass tourism through state initiatives such as touristic investments. The projects for leisure and holidays were perceived as an alternative way of urban form under new premises. A serial repeat of the dwelling typology resulted in large figures of dense urban tissue. Have architects succeeded to offer to dwellers an experience far away from the city or have they copied a beautified image of the urban condition? In the beginning, vacation complexes maintain their character as a distant mirror of the metropolis. Nevertheless, the proliferation of second home structures has gradually reduced the distance between city and suburban holiday infrastructures. The obvious limits which distinguished the metropolis from the existing vacation region will disappear in the near future since both towns and vacation zones are increasingly expanding.

Key words: *vacation home, suburban development, tourism, escapism, seacoast*

1. INTRODUCTION

The crystallization of images of summer vacations in our conscience, make them take for granted in a natural way, as if they have always been like this [1]. Nevertheless, **in the eve of twentieth century**, observing the photographs you may be surprised to see **women with long dresses** holding an umbrella and **men in evening suit** or wearing a hat. The idea of engaging with the water was tolerated in the case of children, but there were few adults committing such a thing. No more than a decade later, the taboo no longer exists.

During the 20's and the 30's, although the sea is appreciated as a recreational place, the first baths belong to the aristocrats, which spend their time in luxurious resorts. Gradually, the gap between entitlement and access to vacations narrowed. This is a result of politico-economic changes which led for the first time to the emergence of more reasonably priced

¹⁰² School of Architecture, National Technical University of Athens, 42, Patision street, 10682, Athens, Greece, Corresponding author: 8, Korizi street, 17455, Alimos, Athens, Greece

accommodations. Vacations were **established as a political right in the 1930's**, but only after the recovery of the 2nd world war wounds, people start to enjoy the right.

2. SUMMER VACATIONS AS A POLITICAL RIGHT

A turning point is the legislation of paid vacations in France in **1936** by **Léon Blum**. The famous prime minister, enacts the paid vacations as a part of a new social contract. Politics of labour fortified 40 hours per week and 15 days of paid vacations. It is the first time where workers and salaried employees stopped working for a particular period of the year. In the context of an emerging welfare state, **the right to the Sea** is ensured.

Paid vacations were promoted along with other social policies such as social housing, family allocations etc, **as a right for everyone**. The French government facilitated access to low-cost accommodations such as “*auberges de jeunesse*” by arranging a 40% discount on ticket costs.

The first postwar decades, consumerism increased dramatically in Europe forming a model which favored the growth of vacations infrastructures because **people could gradually afford their departure from town**. In France for example: *...only 5 to 10 percent went on vacation in the mid-30s, by the 1980s over 60 percent set off the beaches, countryside, or their second homes during the summer vacation season* [2]. The aristocratic era when only wealthy leisured elites sojourned in grand hotels, is over.

Following the European reforms on labor law, the first provisions establishing paid leave, were adopted in Greece in **1945 for employees in the private sector** and in **1955 for the public sector** respectively. The “**Greek National Tourism Organisation**” was founded in 1929. In the '50s, tourism in Greece exists under state tutelage, to organize its tourist offering. The fruits of those efforts are to be seen in the “Xenia” chain of hotels and the units of the “Astir” corporation [3].

3. SUMMER VACATIONS AS A RESULT OF PSYCHOLOGICAL AND MARKETING PARAMETERS

Vacations are not restricted to the political context, as further investigation into the question forms a themed theoretical discourse around the origins of human need to escape. In parallel with the development of metropolises in the 20th century, a simultaneous need for escaping from them is born. The consumer fantasises about his personal vacations home and his private transportation mean. *Going on vacation in one's car enacted a cultural convergence: both vacations and cars could signify mythic escape, personal autonomy and displacement in time*

Myrto Stenou is currently a PhD candidate at the School of Architecture of the National Technical University of Athens. In parallel, she works as an architect at “b-group” office in Athens and has lived in Lausanne/Switzerland for three years working on housing projects. She graduated top of her class in the post-master degree entitled “Design of Architectural Spaces”, during which she was awarded with two scholarships of excellence. She has a three-year experience as a teaching assistant at architectural studios. Furthermore, she studied in Paris through the Erasmus programme at “Ecole Nationale Supérieure d'Architecture de Paris La Villette”. Her academic interests focus on the relations among philosophy, tourism and architecture under the perspective of escapism.



and space [4]. Natural landscape is the perfect site to establish a second home which remains in an open dialogue with the apartment in town.

The first decades following the war, consumerism increases dramatically forming a model which favors the growth of vacation products and infrastructures. The tourist industry blooms and as a consequence, summer accessories are highly demanded and hotels or summer houses are massively constructed. According to Tauber: *Peoples' motives for shopping are a function of many variables, some of which are unrelated to the actual buying of products* [5]. In this context, the purchaser does not buy just a second home for holidays; he buys the whole idea of escapism that comes with it.

Mass circulation films and magazines help to visualise the norms of vacations of each era and decode them. The proliferation of cultural representations of the vacations can be found for example to Godard's, "Les Vacances", to Tati's "Les Vacances de Monsieur Hulot", to Vadim's, "Et dieu créa la femme", to Dassin's, "Never on Sunday", to Cacoyannis's, "Zorbas the Greek" etc. Films exert seductive power within the social imagination. Touristic imaginaries have become transnational and have been empowered by imagined vistas of mass-mediated master narratives. Vacations commodification was realised by advertisements of every kind promoted through press, television, radio and films, which can help the researcher to index the consuming ideal of each period.

4. SUMMER VACATIONS AS AN ARCHITECTURAL PROJECT

The 5th CIAM-V will be, in architectural terms, the starting point as it coincides with the legislation of paid vacations. It took place in 1937 in Paris under the motto "Dwelling and Recreation". The house was examined as an inseparable issue of **leisure**. Another question that was crucial was the design of the territories outside the metropolis, called the "**extra-urban**". *In the minutes of the 5th CIAM the "rural" and the "natural" are understood as loci for the modern practice of mass leisure and tourism* [6].

Le Corbusier's project entitled "*Le pavillon des temps nouveaux*" expresses clearly the tendency of the period. A tent construction at the Porte Maillot was built in 1937 in the margins of the Paris World Fair. In 1969, the team of Candilis-Josic-Woods architects, so-called Team 10, undertook the design of a coastline of 180 km, commissioned by the Ministry of Equipment. In order to revitalize underdeveloped regions, architects were asked to transform the seacoast. It is significant that for example, **Team 10** during the period '56-'70 had elaborated 90 projects on mass tourism. Natural landscape was conceived as unspoilt but simultaneously **architects were hoping to re-design the urban condition under new premises**.

However, till nowadays an organised resort on the French Mediterranean coast is still in the spotlight. **La Grande-Motte** is a popular southern coastal resort with 2 million visitors each year. It is known for its large pyramid-shaped concrete buildings. Architect **Jean Balladur** master-planned La Grande Motte in the mid-60's as a place where the Northern European middle-class, which at that time was beginning to visit Spanish destinations en masse, could vacation closer to home.

Architects managed to design mass tourist units for the majority of people, but in the same time they were called to realize private resorts for exceptional clients. A typical example is **Casa Malaperte** in Capri in Italy (1938). Here the architect A. Libera built 32 meters above the sea level the residence, literally on the brink. Far enough from the town and its people, the house

looks like an object in the middle of the wild surroundings. On the other hand, Le Corbusier has tried to design the return to the basic life needs. The architect, who claimed through his work to host all the modern habitation dreams, designed for himself only a hut in Cap-Martin at Côte d'Azur. The famous “**Cabanon**” consists of prefabricated elements and integrates all the standards of minimalist way of living that the architect represented.

Looking closer to Greek cases, vacation houses were similarly established mostly ex-nihilo. Seaside suburbs of Athens have offered new ways of life that literature or films have immortalized: a privileged way of life where the Greek and international urban elites discover the benefits of good sea air and heliotropism. The **Astir Facilities**, the **Green Coast Sounion bungalows** designed by Provelengios, tourist kiosks, motels, organized beaches and Greek National Tourism Organisation’s camping could provide a reference concerning public spaces for summer holidays. On the other hand, **the residence of T.Zenetos** in Athens-Kavouri (1959), **the summer home in Anavyssos** (1961) by Konstantinidis and by Valsamakis could be some architectural examples of private coastal residences.

In order to draw reliable conclusions a comparative approach is used. The article investigates the dipole of mass tourism versus individual vacationer and compares large infrastructural scale to small human scale resorts. Comparing these contrasting pairs, a researcher has to give prominence to architectural features linked with social distinction and cultural difference. The categorization is not obvious since the architectural forms incorporate symbolism through which the utopia of experiencing an environment of higher social class is feasible.

5. SUMMER VACATIONS AS AN EXPANDING FACTOR OF THE METROPOLIS

After typology categories, the holiday resort development zones are now studied under the perspective of the limits and proximity degrees to the nearest town. **The strong boundaries that distinguish the metropolis from the existing zone of second residences gradually fade out, since cities and suburban regions are expanding or even homogenizing.**

The **European Union** has established guidelines for the **Integrated Coastal Zone Management since 2002**. Institutional suburban area legislation tools exist also in **Greece**, called as **Residential Control Zones**, although illegal building was one of the most dominant national modes of production for second residences. The demand for the combined product on hotel accommodation, special tourist infrastructure facilities and vacation houses, has established a new type of private urbanization in Greece, the so-called “**Areas of Integrated Tourism Development-A.I.T.D.**”.

Multiple reasons have led to the phenomenon of second house in Greece. The modernisation of transportation networks contributed to this development. The conversion of land-use change, the change of rural housing in holiday ones and the second housing turning into first, gradually led to the consolidation of the holiday settlements’ urban form. The second residence as a term is shown in the official Greek legislation in 1985. However, the second housing phenomenon first appeared during the 60's and 70's. The main factor that accelerated the second home’s growth was **the arbitrary structures** under the expectation that in the future these areas will be part of a city plan.

6. CONCLUSIONS

As housing crises grip several of the global cities, architects are getting creative with spaces that help dwellers to escape the metropolis. The architectural concept of designing a second residence was put in the limelight of the present work that aimed to describe the littoral practices and seaside architecture in Europe. *There are increasing similarities between behaviors that are “home” and “away”* [7]. The research questions the promise of departing from the city that a coastal resort provides and supports the idea that summer residence simulates the urban tradition since it's unable to create something radically different.

The present work tried to present the conceptions of escapism in an emerging mass urban society. It aimed to an interdisciplinary communication of politics, economy, philosophy, sociology, advertising and architecture. Overall, summer vacations analysed through different perspectives formed the structural frame. Coastal practices are presented to city residents as a retreat from their suppressant routine by immersing themselves into an ideal experience away from the urban environment. The article examined how architectural design can accomplish this kind of dream and presents the fantasy of a second home which endeavors to materialise a built utopia. Tourism under the architectural perspective of vacation infrastructures forms a complex skein that must be unraveled.

REFERENCES

- [1]. Bourdieu et Passeron, 1970. *La Reproduction*, Paris: Editions du Minuit.
- [2]. Furlough E., 1998. “Making Mass Vacations: Tourism and Consumer Culture in France, 1930s to 1970s”, *Comparative Studies in Society and History*, Vol. 40, No. 2, pp.247-286.
- [3]. Nikolakakis M., 2014. “The tourist paradox: On the History of Tourism in Greece, from 1950 to the Present Day”, *Tourism Landscapes: Remaking Greece*, Athens: Domes, pp.38-51.
- [4]. Avermaete T., 2004. “Travelling Notions of Public and Private: The French Mass Tourism Projects of Candilis-Josic-Woods”, *OASE*, no. 64, p.16-45.
- [5]. Tauber, E.M., 1972. “Why do people shop?”, *Journal of Marketing*, Vol. 36, pp.46-59.
- [6]. See Ref. No 4.
- [7]. Shaw, G., Agarwal, S., Bull, P., 2000. “Tourism consumption and tourist behavior: A British perspective”, *Tourism Geographies* 2, p.264-289.

FROM PROMISING INSTITUTIONAL TRANSPLANTS TO LEGAL IRRITANTS: SOME INSTITUTIONAL ASPECTS

Ružica Šimić Banović¹⁰³

Abstract: *Studies depicting successful reform strategies increasingly recommend comprehensive use of local knowledge and deeper understanding of local circumstances and institutions. In that regard, local scholars seem to play crucial role in initiating, advising and implementing reforms. Apart from expertise they possess, they are also familiar with deeply rooted institutions and possible obstacles. The expert assistance is offered by the international organisations as well, and it is usually coupled with burgeoning financial resources and transfer of ‘best practices’. In addition, the commitment of key stakeholders is considered a precondition for successful reform implementation. Still, despite all the knowledge employed and with all the success factor boxes ticked, there are numerous institutional failures happening both in developed and developing countries. There seems to appear a gap caused by the rejection of foreign ready-made solutions on one hand and deficit of domestically developed solutions on the other.*

This paper primarily addresses the complexities of postsocialist societies. When investigating the role of the local elites in transition, confusing conclusion is easy to reach. On one hand, there is intellectual capital of local scholars that should have been used for good, whereas on the other there are local elites with vested interests whose influence should at least have been diminished. In rare cases when the separation of those two groups appears to work despite the strength of networks, the gap between independent scholars and elites in power appears to be widening and as such often results in unintended outcomes. Additionally, there emerges a common notion on the academic experts having insufficient clue about the real world problems and the gap of mutual understanding is thus even bigger. Finally, the role and influence of international organisations is rather important in reform attempts and may reshape the whole set up. If the best model of cooperation is still to be found, instead of reconciling with this cleavage, the continuity of public debate and enhanced understanding of reform processes seems to be the adequate way forward.

This paper uses institutional lenses in order to scrutinise the role of the key stakeholders in institutional import. Moreover, it seeks to demonstrate the main pitfalls of legal transplantation focused primarily on postsocialist societies.

Key words: *legal transplants, postsocialism, reforms, stakeholders, institutions*

1. INTRODUCTION

Importing “best practices” has been one of the leading solutions for various institutional problems until recently. Many deficits of that approach have been recognised. Still, there are lessons learned that need to be taken into consideration for future policy and institutional developments. This paper addresses the import of legal transplants through institutional lenses and seeks to provide an overview of the key aspects. In that way, it strives to serve as an input for further empirical scrutiny of the same phenomenon in (post)transitional societies.

¹⁰³ Faculty of Law, University of Zagreb, Croatia

The paper is structured as follows. Section 2 presents the trajectory of institutional transplants and its usual context. Sections 3 presents key actors in charge of institutional change and related theoretical models. Section 4 highlights the role of local scholars and international organisations in reform implementation. Section 5 concludes the discussion.

2. THE (R)EVOLUTIONARY PATH OF INSTITUTIONAL TRANSPLANTS

Institutions play two key roles: creation of rules and provision of enforcement (North, 2008). Institutional environment is considered to be generic because it shapes the relations among the agents in the society and it is based on the mandatory rules in the society, both the formal being enforced by various levels of the state and informal shaping a society's identity (Brousseau & Raynaud, 2011). Institutional arrangements are voluntary commitments based on contracts usually between two or among more parties. These local orders are predominantly influenced by efficiency whereas institutional design is usually a result of compromise among political forces. Institutional arrangements and institutional environment are seen as different steps in developing the institutional framework. First, it comes to the emergence of local agreements based on negotiations and some mutual rules. Some of the rules become adopted by a wider community and therefore are likely to become mandatory. The overall order becomes generic and more rigid. The main driver of this kind of endogenous transformation of local rules into generic ones is a competitive process among institutional arrangements. There is an additional process happening when agents influence the adoption of their preferred common order. In case of several competing orders path dependence and network effects have an influence because acceptance of rules is largely determined by early adopters and the ability of order setters to motivate other actors to adopt the rules increases their power compared to the sponsors of other systems of rules. Some past examples show the process of local experiments being institutionalized and becoming generic institutions (Brousseau & Raynaud, 2011, p. 66). There are several key points that require consideration regarding the creation and reform of the institutional setting in a large-scale transformation (Neuber, 1993, pp. 515-516):

“Institution building as a fashionable word suggested that the wholesale import of main market institutions from the capitalist countries is possible and desirable. This concept does not take into consideration the strength of the formal institutions and it assumes

doc. dr. sc. Ružica Šimić Banović

Ružica graduated from the Faculty of Economics, University of Zagreb. As a Chevening scholar she received her MA in Public Policy from King's College London, University of London. She defended her PhD thesis at the Faculty of Economics, University of Ljubljana. She also completed a fellowship in the Department of Economics at The George Washington University as a part of the Junior Faculty Development Program funded by the U.S. Department of State. She has also participated in numerous courses, workshops and conferences in USA and Europe including the LSE Summer School course „Political Economy of Public Policy“, UCL study visit and Trainee programme for young SEE managers organised by CDG/InWent in Germany.



Before joining the academic community Ružica was an adviser in the Croatian National Competitiveness Council and had worked in the private sector as well. She is a member of several expert and alumni associations. Both her educational and professional background inspired her to focus her research on institutional changes in the transition economies of Eastern Europe.

Eastern Europe as an institutional tabula rasa where new institutions can easily be seeded. Introducing formal institutions ab initio is expected to create institutional uncertainty. Otherwise, even if correctly selected, new institutions need considerable time period in order to prove its legitimacy.”

Institution building by decree supposes the feasibility of institutional discontinuity. Hence, it expects that the imitation of a Western institutional setting will enable a successful short cut. That kind of import of Western institutions is likely to result in institutional conflict and underperformance.

The notion of “legal transplant” has been increasingly discussed in the recent years. While the author of the term still deems that massive, successful borrowing is an ordinary, inevitable thing in law and as such presents the key factor in legal change (Watson, 2000), many other scholars mostly disagree. Legrand (1997) considers this view to be the result of the “impoverished explanation of interactions across legal systems” (p. 113) and strongly emphasises the impossibility of law to be segregated from society as the rule is never fully self-explanatory and if the meaning is incorporated into the rule, it would be intrinsically culture-specific. Teubner (2001) strongly suggests that “legal transplant” should actually be called “legal irritant” because that term better describes the effect of import of legal institutions. He warns that legal institutions require careful implantation and cultivation in the environment they are brought into and it is therefore the case that “transplant” as a word creates a misleading impression. Kurkchian (2009, p. 360) reminds that legal culture is not static, but “the transplant is a cut through the social texture at a single point in time”. Teubner (2001, p. 418) argues that foreign rule is not simply integrated into new environment, it actually “works as a fundamental irritation which triggers a whole series of new and unexpected events...it irritates law’s “binding arrangements”. Teubner (2001, p. 418) continues:

“Legal irritants cannot be domesticated, they are not transformed from something alien into something familiar, not adapted to a new cultural context, rather they will unleash an evolutionary dynamics in which the external rule’s meaning will be reconstructed and internal context will undergo fundamental change.”

In line with afore-stated, Kurkchian (2012) emphasises that domestic forces in the receiving society are much stronger than the efforts of the transplant initiators. That usually results in adaptation rather than adoption (Kurkchian, 2012) and various inefficiencies (La Porta, Lopez-de-Silanes & Schleifer, 2008). Roland (2012, p. 167-8) argues that importing legal and political institutions that are not conducive to local culture can only be self-defeating. In line with afore discussed, Polishchuk (2012) demonstrates that the misuse of institutions happens predominantly in cases when they have not developed organically. He depicts three main ways this is done: manipulation by institutions (like the cases of private universities founded solely for profit purposes), institutions as cover (such as fake corporate social responsibility initiatives) and institutional capture (hidden control of a narrow group).

Hall & Soskice (2001) further confirm afore-mentioned emphasising costs, length and uncertainty of the process of the transformation of one market economy to another that make economic agents prone to protect existing equilibrium instead of experiencing all the possibly problematic situations in achieving a new and stable equilibrium. Economic agents usually prefer small-scale reforms that only adapt the existing market economy to newly emerged circumstances even if due to their speed and content the large-scale reforms are actually necessary. The notion of incremental institutional change and willingness for minor changes in

institutional preferences of economic agents is in line with the new institutional economists' theoretical considerations. Culpepper (2001) remarks that most of the works on the varieties of capitalism seem to imply a recommendation for policy makers emphasising the optimality of status quo, or in other words relying on the existing institutional framework even if it does not contribute to the goals linked with the improved economic performance. Culpepper (2001) disputes the prevailing findings stating that the initiatives that are non-complementary with the existing institutional framework, but contributing to long term competitiveness, can succeed, especially if policies are appropriately selected and supported by relevant organisations:

“The legal system is not an autonomous institution. Rather, the character of laws is broadly determined by the broader configuration of political economy. An institutional complementarity exists between the legal system and the system of business coordination within the economy.” (Culpepper, 2001, p. 414)

3. KEY ACTORS OF THE INSTITUTIONAL CHANGE

In the recent decades, emerging almost simultaneously with the ‘new public management’ doctrine, the term ‘governance’ has been increasingly used in describing the processes of managing our society. The term governance includes the participants outside government in the decision making processes. They are labelled as ‘stakeholders’. It has also been noted that government spends more time in negotiation processes, and a government that only enforces laws and makes its own decision is an outlived idea. The influence of international relations has also given some new aspects to the government function (Colebatch, 2002, pp. 3, 78-79). If considering this in the context of horizontal and vertical dimension of the policy, it can be claimed that the horizontal one is getting on importance. The importance of the interaction among stakeholders has also been reflected through variety of briefings, surveys, reports and guidelines prepared by leading international organisations like WB, OECD, UN and WEF. Parsons (2005, p. 246) states that ‘modern government must increasingly be seen as a complex multi-layered, or multi-sphered activity in which a policy is composed of numerous decision points’. Court and Young (2006, p. 9) argue that ‘policy makers are obviously influenced by organisational and political context factors’ and stress the increased role that the actors like NGOs, media and business associations play in the policy making. It is also claimed that variety of multipartite organisations emerged in the recent years as *ad hoc*, pragmatic response to institutional weaknesses. Yet, they are increasingly perceived as one of the most important institutional innovations of the last century (Zadek & Radovich, 2006).

While identifying deficiencies of the neoclassical approach in Eastern Europe, Neuber (1993) stresses some advantages of the gradualist approach based on the evolutionary view of economics and advocated by institutionalists. Economic performance depends on the institutional environment, and less on the market incentives. Hence, the institutions and the path dependent nature of institutional change are highly emphasised. Related to the pace of reforms, Neuber (1993) notes that the common lack of interest of the economists for politics and their perception of politics as a neutral or negative entity disappear only when politics threatens to create obstacles for economics. Economists usually hope that the political barriers will arise only when most of the economic agenda is fulfilled. Roland (2000, p. 333) describes the situation in the beginning of 1990s:

“Early in transition, most experts on socialist economies were pushed aside and declared “obsolete” by the shock therapists. Many of these new transition experts stated

repeatedly that knowledge of the former system is a liability and ignorance an asset in understanding transition.”

Still, real-time events cannot be put on hold, as warned by O. Williamson (2000, p. 609). Since the usual Washington Consensus-like recommendations didn't give expected results over the initial transition period, economists started discussing institutional failures as possible obstacles for the development of market economy, “a legacy of grave difficulties for market-oriented reform” (Estrin, 2002, p. 102) among them. Murrell (1991b) explains that the usefulness of the old institutions is usually positively correlated with the success of the reforms in the new system if they were less dependent on the former political system. In addition, there is also the political motivation of some reformers (that is contrary to overall economic goals) to destroy the institutions from the old system. It is therefore important to adjust the substance and the pace of the economic reforms to the features of democratic and political transition.

The increasingly complex political environment for economic reform forces policy makers to accept politics as an indispensable ingredient by consensus building and improving societal participation in the reform processes. The advantage is the public support that ensures legitimacy, and legitimacy strengthens credibility that is shown to be the key factor in the large-scale reforms. Dixit (1997) argues that the political issues need to be a mandatory part of a realistic adviser's analysis meaning that Government's short-sightedness needs to be borne in mind and even if the economic adviser manages to persuade the politician to implement some reform with the long term achievements, the optimal strategy needs to include the political game of policy making. The case of the Council of Economic Advisers proves that argument to a great extent: was established in 1946, and throughout that long tradition (that proves its contribution) its influence has changed and had to be re-established with every new administration (Stiglitz, 1997). Stiglitz (1997, pp. 112-113) stresses the role of the CEA in taking care of the “little-represented special interest known as national interest” that is not only shown by giving high quality policy recommendations, but also by stopping the proposals with a negative expected value. Referring to General Pinochet statement that “(i)n the end, good policy is good politics” Rodrik (1996, p. 10) states:

“Good economics does often turn out to be good politics, but only eventually. Policies that *work* do become popular, but the time leg can be long enough for the relationship not to be exploitable by would-be reformers.”

In the recent decades, the firm-centred approaches of understanding economic success of nations have been increasingly used. Hall and Soskice's varieties of capitalism and Porter's competitive advantages of nations seem to be the most widely accepted. Stating that ‘Government, at all levels, can improve or detract from the national advantage’, Porter (1998, p. 73) abandoned the concept of comparative advantage and introduced the concept of the competitive advantage of nations that is widely accepted today. The role of the Government in Porter's Diamond model is to catalyse and enforce economic development by developing conditions for better performance of the companies, and hence prosperity of nations. Porter's Diamond is made of four interlinked factors, and the Government should be able to influence all of them. Porter claims that competitiveness is created, not inherited. Therefore it is not limited to the countries with a ‘rich’ inheritance, but the ones that can create laws and institutions that increase productivity. Vietor's (2007) research is in line with that argument by showing that distinctive features like functioning government institutions may provide advantages in the today's not only highly globalised but competitive world. Government is an important partner, facilitator, but top-down reforms are usually difficult and inefficient

(Easterly, 2008; Rodrik, 2008). Hence, the notion of government as “a benevolent *deus ex machina*, disembodied from its social, historical, and political context that had fully internalized all relevant conflicts of interest” has been vastly abandoned (Adam & Dercon, 2009). Guiso et al. (2006) makes cautious use of the situations when government with its vested interests promotes the belief system that enables the officials to have rents despite being contrary to the wellbeing of the citizens.

Fukuyama (2004) acknowledges the World Bank's scope of state functions distinguishing between minimal, intermediate and activist functions. Fukuyama (2004, p. 29) also claims that „it is now conventional wisdom to say that institutions are the critical variable in development, and over the past few years a whole host of studies have provided empirical documentation that it is so”. But still, “all forms of conventional wisdom should make us cautious” (Fukuyama, 2004, p. 29). When analysing the possibilities and limits of the Government, Stiglitz (1998) lists the reasons for that: inability to make commitments (same as Acemoglu & Robinson, 2000b), coalition formation and bargaining, destructive competition, uncertainty about the consequences of change, secrecy vs. openness in decision-making. The features of transaction costs economics (Dixit, 2000) and agency theory are complementary with usually listed key constraints of transition: uncertainty of outcomes, complementarities and interactions between reforms, political constraints (Roland, 2000). In the framework emphasising the power and beliefs of actors affecting and sometimes initiating institutional change, Alston et al. (2010) distinguishes between the “supply” side and the “demand” side of the government. In the configuration of power political institutions represent the “supply” side of government and special interest groups represent “demand” side of the government. The interest groups are all the groups representing a variety of areas and having different strength in influencing the “demand” side of the government.

Hall and Soskice's (2001) varieties of capitalism approach is based on the political economy and uses the concepts from the game theory and new institutionalism and therefore also combines macroeconomic theories and theories of the firm that are relevant to economics and political science. The starting point of this relational conception is the distinction between ‘liberal market economies’ and ‘coordinated market economies’ whereby both groups are considered to be able to reach long-run economic performance despite the variations in their characteristics and results in some time periods. Liberal market economies are dominantly based on the competitive market relations, whereas coordinated market economies are based on the non-market relations in order to coordinate their actions with other actors and build their key competencies. Among the OECD nations the USA, Australia, New Zealand and Ireland are considered to be liberal market economies. Germany, Japan, Switzerland, the Netherlands, Belgium, Sweden, Norway, Denmark, Finland and Austria belong to the coordinated market economies group. France, Spain, Italy, Portugal and Greece remain ‘unclassified’ until the third group is open that may be called “Mediterranean capitalism” (Hall & Soskice, 2001, pp. 19-21).

One of the most questioned ideas by this approach is the influence of globalization on building a common institutional and regulatory model in most of the nations, or at least their faster convergence. The institutional complementarities and the corporate strategies by which companies use institutional support in their respective countries are identified through this approach. In order for companies to resolve coordination problems there are five spheres necessary in which to develop relationships (Hall & Soskice, 2001, pp. 6-7): industrial relations, vocational training and education, corporate governance, inter-firm relations and relations with their employees.

Institutions, organizations, and culture are included in Hall and Soskice's approach because they are considered to be a support in relationship-building of the firms aimed at solving coordination problems (Hall & Soskice, 2001, pp. 8-15). In liberal market economies, the market as an institution underpinning competition, combined with an efficient legal system and hierarchies within firms are considered to be essential ingredients. On the other hand, markets and hierarchies are also significant for coordinated market economies, but employers' association, trade unions, and the legal system facilitating collaboration are also very important. In both types, the notion of the existence of formal rules and organizations only is rejected, and the contribution of the shared understandings of the actors is strongly taken into account when analysing certain equilibria. It is considered that the institutions are bound with history in two ways: first is the creation of institutions through statutory or other acts and the second is the emergence of shared values through a repeated historical experience.

4. LOCAL SCHOLARS VERSUS FOREIGN ASSISTANCE

The importance of the consideration of local knowledge and country specifics has already been mentioned in various contexts. Shirley and Soto (2007, pp. 8-9) summarized the hypotheses that lead to the increased likelihood of the radical institutional change initiated by local scholars.

- “1. *Change is seen as necessary*: those who have the power to make radical changes a) face serious threats or economic problems, and b) perceive that previous reforms failed to solve these problems; and,
2. *There is a viable alternative*: an alternative economic vision exists that is internally coherent and different from previous failures; and,
3. *There is a role model*: the alternative vision is supported by a role model, i.e. some applicable experience elsewhere; and,
4. *The alternative is the consensus of a group of experts*: the alternative vision is the consensus proposal of a group perceived as experts by those who have the power to make radical changes and who are seen as trustworthy because they are believed to be:
 - a. disinterested,
 - b. motivated to be truthful, and
 - c. knowledgeable about the constraints and opportunities provided by local history and local institutions; and,
5. *The alternative is known by the elite*: the expert group has channels to make their alternative vision known to those with the power to change institutions; and,
6. *The alternative is feasible*: those in a position to effect change have the ability to co-opt, compensate, or coerce interest groups who might oppose radical changes; and,
7. *The alternative is diffused*: expert proponents and institutional entrepreneurs have the prestige, persuasive power, and media access to diffuse the new vision to those interest groups whose beliefs need to change for the new institutions to become self-enforcing; and,
8. *Early outcomes are successful and create beneficiaries who support further change*: Early attempts to enact the new policies and institutions proposed by the experts are successful in eliminating or reducing the economic problem and create beneficiaries who organize to prevent retreat.”

Related to the first hypothesis stated by Shirley and Soto (2007), i.e. that a crisis as an initiator of reforms, Rodrik (1996, pp. 26-27) points out that there is a tautology in that statement because crisis is “an extreme instance of policy failure”. Consequently, if an economy in crisis has not started to implement some changes, the common assumption would be that the crisis is not strong enough. He also stresses additional conventional wisdoms of the political economy

literature: in order for the reforms to last, they need winners included in their continuation; and a J-curve as a common development of the reforms, i.e. deterioration before improvement (Rodrik, 1996, p. 29). Yet, the empirical evidence also demonstrates the brighter effects of the reforms. Reforms in Eastern Europe decreased the short-term costs making the least fall in the output in countries with the most extensive reforms and vice versa. Because of their long lasting efforts to catch up with developed countries, Neuber (1993) believes that transition countries could learn from less developed ones, especially when it comes to the implementation of institutional reform. Neuber (1993) mainly notices common denominators in structural deficiencies and policy recommendations that include the shift from state intervention towards market oriented approach. The repeated failures of economic reforms made theorists analyse policy process rather than outcomes only. Above all, success reform implementation requires mature and committed stakeholders, and this is often not the case. Ostrom (2002) illustrates that: "...aid helps to ensure incompetent governments from the results of their actions, thus weakening their incentive to find alternative revenue sources or better policies." In case of postsocialist economies, there is also a strong legacy of tight relations of political and economic elites that had monopoly over transition processes. That mostly led to existing state capture and various forms of clientelism that clearly demonstrate the persistence and strength of connections and ingroup affiliation over substance (Šimić Banović, 2015a, 2015b). Numerous informal practices are stronger than rule of law and at the same time serve as a "glue" in the society (Ledeneva, 2012).

Local scholars seem to play key role in understanding and initiating institutional change. They are familiar with deeply-rooted institutions and sometimes even more important with subtle barriers that may occur. Given their expertise, they are the ones who can adjust foreign practices to local conditions and convince local policy-makers and the general public of the benefits of the new concept. Foreign advisors, even the most knowledgeable and capable ones, are rarely able to understand and do all these incentives (Shirley, 2010, pp. 185-187). Moreover, it is important to underline that numerous experts (Neuber, Alston, Rodrik, Roland, North, Stiglitz, Shirley) believe in the benefits of opportunities to learn from other countries. Yet, they seem to be convinced that there is still not enough attention drawn to the distinction between pure copying of institutions and policies on one hand and learning and transferring combined with adaptation aimed at suiting local conditions on the other. Vastly based on examples of post-socialist transition countries, Boettke et al. (2008, p. 353) claim:

"Institutions that are imposed exogenously do not have the social memory grounded in *metis* that gives IEN [Indigenously Introduced Endogenous] institutions their credibility and workability among local agents. ...the development community overestimates its ability to promote growth and underestimates the role of internally driven change in creating prosperity. ...despite the fact that exogenously introduced change provides a conceptual way out of locked-in, inferior institutional arrangements, realistically, its power to alter institutional paths is severely limited."

It is clearly shown that there is no positive link between economic aid and economic growth if both formal and informal environment is inappropriate (Aligicia, 2006, p. 29).

In an attempt to explore the failures of foreign development aid to underdeveloped countries through the lenses of new institutional economics, Shirley (2010) compared the features of institutional frameworks and foreign aid. This analysis demonstrates the limited success of institutional change despite burgeoning financial resources, technical assistance and in some cases commitment of the ruling elite. The reasons for that include the fact that aid is usually

targeted at changing certain policies and regulations rather than institutional framework as a whole. Despite the official long-term focus, most of the programmes are actually short-term focused due to the organisational issues such as the rotation of the staff in the aid agencies. This makes it impossible for the employees to become deeply acquainted with norms, culture and the other informal constraints of the host country, and hence diminishes their understanding of the situation and prospects for the proper major changes. At the same time, local business and government leaders may oppose the changes because the new rules might disable them from collecting the rents and other benefits they created for themselves through the existing system. In these cases aid providers were until recently hesitating to act very directly and eventually co-opt the opponents because it could be interpreted as dealing with internal politics. Even if the local leaders and the local public are willing to accept the proposed reforms, there are also deficits on the side of the aid agencies. They are still bureaucratic organisations responsible primarily to their donors and because of that, preferring quick wins over long-term reforms and outcomes (because they may happen when their projects end and won't be attributed to them). They also prefer the Western best practices over 'home-grown' reforms (even though they would probably bring better results due to local specifics, yet, the already known practices will easier attract funding). Although heterodox reforms seem to be the key to the real institutional change, they do not occur often in foreign aid practice mainly because of the previously elaborated issues (Shirley, 2010, pp. 47-63). Rodrik (1996, pp. 30-31) question the common idea that foreign aid may helpful by the implementation of the reforms primarily in the beginning of their implementation when the short term costs emerge. This fact is a usual justification of the international organizations. However, there are cases when bad incumbents stayed in power because of the availability of resources for their delayed irresponsible policies. Even the conditionality for providing resources cannot be a solution because the governments are sovereign and there is an expiration date for conditionality, usually it lasts as long as the transfers are positive. A comment from *The Economist* (2011) may be considered to underline the debate summarised in the Table 1 :

„Every so often something comes along which shows that almost everything you know about a subject is wrong. Such a development is happening in the world of foreign aid.”

Table 3. Comparison of the characteristics of institutional frameworks and foreign aid

Institutional frameworks	Foreign aid
Deeply rooted and usually durable	Focus on policy, organization, sector rules Three-year projects Staff rotates every 3-5 years Rewards for approval, not sustainability No long-run accountability
Supported by power elite and beliefs	Requires support or permission of incumbent government Staff incentives to cooperate to win more project approvals Revolutionaries would be asked to leave
Changes are often idiosyncratic and experimental	Focus on Western best practices Prefer that changes are Rapid Measurable against benchmarks

Source: Shirley, *Institutions and Development*, 2010, p. 60.

Foreign aid is commonly associated (at least by the critics) with the uniformity of policies and the top down approach (Boettke, Coyne & Leeson, 2008; Easterly, 2008; Shirley, 2010). The policies assisted by the international organizations are usually seen as simple “copycatting” and attempts to undertake wholesale reform comprised of the best practices that are not adapted to the local conditions. Easterly (2008) stresses that aid organisations are naïvely optimistic when purely importing the successful institutions. This is because the success of the formal institutions in advanced societies might be caused by those institutions having evolved from the bottom up and therefore implementing those institutions in a top down manner in developing societies is unlikely to result in a successful transformation. Easterly (2008, pp. 98-99) underlines the discussion claiming:

“Even without comprehensive theory of institutions, historical evidence, contemporary research, and common sense suggest that institutional change is gradual in the large majority of cases.”

5. CONCLUSION

Despite all the knowledge employed and all success factor boxes ticked, there are numerous institutional failures happening both in developed and developing countries. There seems to appear a gap caused by the rejection of foreign ready-made solutions on one hand and deficit of domestically developed solutions on the other. Sole import of practices that worked well in some other country has mostly shown to be an oversimplified approach of implementing reforms. Key reasons lie in the specific local circumstances that predominantly impose barriers for (radical) changes and as such provide empirical evidence to “no size fits all” paradigm. Those local circumstances may also be seen as formal and informal constraints and legacy. The legacy with its path dependent features is usually very complex and expected to be better understood by the local scholars than by foreign advisors. Yet, foreign advisors are better equipped with (international) expert assistance and financial resources. They are often criticised for their short-term focus, insufficient awareness of local (informal) limits, and for copying the solutions with minimal adjustments coupled with naïve optimism in implementation. In addition, growing body of literature suggests that bottom up changes are more efficient than top down changes. In addition, formal institutions imported from the Western countries are often developed in the bottom up manner in those countries and are unlikely to function in the top down manner in countries with different set up. Those findings are recognised by the international organisations. Recent trends in foreign aid allocation indicate increased focus on local governance incentives. That may decrease recognised deficit of understanding of local informal practices and result in synergy effects by employing knowledge both from exporting and importing societies and by encouraging involvement of the main actors in the receiving society.

Hence, the leading question should be shifted from “whose fault is it” to “how to understand the whole process better and reach synergy effects by appropriately including the main actors”. This paper strives to serve as an input for further empirical scrutiny of the institutional transplants in (post)transitional societies.

Remark: This article was supported by the Research project “New Croatian Legal System” (2017) conducted by the Faculty of Law, University of Zagreb. Part of the initial research on the topic was conducted for the Doctoral Dissertation ‘Institutional Change in Transition Economies: Analysis of the Croatian Business Environment’ defended at the Faculty of Economics, University of Ljubljana in December 2012.

REFERENCES

- Adam, C., & Dercon, S. (2009). The political economy of development: an assessment. *Oxford Review of Economic Policy*, 25(2), 173-189.
- Aligicia, P. D. (2006). Learning in time: new institutionalism and the Central and Eastern European economic reform experience. *Global Business and Economics Review*, 8(1/2), 25-43.
- Boettke, P. J., Coyne, C. J., & Leeson, P. J. (2008). Institutional Stickiness and the New Development Economics. *The American Journal of Economics and Sociology*, 67(2), 331-358.
- Brousseau, E., & Raynaud, E. (2011). Climbing the hierarchical ladders of rules: A life-cycle theory of institutional evolution. *Journal of Economic Behavior and Organization*, 79(1-2), 65-79.
- Colebatch, H. K. (2002). *Policy* (2nd ed.). Buckingham: Open University Press.
- Court, J., & Young, J. (2006). *Bridging Research and Policy: Insights from 50 Case Studies. Evidence & Policy*. International workshop on public-private dialogue. DFID, WB, IFC and OECD, Paris, France.
- Culpepper, P. D. (2001). Employers, Public Policy, and the Politics of Decentralized Cooperation in Germany and France. In P. A. Hall & D. Soskice (Eds.). *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage* (pp. 275-306). Oxford: Oxford University Press.
- Dixit, A. K. (1997). Economists as Advisers to Politicians and to Society. *Economics and Politics*, 9(3), 225-230.
- Easterly, W. (2008). Institutions: Top Down or Bottom Up?. *American Economic Review*, 98(2), 95-99.
- Estrin, S. (2002). Competition and Corporate Governance in Transition. *The Journal of Economic Perspectives*, 16(1), 101-124.
- Fukuyama, F. (2004). *State-Building: Governance and World Order in the 21st Century*. Ithaca, NY: Cornell University Press.
- Hall, P. A., & Soskice, D. (2001). An Introduction to Varieties of Capitalisms. In P. A. Hall & D. Soskice (Eds.). *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage* (pp. 1-68). Oxford: Oxford University Press.
- Kurkchian, M. (2009). Russian Legal Culture: An Analysis of Adaptive Response to an Institutional Transplant. *Law & Social Inquiry*, 33:2, pp. 337-364.
- Kurkchian, M. (2012). What to expect from institutional transplants? An experience of setting up media self-regulation in Russia and Bosnia. *International Journal of Law in Context*, 8:1, pp. 115-131.
- La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (2008). The Economic Consequences of Legal Origins. *Journal of Economic Literature*, 46(2), 285-332.
- Ledeneva, A. (2012). *Sistema – Russia's informal system of power in Three Views on Modernisation and the Rule of Law in Russia*. <http://www.cer.org.uk/publications/archive/essay/2012/three-views-modernisation-and-rule-law-russia>
- Legrand, Pierre (1997). The Impossibility of Legal Transplants. *Maastricht Journal of European and Comparative Law*. Vol. 4. 111-124
- Murrell, P. (1991a). Can Neoclassical Economics Underpin the Reform of Centrally Planned Economies?. *Journal of Economic Perspectives*, 5(4), 59-76.
- Murrell, P. (1991b). *Evolution in Economics and in the Economic Reform of the Centrally Planned Economies*. (Working paper). College Park, MD: Department of Economics, University of Maryland.

- Neuber, A. (1993). Towards a Political Economy of Transition in Eastern Europe. *Journal of International Development*, 5(5), 511-530.
- North, D. C. (2008). *Institutions, Institutional Change and Economic Performance*. New York, NY: New York University Press.
- Parsons, W. (2005). *Public Policy*. Cheltenham, UK: Edward Edgar.
- Polishchuk, L. (2012). Misuse of Institutions: Lessons from Transition. In G. Roland (Ed.). *Economies in Transition: The Long-Run View* (pp. 172-193). United Nations University – World Institute for Development Economics Research. Basingstoke, UK: Palgrave Macmillan.
- Porter, M. E. (1998). *The Competitive Advantage of Nations*. London: MacMillan Press.
- Rodrik, D. (1996). Understanding Economic Policy Reform. *Journal of Economic Literature*, 34(1), 9-41.
- Roland, G. (2012). The Long-Run Weight of Communism or the Weight of Long-Run History? In G. Roland (Ed.). *Economies in Transition: The Long-Run View*. (pp. 153-171). United Nations University – World Institute for Development Economics Research. Basingstoke, UK: Palgrave Macmillan.
- Shirley, M. M. (2010). *Institutions and Development*. Cheltenham, UK: Edward Elgar Publishing.
- Shirley, M. M., & Soto, J. (2007). *When do local economists have an effect on institutional change?* 11th Annual ISNIE Conference. University of Iceland, Reykjavik, Iceland.
- Stiglitz, J. (1997). Looking Out for the National Interest: The Principles of the Council of Economic Advisers. *American Economic Review*, 87(2), 109-113.
- Teubner, G. (2001). Legal Irritants: How Unifying Law Ends Up in New Divergences. In P. A. Hall & D. Soskice (Eds.). *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage* (pp. 417-441). Oxford: Oxford University Press.
- Vietor, R. K. H. (2007). *How Countries Compete*. Boston, MA: Harvard Business School Press.
- Watson, A (2000). Legal Transplants and European Private Law. *Electronic Journal of Comparative Law*. Vol 4.4 <http://www.ejcl.org/ejcl/44/44-2.html>
- Zadek, S., & Radovich, S. (2006). *Governing Collaborative Governance: Enhancing Development Outcomes by Improving Partnership Governance and Accountability*. (AccountAbility and the Corporate Social Responsibility Initiative, Working Paper No. 23). Cambridge, MA: John F. Kennedy School of Government, Harvard University.

ECONOMIC IMPLICATION OF LABOUR MARKET ORGANISATION¹⁰⁴

Gabriela Kozlinger¹⁰⁵

Nenad Vretenar¹⁰⁶

Davor Mance¹⁰⁷

Abstract: *Labour is an essential and specific resource to a firm. The framework for any labour contract is set by the individual country's regulation, i.e. its labour market institutional mechanism design. Our research problem is concentrated onto the objection of a growing discrepancy between firms' needs and employment contracts as they are actually implemented under current regulation. The foremost economic question at hand is whether the labour market and firm's regulatory institutional mechanism design is commensurate with the specific firm's needs and the needs of the economy of that particular country. During the 20th century, employment regulation was mostly tightened under the excuse of greater worker protection consequently reducing the freedom of contract between employers and employees. Firms needed and asked for exactly the opposite: more flexible employment contracts. Employment regulation is an essential part of the legal business framework since it governs employment relationships and sets the span of contract flexibility, thereby influencing international competitiveness of a firm and the economy as well. We conjecture the less flexible working arrangements are the less beneficial is the employment environment as firms are more procrastinated by regulation. We investigate regulatory practices of selected European Union countries (Austria, Croatia, Finland, and Ireland) regarding labour market issues and its consequences. Labour market flexibility is a composite indicator of selected factors conjectured to ultimately influence the economic performance of nations. Our aim is to identify factors influencing labour market flexibility and the selected output variables such as employment, productivity, and others.*

Key words: *labour economics, employment regulation, labour flexibility, labour market organisation.*

1. INTRODUCTION

Labour market regulation in general, and employment regulation in particular is the most essential part of the legal business framework since it governs employment relationships within a firm and influences the international competitiveness of a single firm and thus also the economy. "In a global economy – one would expect the location to diminish in importance. But the opposite is true." [1] In human capital driven economies, labour remains the only flexible production factor. And again, "competitive advantage lies in knowledge, relationships, and motivation." [1]

Our research problem is mainly concentrated on the growing discrepancy between firms' needs for human capital and their ability to engage into mutually beneficial free contractual

¹⁰⁴ This paper has been financially supported by the University of Rijeka, for the project ZP UNIRI 10/17

¹⁰⁵ University of Rijeka, Faculty of Economics, Ivana Filipovica 4, Rijeka, Croatia

¹⁰⁶ University of Rijeka, Faculty of Economics, Ivana Filipovica 4, Rijeka, Croatia

¹⁰⁷ University of Rijeka, Faculty of Economics, Ivana Filipovica 4, Rijeka, Croatia

arrangements. As regulations procrastinate contractual freedoms of firms and labour there is growing evidence that such regulatory evolution has detrimental consequences for entire economies. An economy is a sum total of the productive power found on a certain territory. By definition, firms are organisational units free of institutional inflexibilities that reduce transaction costs.[2][3][4][5] Firms need exactly the opposite: more flexible employment contracts, i.e. less institutional constraints. Firms compensate institutional inflexibility with organisational flexibility, i.e. long-term flexible employment contracts. The more institutionally constrained firms are, the less similarity they bear to an organisational hierarchy and more to an institutional network. Society needs institutions to protect its individuals from the levia than of its more powerful units. But institutions impose transaction costs. Firms are organisational units with loose institutional regulations reducing transaction costs between cooperating individuals thereby reducing production costs. Institutional networks are more flexible at starting and protecting new ideas, but are less efficient in producing final results. Thus, an institutionally protected network is probably a preferred organisational structure for a university or a research centre needing the protection of individual creativities but not for an internationally competing firm searching for the most efficient production process. Firms are thus also defined by their technologies, i.e. cost structures, whereby the more efficient survive, and the less competitive die out in a Schumpeterian “catallactic” process.

Labour market and employment regulation is an institutional mechanism design set by the regulator of an individual country giving the country a distinctive entrepreneurial and cultural stamp. We investigate the grade of regulatory labour flexibility in selected European Union member states, the consequences of their regulatory practices and a comparison with previous theoretical assumptions. Paper’s aim is to qualitatively identify relevant factors influencing labour flexibility. We shall try to falsify the positive causal relationship between some of these factors and the selected output variables such as employment, productivity or GDP per capita.

Gabriela Kozlinger, mag.oec (MSc) from the University of Rijeka, Faculty of Economics Rijeka. Intern at Zagrebačka banka d.d., UniCredit group. Her scientific interest is mainly focused on the fields of organization and management, banking, risk assessment, rational behaviour and decision making.



THE THEORY OF THE FIRM IN AN INTERNATIONAL ENVIRONMENT

A firm, besides as an organisational hierarchy may also be simplified into a technological production function. Technology determinates the effectiveness of the firm, and the expected effectiveness is the determinant of the firm’s course of action, i.e. its conduct on the market.[6]

Diverse technologies require different organisational structures that may not be effectively standardised into single labour legislation. Firms compete on an international market according to competitiveness rules set by their local legislators. Inadequate labour legislation may cause severe disadvantages for an industry or an entire economy. Cost structures are an important behavioural determinants for firms. Irreversible costs in form of sunk fixed costs are major risk determinants for firms.[7] Labour consists of one of the last few flexible resources. Labour flexibility is determined by two major groups of factors: the intrinsic qualities of human capital, and the institutional framework of a particular market. Institutional factors comprise laws, bylaws, rules and regulations, as well as customs and practices including the results of collective bargaining. Statutory acts were meant to promote the well-being of the workers and set a bar on minimum working conditions. Similarly to minimum wage laws, statutory regulation

promotes the wellbeing of the ones whose productivity justifies the threshold, but prohibits the ones below the productivity threshold to enter the market. Although the motives for labour legislation were to better the lives of the workers, the unwanted consequence was to reduce the flexibility of the labour market and to decrease the number of available jobs, as producers settled in countries with more flexible labour legislation. The free flow of capital, together with the free flow of goods together with a partially free flow of labour, will induce a Tiebout kind of competitive migration of investment and labour into more flexible countries. As economies open up to international trade, institutional regulation becomes an important competitive advantage for a firm.[1] The decision where to settle is, besides the technological decision, the most important decision a firm must make. The more liberal the institutional framework, the more organisational freedom a firm has at its disposal, reducing its internal transaction costs. Lower the transaction costs, lower the overall costs, and higher the flexibility, adaptability, and competitiveness of the firm on the market, through constant product and process innovation. Investments into research and development are ex ante decisions based on expected ex post profitability. The expected profitability is a risky factor dependent on total irreversible costs. Thus, more irreversible costs, more risky the investment, and lower the expected profit. According to Williamson [8][9][10] human factors influence transaction costs across firms, and thus influence their competitiveness.

3. THE ANALYSIS OF EMPLOYMENT REGULATIONS IN SELECTED COUNTRIES

In order to compare theoretical assumptions with real world data, we selected four EU countries for an empirical analysis. Beside Croatia, which is our home country, we selected Austria as the nearest country sharing many institutional solutions, but much more developed by most economic indicators. Furthermore, we selected Ireland and Finland as having opposite employment policies, with Finland having a well developed welfare system, and the rapidly growing Ireland, well known for the lack of regulation in the employment area. All three foreign countries in our analysis are targets for Croatian and SEE outmigration. As a paradox, the common opinion of the Croatian public discourse is that employees in private business entities are vastly under-protected. Therefore, comparison with departing workers' target countries seemed reasonable, as one would expect that under protected and unhappy employees would migrate in a direction of countries with better employee protections.

The next four tables (Table 1-5) sublimate the data expected to be of importance for shaping the flexibility of firms and the stability and the job security of employees.

The analysis shows noticeable cross-country differences among selected countries that are all EU members and that are sharing many cultural and historical features, the similar economic environment and joint legislative within EU Framework. However, labour legislation is largely devolved to the member states. Consequently, different policies have evolved across the EU.

Davor Mance, PhD is Diplom Volkswirt from the University of Trier, Germany, Master of Arts in Contemporary European Studies from the University of Sussex and PhD in economics from the University of Rijeka. Presently lectures: Methodology of Scientific Research, Economic Anthropology, Firm Valuation, as well as Entrepreneurship. Research interest relates to the analysis of economic institutional mechanism designs and organization, and management of public goods, as well as pharmacoeconomics. Published papers: <https://portal.uniri.hr/Portfelj/695>



COUNTRY	UNEMPLOYMENT % (2016, ACTIVE POPULATION)			LONG-TERM UNEMPLOYMENT % (2016, BETWEEN 20-64)			YOUTH UNEMPLOYMENT % (2016)
	Total	Males	Females	Total	Males	Females	Total
IRELAND	7.9	9.1	6.5	4.3	5.5	2.8	9.1
CROATIA	13.4	12.7	14.2	6.6	6.8	6.5	25.4
AUSTRIA	6.0	6.5	5.6	1.9	2.2	1.6	9.4
FINNLAND	8.8	9.0	8.6	2.4	2.7	2.1	16.5

Table 1: Unemployment rates in selected countries (Eurostat) [11]

Looking just at the workweek duration (Table 5), Austria is less flexible than other countries because employers have to adapt their personnel requirements into smaller available periods of a week and in some situations wait for the weekend to pass to finish the job.

	CRO	IRE	AT	FIN
EQUAL REWARD FOR WORK OF EQUAL VALUE	YES			
BAN ON DISCRIMINATION BASED GENDER IN HIRING	NO	YES	NO	YES
FINANCIAL AID DURING MATERNITY LEAVE	YES			
LENGTH OF PAID MATERNITY LEAVE (DAYS)	208	182	112	105
FULL SALARY DURING MATERNITY LEAVE	YES	NO	YES	NO
DURATION OF EMPLOYMENT BEFORE ELIGIBILITY FOR UNEMPLOYMENT COMPENSATION (MONTHS)	9	24	12	6
MINIMUM SALARY	400 €	1.484 €	1.000 €	not prescribed
AVERAGE SALARY	735 €	2.129 €	2.124 €	2.300 €

Table 2: Some aspects of employment quality (authors calculations based on the Doing Business Database) [12]

Similarly, just for argument sake, we assume comparable labour productivity, Finnish firms have their workers 2.5 working hours per week less and might need more employees to cover

the same needs. There is an even bigger discrepancy when taking into account night work premiums from 0 (no obligation of an extra pay) in Ireland to 67% in Austria. Croatia with 10%, and Finland with 15 are rather moderate compared to Austria. Therefore, it is to expect the Austrian firms to be reluctant to use night shifts on tight schedules.

	CRO	IRE	AT	FIN
MAXIMUM WORK PROBATION	6	12	1	6
DISMISSAL DUE TO REDUNDANCY	YES			
THIRD PARTY NOTIFICATION IF ONE WORKER IS DISMISSED	YES	NO	YES	YES
THIRD PARTY NOTIFICATION IF NINE WORKERS ARE DISMISSED	YES			
THIRD PARTY APPROVAL IF NINE WORKERS ARE DISMISSED	NO			
OBLIGATION TO RETRAIN OR REASSIGN BEFORE DISMISSAL FOR REDUNDANCY	NO	NO	NO	YES
PRIORITY RULES FOR DISMISSALS FOR REDUNDANCY	YES	NO	YES	NO
PRIORITY RULES FOR REEMPLOYMENT	YES	NO	YES	YES

Table 3: Rules over probation and redundancy (authors calculations based on Doing Business Database) [12]

The same goes for high premiums (100%) that Finnish and Austrian workers will receive if they have to work during their rest day. A premium of 35% in Croatia might look rather moderate, but then again Ireland laws do not recognise any premium at all. Overtime compensation is also not prescribed by Ireland's laws, while other three countries are in line with the 50% premium. Ireland also has 30-35% less paid public holydays than the rest of the group and the probation period is twice as long as in Finland or Croatia.

	CRO	IRE	AT	FIN
MORE THAN 1 YEAR OF TENURE				
NOTICE PERIOD BEFORE LAYOFF (WEEKS)	4.3	1	2	4.3
SEVERANCE PAY (SALARIES)	0	0	0	0
MORE THAN 5 YEARS OF TENURE				
NOTICE PERIOD BEFORE LAYOFF (WEEKS)	8.7	4	2	8.7
SEVERANCE PAY (SALARIES)	7.2	11	0	0
MORE THAN 10 YEARS OF TENURE				
NOTICE PERIOD BEFORE REDUNDANCY LAYOFF (WEEKS)	10.7	6	2	17.3
SEVERANCE PAY (SALARIES)	14.4	21	0	0
AVERAGE NOTICE PERIOD (WEEKS)	7.9	3.7	2	10.1
AVERAGE SEVERANCE PAY (SALARIES)	7.2	10.7	0	0

Table 4: Notice periods before layoff and severance pays (calculations based on Doing Business Database) [13]

Austrian regulations, although most restrictive between labour laws in most analysed indicators among selected countries, are not regulating severance pay (Table 4). It might seem like it is noticeable break to Austrian firms when dealing with layoff situation and workers redundancies but additional analysis showed that in Austria, as in Finland, workers in most industries are joint in the powerful labour syndicates. Power of syndicates is widely known source of constraints to labour flexibility, and should be taken into analysis. However, Germanic and Scandinavian countries have numerous syndicates that are additionally regulating labour differently in many industries, but due to their heterogeneity, their industry specific constraints cannot be fitted in cross-country analysis.

The major setback in labour flexibility in Ireland is the paid maternity leave (Table 2). It is the second longest (after Croatia) but in all other selected countries, it is the state expense, while in Ireland it is paid by the employer. Biggest comparable flexibility setback in Finland is the obligatory retraining or reassignment of an employee before redundancy. From a firms' standpoint, retraining or reassignment requires additional time and resources, while others, already trained workers for that job, cannot be hired because of priority rules prescribed by law.[11] Croatia and Austria are less flexible than the other two countries with priority rules for redundancies.

	CRO	IRE	AT	FIN
WORKWEEK (DAYS)	6	6	5.5	6
WORKWEEK (HOURS)	40	39	40	37.5
LUNCH BREAK (MIN)	30	30	30	60

NIGHT WORK PREMIUM (%)	10	0	67	15
SUNDAY/REST DAY WORK PREMIUM (%)	35	0	100	100
OVERTIME PREMIUM (%)	50	0	50	50
NIGHT WORK RESTRICTIONS	Yes	No	Yes	No
OBLIGATORY REST DAY (%)	Yes	No	No	No
PAID PUBLIC HOLYDAYS (ANNUALLY)	14	9	13	13
PERMITTED NUMBER OF OVERTIMES (WEEKLY)	10	-	5	8
PAID ANNUAL LEAVE (AVERAGE NO. OF DAYS)	20	20	25	30

Table 5: Data on working hours (authors: calculations based on Doing Business Database) [12]

4. DISCUSSION

As pointed by Wallis [14], organizations are primarily driven by relationships, not by rules. Rules are emerging when there is a failure with relationship. Wallis's deep thought looks even truer when analysis shows that Croatia, country that finally got out of long economic depression and has heavily regulated labour rights, is losing citizens so fast that one of our leading demographers is describing it with a phrase "the state of emergency".[15] Ironically, one of the most frequently mentioned destinations for departed workers is Ireland [16], the country that, according to presented and analysed data, offers significantly less legal protection to its workers. It would be pretentious and inaccurate to draw a conclusion that Croatia is emitting, and Ireland recipient country for labour migration because latter is allowing its firms to be flexible i.e., does not choke its economy with the ropes of over-regulation. Besides that labour regulation is only one of many factors that influences economic growth, another country in our selection, Austria, has many similarities in regulation with Croatia and it is still very successful by most economic indicators. However, if we once again reflect on Wallis's premise, in wealthier countries that have a reputation for being well arranged, workers seem to find stability regardless of the level of formal labour regulations. In Croatia, regardless of the existence of regulations that should protect their rights, because of poor economic environment, inflexibility, well known southern creativity to bypass regulation etc., workers in private sector often feel very unprotected and uncertain about their future. Therefore, it can be questioned whether regulation (not only the one affecting the labour) is the constraining factor in firms' attempts to better their business results. The markets have their dynamics, technology is rapidly developing what creates pressure towards additional investments in inflexible factors and even labour is not so flexible factor as it may seem.

5. CONCLUSION

We tried to identify and analyse factors influencing labour market flexibility in selected countries: Croatia, Ireland, Austria, and Finland. Labour is a specific resource to firms. As it cannot be owned, the closest form of control of human capital are incomplete labour contracts. The more flexible the labour as a resource, the greater the manoeuvring space for a firm to stay

competitive on the market. We identified 28 factors in 4 selected countries influencing labour flexibility. The analysis led to following conclusions: the Irish labour market is the most flexible and Ireland's macroeconomic indicators show dynamically the best results. The Croatian and Austrian labour markets are the most inflexible, with moderate economic growth and somewhat differing macroeconomic indicators. Finland is located in between the analysed countries. It may be concluded that Croatia and Austria have the least flexible labour markets with the lowest economic growth among the analysed countries and with moderate macroeconomic indicators. Labour market and job flexibility are actually helping workers by promoting flexible and dynamic economic environments. Higher economic activity secures jobs by increasing its demand. The best evidence of this is Ireland which is achieving an expansion of economic growth and simultaneously a widening of available jobs.

REFERENCES

- [1] Porter, M. (1998) Clusters and the new economics of competition. *Harv. Bus. Rev.* 76(6):77-90.
- [2] Coase, R. H. (1937) The Nature of the Firm. *Economica*, New Series, 4(16):386–405.
- [3] Coase, R. H. (1960) The Problem of Social Cost. *J. Law Econ.* 3:1–44.
- [4] Coase, R. H. (1988) *The Firm, the Market, and the Law*. Chicago: U. Chicago Press.
- [5] Coase, R. H. (1992) The Institutional Structure of Production. *Amer. Econ. Rev.* 82(4):713–19.
- [6] Martin, S. (1989). *Industrial Economics*. New York: MacMillan.
- [7] Mance, D., Vretenar, N., Katunar, J. (2015) Opportunity Cost Classification of Goods and Markets. *Mednarodna revija za javno upravo/International Public Administration Review*. XIII(1):119–134, doi: <http://dx.doi.org/10.17573/ipar.2015.1.06>.
- [8] Williamson, O. E. (1979) Transaction-Cost Economics: The Governance of Contractual Relations. *The Journal of Law and Economics*, 22(2), pp. 233-261.
- [9] Williamson, O. E. (1985) *The Economic Institutions of Capitalism*. NY: Free Press.
- [10] Williamson, Oliver E. (2002): The Theory of the Firm as Governance Structure: From Choice to Contract, *Journal of Economic Perspectives*, 16(3):171-195.
- [11] Eurostat (<http://ec.europa.eu/eurostat/web/products-datasets/-/tipsun20>, retrieved 19.11.2017)
- [12] Doing business (<http://www.doingbusiness.org/>, retrieved 15.6.2017)
- [13] Kozlinger, G. (2017) The Distinctiveness of Employment Regulations in Selected European Union Countries, Master thesis, University of Rijeka, Faculty of Economics
- [14] Wallis, J. J. (2011). Institutions, Organizations, Impersonality, and Interests: The Dynamics of Institutions. *Journal of Economic Behavior & Organization*, 79(1–2):48–66. doi:10.1016/j.jebo.2011.02.002?
- [15] Hrvati na rad u Irsku, ministar rada Marko Pavić na irski viski (<https://www.24sata.hr/news/hrvati-na-rad-u-irsku-ministar-rada-marko-pavic-na-irski-viski-539524>, retrieved 18.11.2017)
- [16] Kolindin savjetnik za demografiju: ‘Ovo su tri ključne mjere za demografski oporavak, stanje je alarmantno’ (<http://net.hr/danas/hrvatska/kolindin-savjetnik-za-demografiju-ovo-su-tri-kljucne-mjere-za-demografski-oporavak-stanje-je-alarmantno/>, retrieved 17.11.2017)

RELATIONSHIP BETWEEN THE UNEMPLOYMENT RATE AND DETECTED OFFENSES IN THE CZECH REPUBLIC

David Lenert¹⁰⁸

Abstract: *The article examines the relationship between the unemployment rate and detected offenses in the Czech Republic. It verifies the hypothesis that the share of unemployed persons affects the number of detected crimes in the Czech Republic. The influence of the unemployment rate is verified within seven basic types of detected offenses, i.e. Violent acts, Moral acts, Property acts, Other criminal offenses in total, Other crimes, Economic acts and Military criminal offenses. The hypothesis was verified by a correlation analysis, Pearson's correlation coefficient based on the data of the Czech Republic in the period 2005-2016. The hypothesis was partially verified as dependence was found just for Other criminal offenses in total. It was very high, significant at 1% level. Significant dependence was not proven for other six categories of basic types of detected offenses. The category Other criminal offenses in total was tested further on for six specific crimes, i.e. Hooliganism, Spray Painting, Endangering Moral Development of Children, Illicit Manufacture and Distribution of Psychotropic Substances and Poisons for others, Fires, Obstructing of Enforcement of an Official Decision. High dependence, significant at 5% level was found for Hooliganism and very high dependence, significant at 1% level was proven for Obstructing of Enforcement of an Official Decision. Significant dependence was not proven for the other crimes.*

Key words: *Unemployment, criminality, criminality activity*

1. INTRODUCTION

Unemployment and crime are not concepts that are foreign to our society. Although this is a socially undesirable phenomenon against which we are actively struggling, we cannot say that they are completely retreating.

Theory says that unemployment can be one of the causes of increased crime, we know that a situation where a person is out of work is complicated. Work is a symbol of an economically active life of a person who has income and is materially secured. It brings them inner satisfaction and self-realization. However, if they lose this lifestyle, it often has negative consequences, not only for them but also for society. Criminal activity is not limited by any age group or sex. It is often influenced by social factors, mental disorders or other illnesses.

This article deals with the relationship of the unemployment rate and detected crimes in the Czech Republic. Its aim is to determine dependence of the individual detected crimes and the share of unemployed persons in the Czech Republic in the period 2005-2016. In this timeframe, we will examine the fact that unemployment and detected offenses are closely related and that one socially undesirable phenomenon determines the occurrence of the other. It verifies the hypothesis that the share of unemployed persons affects the number of detected crimes in the Czech Republic. The data from official statistics on unemployment and crime were used as the data source for this article. In the case of crime, as the title of the article and the hypothesis

¹⁰⁸ VŠB – Technical University of Ostrava, Faculty of Economics, Sokolská 33, 702 00 Ostrava, Czech Republic

already mentioned, it will be an obvious crime, which is monitored in the official statistics of the Police of the Czech Republic. The rate of unemployment and the number of offenses detected will be used to investigate dependence between unemployment and crime. In the first step, the unemployment rate and the seven basic types of detected offenses will be tested in the Czech Republic, and subsequently, based on the findings, the data of the selected criminal offenses will be tested.

1.1 THEORETICAL BACKGROUND

In 1968, *Crime and Punishment: An Economic Approach* by Gary Becker [1] was published, providing a comprehensive economic view of criminality. Becker describes a rationally behaving individual who compares the expected benefits of various activities. If one of the illegal activities exceeds the others, the individual becomes a criminal. Ehrlich [6] enriches Becker's model of time allocation between legal and illegal activities. If for some reason the ability to engage in legal activities against illegal activities diminishes, Ehrlich's model predicts an increase in crime. Cantor and Land [3] presented a complete structural model of the relationship between unemployment and crime. According to them, most studies had until then focused on the analysis of the reduced form of influence of unemployment on crime, especially on the impact of unemployment on the motivation of offenders.

David Lenert has obtained Doctoral Degree in Public Economics and Administration at the Faculty of Economics and Master Degree in Urban Architecture at the Faculty of Civil Engineering at VSB – Technical University of Ostrava in Czech Republic. David Lenert has also finished MBA studies at Faculty of Economics, VSB – Technical University of Ostrava in cooperation with Liverpool John Moores University, United Kingdom. At present, he is Senior Lecturer at the Department to Public Economics, Faculty of Economics, VSB – Technical University of Ostrava. His focus is on Public Sector Economics



Similarly, Cook and Zarkin [4] summarize the links between economic conditions and crime into four categories, namely:

- Legal Opportunities - Relatively high unemployment and recession-related problems reduce the cost of time spent on crime, e.g. in prison and thus may increase crime,
- Crime Opportunities - On the contrary, the recession can discourage crime by reducing the quality of opportunities, especially for property crimes. The unemployed spend more time at home, which actually protects their property, the demand for stolen goods drops and people may carry less cash,
- the use of criminogenic goods (alcohol, drugs, weapons) - intoxication is considered to be a major cause of particularly violent crime. If the consumption of these goods increases during the economic boom, the crime may increase as well,
- the criminal justice system's response to crime - reducing tax revenues during the recession may lead to lower police and court budgets and thus their ability to fight crime.

The model of Cantora and Landa [3] was further developed by Britt [2], who extended the model to the relationship between unemployment and crime among the age groups and tried to determine whether motivation grew in time.

In addition, studies on unemployment and crime were conducted by Patalinghug [8], who studied the relationship in the Philippines or, for example, Karin Edmark [5], who examined the relationship between Swedish regions in 1988-1999.

2. MATERIAL AND METHODS

The research deals with the influence of the unemployment rate and the detected crimes in the Czech Republic in 2005-2016. The relationship between the rate of unemployment and detected offenses is examined through correlation analysis. For correlation, the Pearson correlation coefficient r is used for correlation between two continuous random variables X and Y assuming a two-dimensional normal distribution of the two random variables X and Y . The Pearson correlation coefficient r is computed from the correlation pairs (x_i, y_i) measured in particular years [7].

$$r = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^n (x_i - \bar{x})^2 \sum_{i=1}^n (y_i - \bar{y})^2}} \quad (1)$$

Pearson's correlation coefficient is from -1 to 1. The positive correlation coefficient expresses a positive correlation between the variables and the negative coefficient expresses the negative correlation between the variables. If the correlation coefficient = 0 there is no correlation established.

2.1 DATA

The analysis of the relationship between the unemployment rate and detected offenses was done for the Czech Republic between 2005 and 2016. The data available are thus from the last 12 years. A description of the variables and their modifications follows.

The share of unemployed in the Czech Republic is drawn from official statistics of the Labor Office of the Czech Republic [10]. The share of the unemployed is the percentage of unemployed people (detected job seekers) aged 15-64 who are actively seeking work out of the total number of economically active population of the same age. The indicator is constructed according to the Eurostat methodology developed on the basis of the recommendations of the International Labor Organization. The unemployment rate indicator has been used since January 2013, previous data are recalculated by the Labor Office of the Czech Republic by 2005. The indicator of the share of the unemployed is published monthly, thus the average share of unemployed persons in the monitored years was calculated for the Czech Republic.

The detected crimes in the Czech Republic are obtained from official statistics of the Police of the Czech Republic [9]. Statistical surveys of crime for individual years are published on the website of the Police of the Czech Republic. The data are reported on a monthly basis in accumulated form, therefore there was no need of further calculation.

3. RESULTS AND DISCUSSION

The research verifies the hypothesis that the share of unemployed persons affects the number of detected crimes in the Czech Republic.

First, the Pearson correlation coefficient was calculated for the unemployment rate and the basic breakdown of the detected offenses in the Czech Republic.

For research purposes, the following basic breakdown of identified offenses was used:

- TSK 101-190 Violent acts,
- TSK 201-290 Moral acts,
- TSK 311-590 Property acts,
- TSK 611-690 Other criminal offenses in total,
- TSK 721-790 Other crimes,
- TSK 801-890 Economic acts,
- TSK 901-903 Military crimes.

Year	Average rate of unemployed persons (in %)	101-190 Violent acts	201-290 Moral acts	311-590 Property acts	611-690 Other criminal acts in total	721-790 Other crimes	801-890 Economic acts	901-903 Military crimes	101-903 Total crime
2005	6.6	21684	1849	229279	24692	22585	43882	89	344060
2006	6.1	19171	1615	221707	20878	33541	39473	61	336446
2007	5	19551	1689	228266	18795	51061	37981	48	357391
2008	4.1	17875	1680	219347	18861	53524	32474	38	343799
2009	6.1	16887	1730	212168	19190	53056	29774	24	332829
2010	7	18073	1811	203717	25437	35960	28371	18	313387
2011	6.7	19409	2086	203675	27787	35984	28216	20	317177
2012	6.8	18358	1981	194970	27140	34434	27633	12	304528
2013	7.7	18689	2109	209351	30316	34522	30376	3	325366
2014	7.7	16949	2205	173611	29729	35431	30731	4	288660
2015	6.6	15669	2256	139092	27340	32646	30616	9	247628
2016	5.6	14249	2245	118218	26068	29246	28396	10	218432
Corel. coef.		0.07	0.53	-0.15	0.82	-0.59	0.24	-0.38	-0.22
P-value		0,8317	0,0750	0,6527	0,0010	0,0452	0,4491	0,2231	0,5287

Table 1: Correlation of the share of unemployment and detected crime in the Czech Republic in 2005-2016. Source: Police of the Czech Republic [9], Ministry of Labor and Social Affairs [10], author's calculation

The Pearson correlation coefficient r was calculated from 12 correlation pairs, which corresponded to each of the monitored years.

Positive and significant dependence exists for just one type of offense, namely TSK 611-690 Other criminal offenses in total, where correlation coefficient reached 0.82 - very high dependence, significant at 1% level. Significant dependence was not proven for the other types of detected offenses and correlation coefficients were as follows: for TSK 101-190 Violent acts, correlation coefficient of 0.07; TSK 201-290 Moral acts, correlation coefficient of 0.53, TSK 311-590 Property acts, correlation coefficient -0.15; TSK 721-790 Other crimes, correlation coefficient -0.59; TSK 801-890 Economic acts, correlation coefficient -0.24; TSK 901-903 Military crimes, correlation coefficient -0.38. For total crime TSK 101-903, correlation coefficient -0.22; see Chart 1.

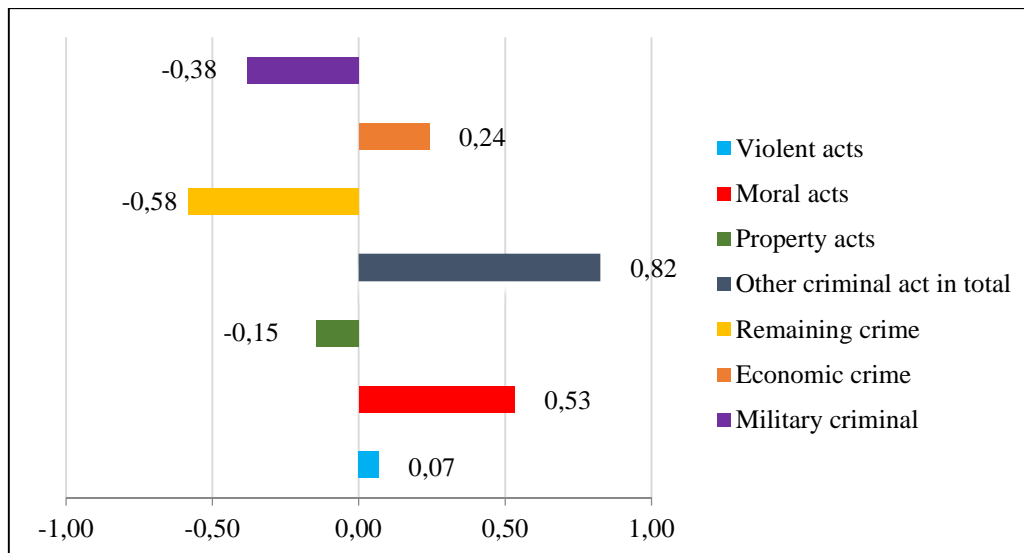


Figure 1: Correlation coefficient of the share of unemployment and detected crimes in the Czech Republic in 2005-2016. Source: author's calculation

An interesting result is 311-590 Property acts, correlation coefficient of -0.15, we generally expect a more positive dependence between the unemployment rate and the property crime. We assume that the unemployed who have lowered legal income will try to improve their situation this way, this dependence on the tested data in the Czech Republic has not been confirmed. As far as the result 611-690 Other criminal offenses in total, the correlation coefficient of 0.82, significant at 1% level, final dependence is in line with expectations and the selected crimes in this category are further examined by independent research and to clarify them, specific articles of Act No. 40/2009 of Criminal Code are going to be dealt with.

In the category of TSK 611-690 Other criminal offenses in total, selected offenses are:

- TSK 201 Rape (§ 185),
- TSK 211 Sexual Abuse of Dependents (§ 187/2),
- TSK 212 Other Sexual Abuse (§ 187/1, 3, 4),
- TSK 231 Other Sexual Deviations (Section 358),
- TSK 271 Procuring (Section 189),
- TSK 290 Other Moral Offenses (§§ 190 - 194).

Year	Average rate of unemployed persons (in %)	611 Hooliganism	613 Spray painting	631 Endangering moral development of children	635 Illicit manufacture and distribution of psychotropic substances and poisons for others	651 Fires	663 Obstructing of enforcement of an official decision	611-690 Total other criminal acts
2005	6.6	3293	2747	712	2267	748	11534	24692
2006	6.1	3073	2717	607	2248	703	9041	20878
2007	5	2995	3121	727	2216	854	6702	18795
2008	4.1	2843	4167	868	2364	964	5324	18861
2009	6.1	2532	3469	887	2443	1063	6607	19190
2010	7	2897	2608	863	2516	922	13447	25437
2011	6.7	3490	2831	959	3097	1120	13796	27787
2012	6.8	3343	3025	964	3261	976	12936	27140
2013	7.7	3476	3490	890	3947	880	14596	30316

2014	7.7	3418	4273	865	4414	884	12792	29729
2015	6.6	2891	4122	805	4515	957	11334	27340
2016	5.6	2821	4543	950	4514	886	9979	26068
Corel . coef.		0.60	-0.20	0.18	0.45	-0.01	0.88	0.82
p-value		0,0412	0,5277	0,5780	0,1427	0,9870	0,0002	0,0010

Table 2: Correlation of the Share of Unemployment and Selected Other Criminal Offenses in total the Czech Republic in 2005-2016. Source: Police of the Czech Republic [9], Ministry of Labor and Social Affairs [10], author's calculation

Pearson's correlation coefficient r was calculated from 12 correlation pairs corresponding to the individual years surveyed.

Positive and significant dependence was found in two detected crimes, namely TSK 611 Hooliganism (§§ 358, 359), correlation coefficient 0.60 - high dependence, significant at 5% level and TSK 663 Obstructing of Enforcement of an Official Decision (§ 337), correlation coefficient 0.88 - very high one, significant at 1% level. Significant dependence was not found in four other detected crimes, namely TSK 613 Spray Painting (§ 228/2), correlation coefficient -0.20; TSK 631 Endangering Moral development of Children (§§ 201, 202), correlation coefficient 0.18; TSK 635 Illicit Manufacture and Distribution of Psychotropic Substances and Poisons for others (§ 238), correlation coefficient 0.45; TSK 651 Fires (§§ 228, 272, 273), correlation coefficient -0.01, see graph 2.

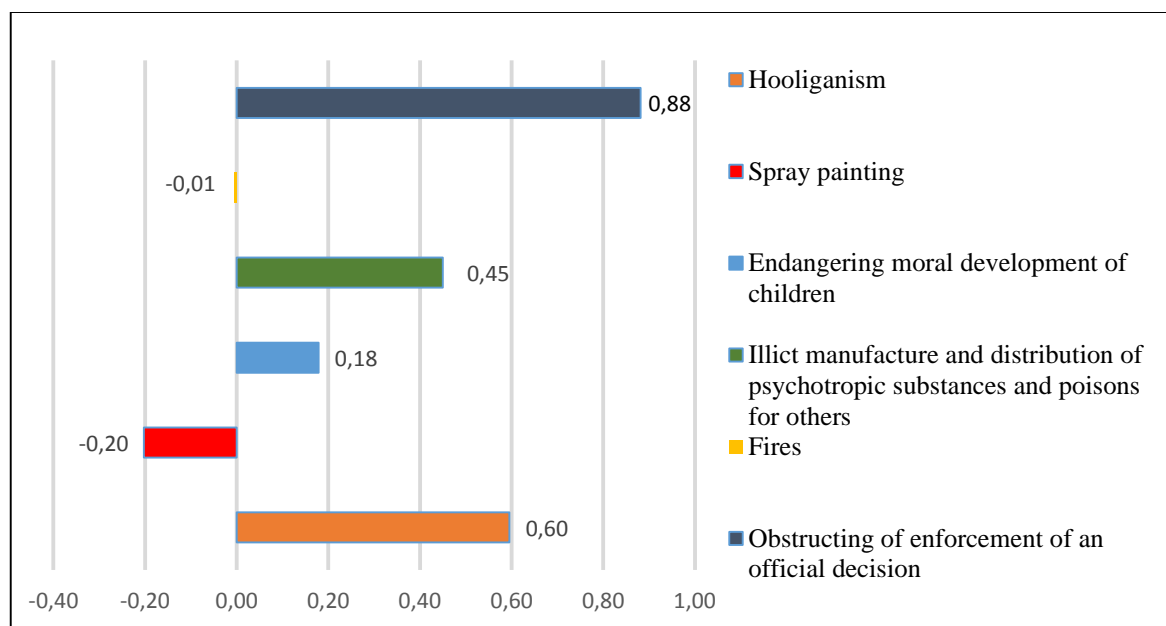


Figure 2: Correlation coefficient of the share of unemployment and selected detected other criminal offenses in total in the Czech Republic in 2005-2016. Source: author's calculation

An interesting result is § 228 (2) Spray Painting, where we would expect positive and significant dependence. It was not confirmed in the Czech Republic. In respect of § 337 Obstructing of Enforcement of an Official Decision, here the highest degree of expectation was confirmed, as is the case of § 358 Hooliganism and § 359 Defamation of Human Remains.

4. CONCLUSION

The investigation has partially confirmed the relationship between the proportion of the unemployed persons and the detected offenses in the Czech Republic. The hypothesis that the share of unemployed persons affects the number of detected offenses was partially confirmed in the Czech Republic. The information was partial as significant dependence was found just in the case of Other criminal offenses in total, where very high dependence was confirmed. In the other monitored offenses, significant positive dependence was not confirmed.

Due to the positive and significant dependence between the share of unemployment and detected Other criminal offenses in total, this type was investigated from the viewpoint of selected offenses.

In the case of Other Criminal Offenses, it was: Hooliganism, Spray painting, Endangering Moral Development of Children, Illicit Manufacture and Distribution of Psychotropic Substances and Poisons for Others, Fires, and Obstructing of Enforcement of an Official Decision. Significant dependence was shown in two offences, in one of them very high, namely Obstructing of Enforcement of an Official Decision, and high one in case of Hooliganism. In the case of the Obstructing of Enforcement of an Official Decision, this is Article 337 of the Criminal Code. In the case of Hooliganism, this is § 358, which characterizes hooliganism as follows: Hooliganism is committed by a person who acts publicly or at public place indecently, in particular by attacking another person, defaming a grave, a historical or cultural monument, interferes with the preparation, course or ending of an organized sports match, assembly or ceremony of people, and §359, which deals with the defamation of human remains, unjustly opens a grave, tomb or urn with human remains, arbitrarily removes human remains from the graveyard or handles human remains contrary to the law (Act No. 40/2009 Journal of Criminal Code) [11].

The issue of the relationship between unemployment and crime can be reversed, from crime to unemployment. If there is a high level of crime in the region, it can influence businesses, their decision whether to work in the region and employ its inhabitants, whether to open up and expand their activities or leave the region, the first case will lead to stagnation of unemployment and the second one to rising unemployment. Another influence from crime to unemployment may be the fact that people applying for a job are usually required to provide a criminal record, criminals may have difficulty to find a job and easily become unemployed.

Finally, it should be remembered that criminality is influenced by a number of endogenous and exogenous factors, where unemployment, or the rate of unemployment, is just one of many of these factors. The purpose of this article was not to examine all these factors, but only to test the relation of the proportion of the unemployed and the identified offenses in the Czech Republic.

REFERENCES

- [1] BECKER, Gary S. (1968). Crime and Punishment: An Economic Approach. *Journal of Political Economy*. Vol 76 (No. 2), pp. 169–217.
- [2] BRITT, Chester L. (1997). Reconsidering the Unemployment and Crime Relationship: Variation by Age Group and Historical Period. *Journal of Quantitative Criminology*. Vol 13 (No. 4), pp. 405–428.

- [3] CANTOR, David and LAND, Kenneth C. (1985). Unemployment and Crime Rates in the Post-World War II United States: A Theoretical and Empirical Analysis. *American Sociological Review*. Vol 50 (No. 3), pp. 317–332.
- [4] COOK, Philip J. and ZARKIN, Gary A. (1985). Crime and the Business Cycle. *The Journal of Legal Studies*. Vol 14 (No. 1), pp. 115–128.
- [5] EDMARK, Karin. (2005). Unemployment and Crime: Is There a Connection? *The Scandinavian Journal of Economics*. Vol. 107 (No.2), pp. 353-373.
- [6] EHRLICH, Isaac. (1973). Participation in Illegitimate Activities: A Theoretical and Empirical Investigation. *Journal of Political Economy*. Vol 81 (No. 3), pp. 521–565.
- [7] MELOUN, Milan, MILITKÝ Jiří and HILL Martin. (2012). *Statistická analýza vícerozměrných dat v příkladech*. Praha: Academia. ISBN 978-80-200-2071-0.
- [8] PATALINGHUG, Epictetus E. (2009). Identifying the Link between Unemployment and Crime in the Philippines. *International Journal of Comparative and Applied Criminal Justice*. Vol. 33 (No.1), pp. 83-95.
- [9] Police of the Czech Republic (2017). *Statistical Surveys of Crime*. [online]. [cit. 2017-11-10]. Available from <http://www.policie.cz/statistiky-kriminalita.aspx>
- [10] Integrated Portal of the Ministry of Labor and Social Affairs of the Czech Republic (2017). *Time Series of Unemployment Rate* [online]. [cit. 2017-11-10]. Available from https://portal.mpsv.cz/sz/stat/nz/casove_rady
- [11] Act No. 40/2009 Journal of Criminal Code

SHARING ECONOMY: COMBINATION OF PHYSICAL AND DIGITAL SUPPLY CHAIN; CURRENT SITUATION AND NEW TRENDS

Višnja Bartolović¹⁰⁹
Sandra Mrvica Mađarac¹¹⁰
Ante Nemeček¹¹¹

Abstract: *Sharing economy represents a business model that is based on sharing, existing of temporary property and trade in services. Sharing economy has emerged gradually due to the development of technology in response to a shortage of certain resources in urban areas. It was just that those new technologies have enabled the creation of the new business models, and then they continued to expand and develop. There are numerous advantages of such business models, but also the disadvantages which they encounter in the new ongoing trends in sharing economy.*

The unique digital market for Europe represents the European Union's initiative in a view to connect the markets of all 28 European Union members to a digital platform that should enable the European Union to become a global leader in linking the internal market thanks to digital technologies.

In this paper are analyzed the influential technology used today that allows changes in the supply chain for it to be directed at the user's demand, which is a key driver of digital networks. New technologies will move away from the traditional supply chains to fully integrated digital networks. And it will be this new technology that will usher in industry 4.0 in the new era.

The results of this analysis indicate that the sharing economy is rapidly growing trend shaped by demand, and our platform enables us to believe complete strangers during the exchange of services. The preparation of businesses for transfer to digital business has commenced. The incoming changes that are now in the process of gradual implementation, change current business models and integrate various business systems into a single information flow.

Key words: *sharing economy, industry 4.0, digital supply chain, new business models*

1. INTRODUCTION

The Age of 4G technology provides us with the modern ways of communications. In the field of information and communication solutions the innovations are developing that create new trends in the lives of both people and businesses. We are witnessing the speeding up of processes in the development of digital technology and the appearance and also evolving of the new business models.

Thanks to the growth of innovation and quality with a view to the leaders in telecommunication products and services and also leaders in the field of information and communication solutions, we can say that digitalisation is increasingly affecting business processes, but also people's daily life activities.

¹⁰⁹ College of Slavonski Brod, Dr. Mile Budaka 1, 35 000 Slavonski Brod, Croatia

¹¹⁰ College of Applied Sciences „Lavoslav Ružička“ in Vukovar, Županijska 50, 32 000 Vukovar, Croatia

¹¹¹ College of Slavonski Brod, Dr. Mile Budaka 1, 35 000 Slavonski Brod, Croatia

The Industry 4.0 is based on a digitalisation of the business processes and smart factories that encompasses multiple goals: cost - cutting through flexibility, business processes digitalisation, competitiveness through the implementation of the ICT technology, connections in the supply chain, business process visibility, collaboration planning, and making of partnerships with the customers and suppliers in the course of the supply chain.

Collaborative platforms that have emerged from the digital age are enabling sharing economy. The characteristic of the new services and products are featured towards personalization. The customer's need plays a pivotal role when creating new products and services and they are being explored in detail to help shape new products and services.

New trends that have emerged for some time have now become viable. When sharing the goods their utility increases, thus reducing the need for the new goods and ongoing environmental pollution. The best example for the aforementioned are developed cities in the European Union who want to reduce the harmful gas emissions from the vehicles.

Since the 1970s, with the development of the information and communication technologies, it has been seen as a possibility that an employee does not have to sit in the company's office while undertaking his job activities. This shifting of work to the employee home is referred to by the term teleworking, and it was popular during the 80 - ies of the last century. The next term "offshore outsourcing" means an operation on an international level, so the experts from different countries have been able to work for any company anywhere in the world. On this way, the workers are becoming a global source of a workforce to the companies. By means of using the online platforms, today this trend of connecting workers with the companies has become even more developed [1].

Sharing economy appears under various names, such as: collaborative consumption, Access over Ownership, the "On Demand" or "Peer – to – Peer" Economy [2].

The best example of sharing economy is Uber, which is the fastest growing start – up in a history which from a local company has become a corporation that operates in over 250 cities all over the world [2, p. 14]. In accordance to the Price Waterhouse Coopers consultants is expected that the sharing economy that has been previously divided into five key sectors: travell, car sharing, finance, staffing, and music and video streaming, will reach 335 billion dollars in 2025. [2, p.14].

Višnja Bartolović was born in Požega in 1976. She graduated from the Faculty of Economics in Osijek in 2000. She is currently a doctoral alumnus at the postgraduate Management doctoral study at the Faculty of Economics in Osijek. She worked for 10 years in the major Croatian companies. She is employed at the College of Slavonski Brod as a senior lecturer of a group of economic collegiums, branch Management. She has participated in the work of several scientific and expert conferences as a lecturer. Her area of research encompasses organization and management, human resources and social doctrine of the Church.



2. NEW TRENDS OF THE DIGITAL AGE - DIGITALISED SUPPLY CHAINS

The existing, traditional supply chains are focused primarily on the automation of the business processes, advanced analytics, visibility, partnership and logistics. Modern supply chains have already opted for digitalisation of business processes and many new activities, and some of them will be analyzed below. According to Schrauf and Bertram (2016), digital supply chain thus becomes a fully integrated system that depends on a number of key technologies [6]:

- Integrated planning and Execution - digital supply chain needs to be fully integrated which means that the suppliers, procurement, production, storage and logistics are mutually related and oriented towards the customers via the central control centre positioned in the cloud. On this way it is possible to spot problems anywhere in the supply chain. The central control centre in the cloud has the ability to proactively manage the flow of operations and to prevent adverse events;
- Logistics visibility - a key emphasis in supply chain is the outsourcing that complicates the implementation of the supply chain. Some of the problems that have arisen are fluctuations in demand, shortages or delays of raw materials, problems in transport and others. The advantage of the digital supply chain is precisely in the logistics visibility - the exchange of information's and the possibility of well - timed reaction. Only promptly set data and the real - time data can form the basis for action and correction. It is always necessary to integrate internal and external data;
- Procurement 4.0 – sourcing on demand - digitalisation of procurement requires a change of culture in the relationship among business partners. Effective data integration between businesses partners can lead to lower costs, deliveries based on the principle of just in time, and easier management of planning. These entire radically changes the relations on the B2B level, primarily in the digital sense, and especially in the cultural sense of the word. This may be the biggest challenge for digitalisation and industry 4.0 in the new era (sharing data on a partnership basis);
- Smart warehousing – robots at work - a key position in the digital supply chain is the warehouse and the goods that have been stored in it. Using this technology it will be possible to link transport means with the warehouse, such as the arrival of a truck at the warehouse, ongoing preparations for the unloading, transport of the goods at the right location, the real state of the goods that were brought to the warehouse, using the RFID technology that can be connected to the drones. On this way we will be able to know the true state of goods in stock, without the need for the physical list of goods, such as, for instance - stocktaking. This RFID technology will help us with the accuracy of the data, finding possibly lost or incorrectly recorded goods: all these errors that have so far

Sandra Mrvica Mađarac was born in Šibenik in 1975. She graduated and received her MSc degree from Faculty of Economics in Osijek. She acquired her PhD degree from the Herzegovina



University, Faculty of Social Sciences Dr. Milenko Brkić in 2017, scientific field Economy, branch management. Since 2007 she has been working at the College of Applied Sciences „Lavoslav Ružička“ in Vukovar, where she served as a Deputy Dean and a Vice Dean for education. Today, she is employed at the College as a Senior lecturer of a group of economic collegiums, branch Trade. She was a member of program and organizational boards and she participated in several scientific and professional conferences. Her area of interest includes trade, tourism and demography.

occurred in the storage manipulation will be reduced to a minimum. It is precisely in the warehouse that it is necessary to ensure inventory visibility;

- Efficient spare parts management – with 3D printing – enterprises that are engaged in production of various spare parts for its customers so far have had to keep in stock a number of such parts, without reliable ability to predict the dynamics for the demand of such spare parts. All of these have caused them considerable costs. Today, it's possible to use 3D printers with the help from the appropriated software; draft of an individual spare part and its building material to produce a single such part. This new approach to the production of the spare parts makes the cost of keeping spare parts unnecessary and redundant;
- Autonomous and B2C logistics – robotic transport - under the autonomous logistics is referred to the vehicle without a driver, regardless of whether it is only one truck, a convoy of trucks or delivery to the customer's door (B2C). Characteristics of this system which has been developing for some time are, in general, lower costs, elimination of human errors and routes optimization. In a production plant, this means managing raw materials through a production plant; from delivery of raw material to collection of the return packaging material. This is possible thanks to sensors, RFID technology and other technological achievements;
- Prescriptive supply chain analytics – decision support for managers - a key success factor for the decision - making in the supply chain is full integration and visibility of data, in order to carry out optimization of certain activities in the supply chain. These types of decisions have a direct impact on the costs, revenues and overall supply chain performances;
- Smart supply chain enablers – success factors - there are several key factors that will help to work in a digital environment, and among those are: the creation of strategies for digitalisation of supply chains, establishment of the new business processes, work on improving of organization and employees skills, creating of the new business rules, development of partnerships and mapping of the technology that will support digital supply chains [6].

3. NEW TRENDS ON THE LABOR MARKET IN THE DIGITAL AGE – CURRENT STATUS AND TRENDS

Thanks to the new digital technology new performances of working are increasingly taking shape, in such a way that we can now talk about the combination of digital and physical networking. Some of these new forms are included in the so-called Crowdsourcing, and other new form that is often referred to as: "human cloud workforce on demand and digital labour"[1]. Crowdsourcing as a concept refers to paid work that is done for the customer by means of an online exchange of labour [1].

The first category of the crowdsourcing includes employees through the online platforms, and in the other category includes the online platform (i.e. out of network work that is organized through the crowdsourcing platform). According to the findings of the European Agency for Safety and Health at Work it's about a number of forms of work with regard to: the professional status of workers (from persons who perform routine tasks to highly qualified workforce), coordination of work (online or offline), place of work (from home, from the office of the employer or from some other place), employment status of workers (self - employed or employee), the person for whom the work is done (work done for a company or for a private client). The system of the material compensation for the work done is specifically contracted

(this can be a regular pay, work at an hourly – rate at a rated specific price, or work per percentage) [1].

What the European Agency for Safety and Health at Work in their report has concluded is the fact that it's difficult to see the actual number of employees working on the online platform. Therefore, they consider that the actual workforce is poorly defined, as the number of platforms is growing as is the average number of active workers per one platform. It is possible that some people who are registered to work on online platforms are inactive, while at the same time it is possible that one and the same worker can work on multiple online platforms under different identities, making it considerably difficult to define the population of workers who work on this way [1].

Each workplace should be structured with regard to the amount and quality of work that needs to be done. In addition, each workplace should enable the development of individual talents, to improve the working conditions, reduce risks arising from the characteristics of the job, and the environment in which work is carried out should be motivated for learning, growth and development of the worker skills. Consequently, labour productivity is not the only measure of the quality of the work place. It is noticed that when measuring the success of a workplace cannot be just a measure of costs, i.e. concentrated to the cost of a work hour spent by an engaged expert. To the design of the workplace in the company has so far been given great attention. The scientific disciplines such as Human Resource Management practice is focused on the design of the job that best suits the needs of the employer, but also the employee who works at the specific workplace, thereby always striving for the measurement of the success of labour, managing talents, knowledge, intellectual capital and diversity [3]. Can the key features of the quality working conditions that were categorized by age, sex, education and sector be identified? This is a special question.

The practice of employment is changing and the trends in crowdsourcing grow, but currently there is no reliable estimate of the level of that work on the territory of the European Union, since, for instance, work per call (also called, "Zero hours" or "on - call"), is not legally recognized in many European countries and there is no measurement of its frequency, nor is it possible to present any demographic profiles for these workers [1].

According to Bilic (2009, by BIAGI), the flexibility of labour market occurs primarily in three forms [4]: contractual, functional and numeric. The contractual meaning of flexibility refers to the deviation from the general working model for its duration (end – to - end contract, fixed – term contract, seasonal work, and part - time work). Functional flexibility can be achieved for a particular worker employed at the same employer, for example, rotating jobs, increase in jobs, etc.). Numerical flexibility refers to the fluctuating needs for workers on the labour market [4].

According to research by Mandl et. al. (2015) these forms of work have emerged or are increasing in the EU member states since 2000 [5]:

- Employee sharing is applicable where the employer rents his workers to the other companies, so that the worker who shares his workplaces collect full hourly rate that is the same as the worker who is full - time employed;
- Job sharing is the form of employment where the employer employs, for instance, two part - time workers, who share their work and tasks, where the sum of their working hours can match those of one employee that is employed full – time;

- Interim management is a form of work in which are engaged highly qualified external experts to work on projects within the company. Such experts come from the other external network;
- Casual work is a form of work when the employee works only when the employer calls him; - the employer has no obligation to the worker while pending for work;
- ICT based mobile work is a type of work, under which workers can perform the work for the employer from any place, with the assistance of a modern ICT technologies;
- Voucher – based work, where the employment relationship with the worker is realised on the payment of vouchers that were purchased from an authorized organization that covers salaries and makes contributions to the social security of the employee;
- Portfolio of work is a type of work in which a self - employed individual can work for multiple employers;
- Crowd employment is a type of employment where with the help of an online platform employers tasks connects with the workers who perform the tasks, and who are organized in the form of a "virtual cloud";
- Collaborative employment denotes the type of work when freelancers or small companies work together in a way to overcome the limitations of the size of the company [5].

All of these forms are differently represented in the European Union, some of the forms have just begun to appear, but some are in widespread use in many countries, as seen in Table 1.

What in the Mandl et. al. (2015) study is previously mentioned that all these forms of work can encourage the integration of specific groups of workers into the labour market, but their job creation potential is actually quite limited. There are dangers of casual work and voucher – based work with the regard to the low income and limited social protection. To work in the crowd employment we also need to ensure the social protection. There is a need for a balance between the protection of workers that should be ensured by law or by the collective agreement, therefore besides the policy of work, the social protection should also be discussed, developments of sectors and the business [5]. These forms of work are shown on Figure 1.

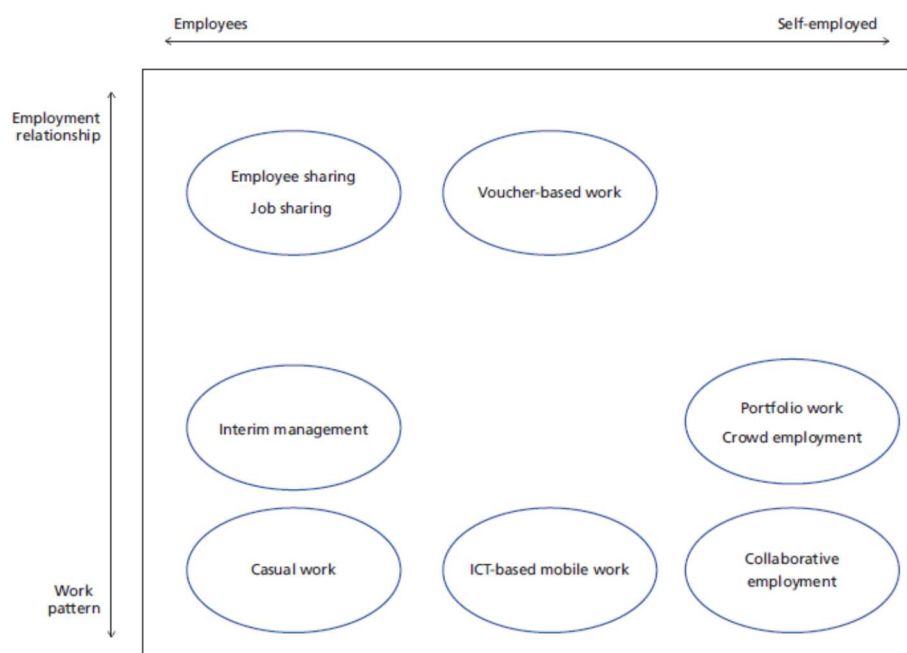


Figure 1. The nine new forms of employment
Source: Eurofound [5, p. 8]

From Table 1. it is evident that the ICT based mobile work, crowd employment and collaborative employment are among the most widespread forms of labour within the EU area.

	Employee sharing	Job sharing	Interim management	Casual work	ICT-based mobile work	Voucher-based work	Portfolio work	Crowd employment	Collaborative employment
Austria	X					X			X
Belgium	X			X	X	X		X	X
Bulgaria	X								
Croatia				X					
Cyprus					X		X		X
Czech Republic	X	X	X					X	
Denmark					X		X	X	
Finland	X				X				
France	X		X	X	X	X			X
Germany	X				X			X	X
Greece	X		X		X	X	X	X	X
Hungary	X	X	X	X	X		X		X
Ireland		X		X					
Italy		X		X		X	X	X	X
Latvia			X		X		X	X	
Lithuania					X	X	X	X	X
Luxembourg	X								
Netherlands				X	X		X		X
Norway			X		X		X		
Poland		X							
Portugal					X		X	X	
Romania				X					
Slovakia		X		X					
Slovenia		X		X	X				
Spain					X			X	X
Sweden				X	X				X
UK		X	X	X			X	X	

Table 1. Distribution of the new forms of work among the countries of the European Union
Source: Eurofound [5, p. 8-9]

The availability of mobile technologies and communication media in the course of the 4G era, allow the distribution of ICT based mobile work. ICT serves for the purpose to online connect workers using the computer systems of the company they work for [5].

Characteristics of ICT based mobile work are as follows (Mandl et. al., according Schaffers et al., 2006) [5]: full mobility of people (occupations such as journalists, technicians, sales agents), mobility to different locations (to places such as hospitals, schools, offices, campuses, for example, occupations such as researchers and workers on the construction site), jobs that are

taking place in several places (such as the job of the engineers in the field), networked workspaces (staff that develops software, complex design and undertake engineering tasks).

Here we can distinctly see a number of different sectors that are affected by the ICT technology where it promotes work, speeding it up and mutually connects workers. However, the ICT based mobile work is only suitable for those jobs that do not ask fixed position, for example, work in the employer's headquarters. Workers should have a connection with the internal enterprise system, Internet access and the ability to work in the cloud (cloud computing) and the agreed procedures for communication and exchange of documents and information's. The working culture that needs to be cultivated is mutual trust; the employer must delegate part of his / her responsibility to the employees, and the employees must be able to assume their responsibility to manage their work. Therefore, the new culture that needs to be developed is a culture of cooperation, trust and responsibility [5, p. 74].

Ante Nemeček was born in Požega in 1993. He is student of Management on College of Slavonski Brod. He is working as a Network Manager at AppLike GmbH in Hamburg (Germany). He speaks English and German language.



The majority of ICT mobile workers (so - called E - nomads) are men (65%), they have higher education (56%) and cover the range between 39 – 49 years of age. (45) Sectors where for these workers have been offered a greater ability to work are: ICT, automotive sector industry, aerospace industry, building sector, health sector and manufacturing sector [5, p. 76].

The development of ICT technology enables flexibility in the organization, affecting the ability to increase productivity. At the same time, workers' expectations are that their employer will enable them ICT tools to carry out everyday tasks so that they can work outside the office of the company. It is important to ensure a balance between private and work life, since ICT workers sometimes place no boundary between private and business life, if they work from home [5, p. 79].

As another disadvantage it can be observed that the employment relationship between the employer and the employee is rather poorly regulated. Except that there is no administration that should manage and monitor this type of work, workers' rights in this relationship are rather reduced (such as salary compensation during sickness, annual leave, the right for a minimum wage) [5, p. 108].

According to the European Agency for Safety and Health at Work there is another, rather questionable area for the execution of crowd employment and that is the applicability of national and EU regulations, such as the directive on working hours, on part – time work, agency employment, and equality of salaries, equal treatment and parental leave. The Health and Safety Directive should provide the same level of protection to temporary employed employees, agencies, as well as to other employees. But these guidelines are difficult to apply to the crowd employment because often their legal status is unclear, as it is difficult to determine the number of their workforce [1, p. 5].

European Agency for Safety and Health at Work states the following working advantages for the employees in the sharing economy:

- „Enabling access to work for people who would otherwise be excluded (e.g. people with disabilities, people in developing economies),
- Enabling consumers to access affordable services on a just-in-time basis,
- Creating new opportunities for flexible ways to combine work and private life,
- Enabling low-cost entry into the market for new enterprises or firms trying out new products or services, thus contributing to growth and competitiveness,
- Enabling social innovation,
- Enabling creativity and self-expression and the generation of new cultural products and services,
- Helping to consolidate a European digital single market.“ [1, p. 5-6].

In addition to these benefits European Agency for Safety and Health at Work states the following risks that needs to be taken into account when defining public policies:

- „Widespread evasion of existing regulations designed to protect workers and consumers,
- Health and safety risks to workers and consumers,
- Distortion of markets for existing services (housing, transport, etc.),
- Growing precariousness,
- Threats to European employers through undercutting by companies based elsewhere,
- Loss of quality control (including the ability to verify the authenticity of products and qualifications),
- The possible unravelling of the EU regulatory environment“ [1, p. 6].

On Figure 2 is shown the mechanics of a virtual employment platform.

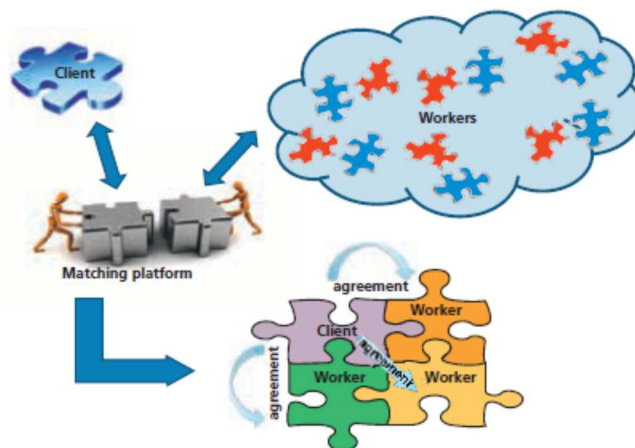


Figure 2. Virtual employment platform
Source: Eurofound [5, p. 109]

In accordance to the experience gained in the past, the crowd employment so far has been popular in network sectors of the economy, such as "web content and software development, advertising, audio and video transcription, database building, market research and digitalisation" [5, p. 112, according to Felstiner, 2011]. Most frequently used services of the crowd employment are: IT sector, marketing, product development in the creative industries (Web design, software development experts, journalists, translators, and the like). Clients who use these services are mostly citizens of those countries where such online platforms have their

headquarters. Also, it is about small and medium - sized enterprises, non - governmental organizations and large companies that do not possess their own capacities to perform specific tasks [5, 112].

4. CONCLUSION

Managing of the supply chain in the course of the 20th century has come to minimize the total cost of supply chain and on the partnership associations to improve sales and efficiency of the supply chains. What is today visible on the horizon is the fact that even now there are advanced technologies existing that will digitalise supply chains and will completely change the image of the business and mutual relationships. Primarily, the aforementioned will require a transformation of the business culture towards the collaborative culture, for the sustainable development of business, which is one different algorithm to scrutinize the supply chain.

In the sharing economy, by the fast pace of growth of the former start – up companies and thanks to the technological and social changes, the new business models and innovation are now developing. It is therefore extremely important to be able to track the modern trends and regulate laws in accordance with the fast – growing start – up companies. Sharing economy is facing many challenges, one of which is perhaps the greater protection of labour and workers' rights. The European Union seeks to protect workers' rights, but the share of workers on the EU territory is growing, and the number of those who have been involved in such sharing economy remains unknown and thus the protection of their rights.

It is necessary to provide a fair system of work. Work and capital make a unique relationship, where the work hold primacy over capital and the priority of man over things constitute a correct order of things. When the order has been set in reverse (in cases where the capital has primacy over the work), the result is a chaos (such as dehumanization of work, profit at the expense of workers' rights, etc.). The basic misconception of this materialistic understanding of reality is that the work has only economic goal.

The role of state and international institutions manifests itself in shaping and respecting the rights of the workers - an adequate and fundamental criterion when shaping economy and moral order in society.

The fact is that the work also made flexible the question does flexible forms of work have a higher incidence during seasonal activities? Flexibility of work also reflects on the concept of work safety. What has been noted so far is the fact that the new flexible forms of work are encouraging the reduction of labour rights (severance pay institution, education and promotion at work and other rights). Rights that stemmed from the employment are based on the Law on Labour and other regulations by which relations on the labour market are regulated. But what is being observed during the emergence of the new flexible forms of work is precisely the need to protect the workers in times of unemployment. What forms of support (the social system) are available to workers during a non - working time, - who bear the costs of unemployment, what interaction of subjects is needed to cover and solve such work flexibility / instability (what is the relationship between the social state – educational system – workers unions – employers)?

What is necessary is to transform the social and educational policy in the form of investment in workers in order to increase their willingness to take on more risk. This also means the flexibility of the education system (that raises the question what are the key changes that need to be done, such as increased access to education, flexible introduction of the new study

programs, facilitate learning coupled with the working activities). How employers look at the learning with the working activities and do they support their workers are some of the questions that will be necessary to analyze and to seek adequate solutions for them in the foreseeable future.

REFERENCES

- [1] OSHA (2015). A review on the future of work: online labour exchanges, or 'crowdsourcing': implications for occupational safety and health, Discussion Paper, European Agency for Safety and Health at Work, Bilbao. <https://osha.europa.eu/en/tools-andpublications/publications/future-work-crowdsourcing>
- [2] PWC (2015). The Sharing Economy. <http://www.pwc.com/cissharing>
- [3] Bahtijarević Šiber, F. (2014) *Strategic management of human resources*, Školska knjiga, Zagreb.
- [4] Bilić, A. (2009) Flexible forms of work and labor law, *Collected papers of the Faculty of Law University of Rijeka*, V. 30, no. 2, pp. 920-942.
- [5] Mandl, I., Curtarelli, M., Riso, S., Vargas, O., Gerogiannis, (2015). European Foundation for the Improvement of Living and Working Conditions (2015). New forms of employment. <https://www.eurofound.europa.eu/publications/report/2015/working-conditions-labour-market/new-forms-of-employment>
- [6] Schrauf, S., Bertram, Ph. (2016). Industry 4.0: How digitization makes the supply chain more efficient, agile, and customer-focused. PwC. <https://www.strategyand.pwc.com/reports/industry4.0>

INDICATORS OF SUSTAINABILITY

Monika Dušková¹¹²
Markéta Součková¹¹³

Abstract: *The presented paper provides an overview of publications and other sources on the economic, environmental and social indicators, and its aim is to design the main tool for sustainability for industry and companies. The methodology is based on the qualitative analysis of current evaluation systems of sustainability measurement and indicators of sustainability at company level. Then the appropriate performance measurement system of sustainability indicators being presented as a result of the paper and the upcoming research is outlined.*

Key words: *indicators, environmental, social, economic, sustainability*

1. INTRODUCTION

Over the years, sustainability has proven to be very important and it is the most important phenomenon of all. Sustainability is one of the most complex composite constructs and very common topic in the last decades. Despite that for some firms is sustainability, environment and socially responsible means fill a few boxes and response for some questions. After that, some managers think that this guarantee future prosperity. It is very important to understand sustainability, because it impacts all walks of life.

Trends including the growth of nongovernmental organizations and movements suggest that the public is no longer satisfied with corporations that focus solely on short-term profit maximization. People want corporations to consider broad human needs [1]. Von Hauff and Kleine [2], P. Chapuy [3], Raderbauer [4] and researches as The SIGMA Project [5] are among those that have a three interacting dimensions meaning of the sustainability. These dimensions are the environmental, the social and the economic sustainability.[6]

The article discusses sustainability and various indicators of sustainability measurement. The next article will be about the results of the questionnaire.

2. THE CONCEPTUAL FRAMEWORK

2.1. Sustainability

The principal inspiration of sustainability came from the Brundtland Report of 1987 .

The term gained widespread usage after 1987, when the Brundtland Report from the United Nations' World Commission on Environment and Development defined sustainable development as development that *“meets the needs of the present generation without compromising the ability of future generations to meet their own needs.”* [7]

¹¹² Department of Economics, Faculty of Business and Management, Brno University of Technology, Czech Republic

¹¹³ Department of Economics, Faculty of Business and Management, Brno University of Technology, Czech Republic

Károly criticizes this definition of sustainability. He said that this part: „without compromising the ability of future generations to meet their own needs.“ Is ok. However, he criticizes the idea of „satisfy the needs of the present“. He thinks that technological development generates newer and newer needs, so it is impossible to satisfy all needs in every moment.

According to Károly sustainability was previously known only by ecologists and environmental economists. At that time sustainability meant human population and activity should not surpass the carrying capacity of the biosphere, its renewing, resource, and sink capacities. In these days you can hear the word sustainability everywhere [8].

Now everyone adds the word "sustainable" to each word and the original meaning has faded away and been forgotten. It simply means "good," a synonym for everything that is positive.. You can hear something about „sustainable economic growth“ and it means economics [9]

Károly said that the meaning of sustainability has flattened over the years and we can say good or neutral or continues to deal with super-critical notions of sustainable development [8, 10]. According Ratiu et. al there are a lot of ways to integrate sustainability in our lives. Many conferences have some sections dedicated to sustainability. Also there are many publications, books, and articles which deal with various aspects of sustainability[11]. According to Glavič et.,al. when somebody speaks about sustainability, it means even following terms such as cleaner production, pollution prevention, pollution control and minimization of resource usage, eco-design and others.[12] According to Koudelková and Milichovský sustainability of profitability is driven by innovations [13]

According to Morelli the concept of sustainability has been transformed from scientifically definable to a notion open to interpretation by anyone [14].

There are a lot of system for sustainability, for example The Global Reporting Initiative (GRI) is the most common standard followed to implement and to develop sustainability reporting. The Global Reporting Initiative's (GRIs) development of social, economic and environmental indicators for voluntary reporting [15]. GRI was founded in 1997 by the Coalition for Environmentally Responsible Economies (CERES) and the United Nations Environmental Programme (UNEP). The GRI Guidelines were published in 2000. Their purpose is to support

Monika Dušková

Education

07/2015 – present: *Brno University of Technology, Faculty of Business and Management*
doctoral degree programme, Corporate Management and Economics

08/2012 - 07/2014: *Master's degree programme, Company Management and Economics*

Masaryk University, Faculty of Science, Brno

07/2011 - 02/2014 *doctoral degree programme, Plasma Physics (dropped)*

07/2009 - 06/2011 *Master's degree programme, Plasma Physics*

06/2006 - 06/2009 *Bachelor's degree programme, Physics*

Publications:

Dušková M. Key Enabling Technologies in Relation to Sustainable Development. Innovation Management and Education Excellence Vision 2020: From Regional Development Sustainability to Global Economic Growth. Italy, International Business Information Management Association (IBIMA), 2016, p. 2711 – 6532, ISBN 978-0-9860419-6-9



companies in creating sustainability reports that integrate social, environmental and economic impacts of business. The GRI intends to establish their guidelines as an internationally accepted framework that promotes comparable sustainability reporting. [16]

There are many international organizations dealing with sustainability, such as EEA. The European Environment Agency provides sound, independent information on the environment for those involved in the development, adoption, implementation and evaluation of environmental policy, as well as the general public. In close collaboration with the European Environmental Information and Observation Network (Eionet) and its 33 member countries, EEA collects data and produces assessments on a wide range of environmental topics.

EEA indicators are designed to answer key policy questions and support all phases of environmental policy making, from designing policy frameworks to setting targets, and from policy monitoring and evaluation to communicating to policy-makers and the public. The indicators are classified as follows:

- Descriptive indicators (Type A) responding to the question: What's happening?
- Performance indicators (Type B): Does it matter? Are we reaching targets?
- Efficiency indicators (Type C): Are we improving?
- Policy effectiveness indicators (Type D): Are the measures working?

Thematic sets:

- APE (Air pollutant emissions),
- CLIM (Climate state and impact indicators),
- ENER (Energy indicators),
- INDP (Industrial pollution indicators),
- LSI (Land and soil indicators),
- MAR (Marine indicators),
- Outlook indicators,
- SEBI (Streamlining European biodiversity indicators),
- SCP (Sustainable consumption and production),
- TOUR (Tourism),

Ing. Markéta Součková



Education

2015 – now:

Faculty of business and management Brno university of technology

Doctoral studies

Field: *Company Management and Economics*

2008 – 2012

Mendel univerzity Brno

Bachelor's degree

Field: *Economics and management*

2012 – 2015

Faculty of business and management Brno university of Technology

Master's degree in Economics

Field: *Economics and management*

Work Experience

05/2013 – 04/2015:

Pozemní stavby Jihlava, spol. s r.o.

(50 - 99 employees)

construction company

Accountant

03/2012 – 04/2013

AWD Czech Republic

(10 -19 employees)

Insurance company

Administration, assistant, receptionist

06/2012 - 12/2012

GINA Software, s.r.o.

(6-9 employees)

Administration, clerk

- TERM (Transport and environment reporting mechanism),
- WAT (Water indicators),
- WREI (Water resource efficiency indicators),
- WST (Waste indicators) [17].

2.2. Three pillars of sustainability

Sustainability is based on three pillars. This approach was developed in the Earth Summits of 1992 in Rio and 2002 in Johannesburg [15]. Three pillars of sustainability is based on Triple Bottom Line TBL is idea of John Elkington to measure sustainability during the mid-1990s by encompassing a new framework to measure performance. This accounting framework went beyond the traditional measures of profits, return on investment, and shareholder value to include environmental and social dimensions. The TBL dimensions are also commonly called the three Ps: people, planet and profits. We will refer to these as the 3Ps.

Economic variables are for example:

- Personal income,
- Cost of underemployment,
- Establishment churn,
- Establishment sizes,
- Job growth,
- Employment distribution by sector,
- Percentage of firms in each sector,
- Revenue by sector contributing to gross state product.

Environmental measures:

- Sulfur dioxide concentration,
- Concentration of nitrogen oxides,
- selected priority pollutants,
- Excessive nutrients,
- Electricity consumption,
- Fossil fuel consumption,
- Solid waste management,
- Hazardous waste management,
- Change in land use/land cover.

Social measures

- Unemployment rate,
- Female labor force participation rate,
- Median household income,
- Relative poverty,
- Percentage of population with a post-secondary degree or certificate,
- Average commute time,
- Violent crimes per capita,
- Health-adjusted life expectancy [18].

Three pillars of sustainability consist economic aspects, environmental aspects and sociological aspects.

- **Economic** - is the ability of an economy to support a defined level of economic production indefinitely.
- **Environmental** - is the ability of the environment to support a defined level of environmental quality and natural resource extraction rates indefinitely.
- **Social** - is the ability of a social system, such as a country, family, or organization, to function at a defined level of social well being and harmony indefinitely [17].

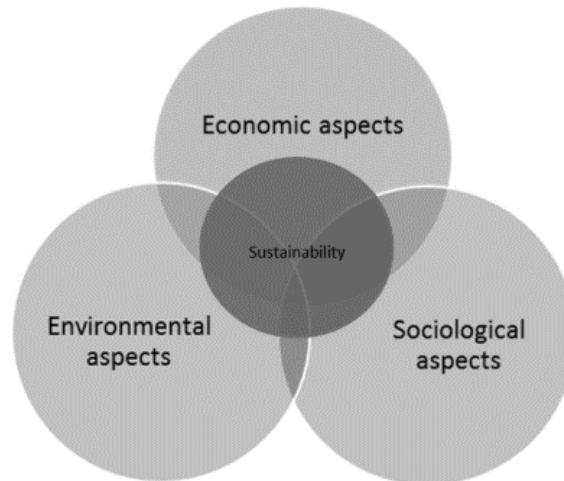


Figure 6: Three pillars of sustainability Author's own source

3. METHODOLOGY

3.1. Evaluation of economic, social and environmental aspects of company

The economic, social and environmental indicators are listed below. These indicators can be used to assess sustainability in the manufacturing industry. Of course, there are many other indicators, but they are not applicable in the manufacturing industry and therefore are not listed here. In the next publication, these indicators will already apply to selected companies. The Czech Statistical Office (www.czso.cz) uses the indicators of all three areas (social, economic and environmental). For example another's principles and authors use indicators only from some areas [20,21,22,23].

The analysis of indicators in this section includes characteristics of an indicator.

In the paper, there were presented the different approaches, how to measure economic, social and environmental aspects in companies in manufacture industry. The aim of this paper is to suggest the indicators for measurement of sustainability in companies in manufacture industry.

It's important to have criteria for indicators. Criteria are following:

- **Measurable:** Indicators must be simply and easily measured by quantitative or qualitative means within a given time frame for data collection and evaluation.
- **Relevant:** Indicators relate to a meaningful and purposeful aspect of sustainability.
- **Understandable:** Indicators should be easily interpreted by the community and lay people.
- **Reliable/Usable:** Indicators contain trusted and accurate information
- **Data accessible:** Similar to reliable/usable, an indicator must be based on data and information

- **Timely manner:** Data and information collection, calculation, and evaluation for an indicator must be done in a timely manner for informative decision-making.
- **Long term-oriented:** Current indicators must ensure their future use, development, and adoption as an organizational or process/product sustainability standard.

Indicators can be characterized by the following attributes:

- **Identification (ID):** the unique alphanumeric identifier of an indicator.
- **Name:** the word(s) for the distinctive designation of an indicator.
- **Definition:** the statement expressing the essential characteristics and function of an indicator.
- **Measurement type:** quantitative or qualitative indicator
- **Unit of measure:** the unit of the value of the indicator.
- **References:** citable documents of existing indicator set(s) or specific indicator(s), based on which an indicator is adopted from existing set(s) or newly developed.
- **Application level:** the level in a hierarchical organization that the indicator is applied. Based on this information, policymakers or decision makers in the organization can set up their own sustainability metrics based on their business strategies. [24]

In the overview of the following indicators, these are indicators from Kocmanová et al. [21]. The main reason is especially the possibility of obtaining indicators from the financial statements. We will focus on the manufacturing industry and expand the indicators for innovation indicators.

STUDY	INDICATOR	DESCRIPTION (METRICS)
Kocmanová et. Al.[21]	Indicators profitability	I_{Eco1} - ROE = EAT / Equity. I_{Eco2} - ROA = EBIT / Assets. I_{Eco3} - ROS = EAT / Revenues. I_{Eco4} - ROCE = ROCE = EBIT / Equity + Long-term liabilities.
	Liquidity	I_{Eco5} - Current assets / Short-term liabilities.
	Debt	I_{Eco6} - Assets / Liabilities.
	Assets coverage by long-term capital	I_{Eco7} - Equity + Long-term sources / Assets.
	Asset turnover	I_{Eco8} - Sales / Fixed Assets.
	Productivity	I_{Eco9} - Added value / Sales of own products and services + Revenues from sale of goods.
	Cash flow based indicators	I_{Eco10} - Return on equity of Cash flow: Cash flow / Equity.
	Approaches to recruit employees from the region	I_{Eco11} - Return on assets of Cash flow: Cash flow / Assets.
	Financial contributions from the state	I_{Eco12} - Number of employees from the region / Average recorded number of employees in the year (in persons).
	Policies and approaches to suppliers from the region	I_{Eco13} - Amount of money (e.g. subsidies, investment grants, grants for research and development, relief from fees, tax reliefs, financial incentives, awards and rewards) / Added value.
CZSO (for Czech Republic)	Gross Domestic Product	Basic macroeconomic indicator used to monitor the level, performance and dynamics of the economy.

Labor productivity:	A qualitative indicator of the economic level and the competitiveness of the economy. It expresses the efficiency of human work in the given capital.
Small and medium-sized enterprises:	Approaches the economic importance of SMEs, which, thanks to their flexibility, is a very important element of stability in economic development and employment. According to Fiala and Hedija [25], most studies revealed that smaller firms grow faster than their larger counterparts.

Tab.1: The summarization of the presented economic indicators

STUDY	INDICATOR	DESCRIPTION (METRICS)
Enrique Bonsón and Michaela Bednárová [22]	Increase in human capital	Job stability, accidents and diseases at workplace, absences, employee turnover, employees training, non-compliance with legal regulation concerning customers
	Increase in social capital	Locally – based suppliers, CSR certified suppliers, payment period to suppliers
Kocmanová et. Al [21]	Equivalent opportunities	I_{Soc1} - Total number of women / Total number of employees in given to period.
	Discrimination	I_{Soc2} - Total number of final convictions for discrimination / Total number of employees in given to period.
	Allowances to municipalities	I_{Soc3} - Total amount of money for gifts / Added value.
	Community	I_{Soc4} - Total amount of money of charitable work in support of local communities / Added value.
	Customers' safety and health protection	I_{Soc5} - Total amount of money for non-compliance of regulations related to customers' safety and health protection / Added value.
	The rate of staff turnover	I_{Soc6} - Number of terminated employments / Total number of employees in given to period.
	Expenditure on education and training	I_{Soc7} - Education and training expenditures / Added value.
	Labour productivity from value added	I_{Soc8} - Wage costs / Added value
		I_{Soc9} - Added value / Wage costs. I_{Soc10} - Wage costs / Average number of employees .
	CZSO (for Czech Republic)	Employment rate of older workers:
Women's Employment:		Testimonies about the state and development of women's employment and the level of equal opportunities
Highest educational attainment:		It characterizes the educational level of the population, indicates success in the labor market and improving the quality of human resources.

Tab.2: The summarization of the presented social indicators

STUDY	INDICATOR	DESCRIPTION (METRICS)
Enrique Bonsón and Michaela Bednárová [22]	Energy efficiency	Energy consumption, water consumption
	Pollution reduction	Polluting emissions
	Water reduction	Waste generation, waste processed
EMAS [22]	Energy efficiency	Total direct energy use (MWh or GJ), Total renewable energy use (% fo total annual energy consumption from renewable energy sources)
	Water	Total annual water consumption (m3)
		Total annual generation of waste (tonnes), total annual generation of hazardous waste (kg or tonnes)
	Biodiversity	Land use (m2 of buil-up area)
	Emissions	Total annual emission of greenhouse gases inc. at least emissions of CO ₂ ,CH ₄ , N ₂₀ (tonnes of CO2 equivalent). Total annual air emission incl. SO ₂ (kg or tonnes)
Kocmanová et al. [21]	Acquired investments for environmental protection	I_{En1} - Total investments for environmental protection / Added value.
	Environmental non-investment expenditures	I_{En2} - Non-investment expenditures for the protection of the Environment / Added value.
	Total annual emissions	I_{En3} - Total emissions to air / Added value [t/CZK] (solid particulate matter, SO ₂ , NO _x , NH ₃ , PM without CO)
	Total annual emission of greenhouse gases	I_{En4} - Total greenhouse gas emissions / Added value. [t/Kč] (CO ₂ ,CH ₄ , N ₂₀ , HFCs, PFCs, SF ₆)
	Total annual energy consumption	I_{En5} - Total consumption of renewable energy / Added value. [GJ/CZK]
	Total consumption of renewable energy	I_{En6} - Total of renewable energy / Total energy sources.
	Annual mass flow of different used materials (in addition to the carriers of energy and water)	I_{En7} - Total consumption of materials / Added value. [t/CZK]
	Recycled materials use Proportion of the recycled input materials	I_{En8} - Percentage content of used recycled materials from total consumption materials. [%]
	Total annual consumption of water	I_{En9} - Total annual consumption of water / Added value. [m ³ /rok/CZK]
	Total annual production of waste	I_{En10} - Total annual production of waste / Added value. [t/CZK]
	Production of hazardous waste	I_{En11} - Total annual production of hazardous waste / Added value. [t/CZK]

CZSO <i>(for Czech Republic)</i>	Emissions of major pollutants	Nitrogen oxides are one of the major pollutants that contribute to the formation of acid rain and ground-level ozone; Nitric oxide is one of the greenhouse gases. Sulfur dioxide is one of the major pollutants, which is particularly involved in the formation of acid rain.
	• Production of corporate and municipal waste:	Waste can be the source of pollution of all components of the environment and its cost requires economic costs. Environmental spending on environmental protection: Environmental spending reflects the level of environmental and public-private care.

Tab.3: The summarization of the presented environmental indicators

4. RESULTS AND DISCUSSION

The goal of this paper is to contribute to the ongoing effort of understanding sustainability and measurement of sustainability. In the paper, there were presented the different approaches, how to evaluate social, economic and environmental indicators. The new deployment and performance measurement system for sustainability in companies must reflect social, economic and environmental factors.

We want to use of indicators by Kocmanova et al. [21] because they are indicators focusing on companies and can be obtained by means of a questionnaire and data from the financial statements. Relevant qualitative and quantitative methods should then be chosen to identify, test, select and apply sustainability indicators.

In further research we will use the following economic indicators:

- Indicators profitability,
- EVA,
- Economic result (profit),
- Cash flow,
- Assets turnover,
- Debt,
- Liquidity,
- Value added,
- Profit margin,
- Market share,
- Work productivity,
- Average wage.

We use these indicators because we can easily calculate and find them in the financial statements.

Social indicators:

- Number of workers,
- Number of workers – women,
- Fluctuation of workers,
- Average age of workers,
- Satisfaction of workers,
- Working conditions and work safety,

- Financial contributions for the county, municipality, community,
- Communication with the general public,
- Seminars and training for further education,
- Expenditure on staff qualification,
- Occupational accidents and deaths.

Environmental indicators:

- Reduction of emissions,
- Reduction of waste production,
- Increase recycling,
- Reducing the use of hazardous substances,
- Reduce material consumption,
- Replace existing materials with new ones,
- Reduce water consumption,
- Energy saving,
- Greater use of renewable energy sources.

5. CONCLUSION

Based on the qualitative analysis of recent studies of measurement of sustainability were designed and discussed. Many indicators done by many authors and there are many views and approaches to measuring sustainability

As a further research, there are planned the following steps:

1. obtain data by questionnaire and from the financial statements.
2. precise definition of each indicator, data collection and validation of the proposed complex evaluation system in concrete companies.

The article discusses sustainability and various indicators of sustainability measurement. The next article will be about the results of the questionnaire.

REFERENCES

- 1) ECCLES, Robert G.; PERKINS, Kathleen Miller; SERAFEIM, George. How to become a sustainable company. MIT Sloan Management Review, 2012, 53.4: 43.
- 2) Von Hauff, M., Kleine, A. (2009). "Nachhaltige Entwicklung. Grundlagen und Umsetzung", Oldenbourg Wissenschaftsverlag GmbH, Munchen
- 3) Chapuy, P. (2009). "Le sens du developpement durable pour l'entreprise. L'apport de la perspective strategique", Cahier du LIPSOR, Serie Recherche, no. 9, Mars
- 4) Raderbauer, Marita (2011). Strategic Sustainability-Strategic implementation of Sustainable Business practice in Viennese Accomodation, University of Exeter, United Kingdom
- 5) "Economic Sustainability-the business of doing business", R&D Report, The SIGMA Project, 2001
- 6) DANCUI, Victor, et al. The sustainable company: new challenges and strategies for more sustainability. Theoretical and Applied Economics, 2013, 18.9: 7-26.
- 7) BRUNTLAND, G., et al., Report of the world commission on environment and development: our common future. Transmitted to the General Assembly as an Annex to document A/42/427-Development and International Cooperation: Environment.[Online], [Retrieved July 8, 2017], <http://www.un-documents.net/wced-ocf.html>, 1987.

- 8) AGENDA 21, Earth Summit. The United Nations Programme of Action from Rio, 1992.
- 9) KÁROLY, K., Rise and fall of the concept sustainability. *Journal of Environmental Sustainability*, 1(1), 1, 2013
- 10) SPRINGETT, D., Business conceptions of sustainable development: a perspective from critical theory, *Business Strategy and the Environment*, Vol. 12 No. 2, pp. 71-86, 2003
- 11) RATIU, C., & ANDERSON, B. B., The multiple identities of sustainability. *World Journal of Science, Technology and Sustainable Development*, 12(3), 194-205, 2015
- 12) GLAVIČ, P., & LUKMAN, R., Review of sustainability terms and their definitions. *Journal of cleaner production*, 15(18), 1875-1885, 2007
- 13) KOUDELKOVÁ, P.; MILICHOVSKÝ, F. Appropriate Methods for Measurement Effectiveness of Innovation in SMEs in the Czech Republic.
- 14) MORELLI, J., Environmental sustainability: a definition for environmental professionals., *Journal of Environmental Sustainability*, Vol. 1 No. 1, pp. 1-9, 2013.
- 15) Moneva, J. M., Archel, P., & Correa, C. (2006). GRI and the camouflaging of corporate unsustainability. *Accounting Forum*, 30(2), 121-137
- 16) ISAKSSON, Raine; STEIMLE, Ulrich. What does GRI-reporting tell us about corporate sustainability?. *The TQM Journal*, 2009, 21.2: 168-181.
- 17) EEA, Indicators, <https://www.eea.europa.eu/data-and-maps/indicators/about>
- 18) HALL, T. J. The triple bottom line: what is it and how does it work?. *Indiana business review*, 86(1), 4., 2011
- 19) HENBERG, R., LERCH, D., The post carbon reader: managing the 21st century's sustainability crises. Berkeley, Calif.: Distributed by the University of California Press, 2010.
- 20) Commission on Sustainable Development, Indicators of sustainable development: guidelines and methodologies, available at: www.un.org/esa/sustdev/csd.htm , 2002
- 21) KOCMANOVÁ, A., DOČEKALOVÁ, PAVLÁKOVÁ, M., SIMANAVIČIENĚ, Ž., Corporate Sustainability Measurement and Assessment of Czech Manufacturing Companies using a Composite Indicator. *Engineering Economics* 28.1 (2017): 88-100.
- 22) BONSON, E., BEDNÁROVÁ, M., CSR reporting practices of Eurozone companies *Revista de Contabilidad* 18.2 (2015): 182-193.
- 23) EMAS, The new core indicators of EMAS III, http://www.emas.de/fileadmin/user_upload/06_service/PDF-Dateien/UGA_Infosheet_Indicators.pdf
- 24) JOUNG, Che B., et al. Categorization of indicators for sustainable manufacturing. *Ecological Indicators* 24 (2013): 148-157.
- 25) Fiala, R., Hedija, V. (2015). Gibrat's law and empirical studies. In M. Čulík (Ed.), 10th International Scientific Conference Financial management of Firms and Financial Institutions Conference Proceedings. Ostrava: VŠB - Technical University of Ostrava, 254-262.

EFFICIENCY IN ENERGY CONSUMPTION AS A FACTOR OF SUSTAINABLE DEVELOPMENT

Zhanna Mingaleva¹¹⁴

Ksenia Lapshina¹¹⁵

Abstract: *The high quality of people's lives is becoming an increasingly important task for countries' and regions' governments. This is especially important in the context of the sustainable development formation of territories and social communities. The tasks of sustainable development and high quality of people's lives in many Russian regions are provided with the processes of economic re-industrialization. The development of regional industry is based on new principles of the formation of innovative type production through the use of energy-saving technologies.*

The aim of the work is to identify the potential for sustainable development of territories and ensure a high quality of life for people based on the rational use of energy resources. The practical importance of the research is determined by the importance of searching for opportunities for energy conservation and improving the energy security of life without reducing energy consumption by the population and industry.

The research is based on the application of comparative, historical, institutional approaches, economic-mathematical, statistical, graphical methods of analysis.

As a result of the research it was established that the tasks of achieving sustainable development of territories and ensuring a high quality of people's lives are closely interrelated with the trend and dynamics of production and consumption of various types of energy in specific regions. The rating of the Russian regions is constructed based on the indicator of energy supply, the dynamics of its change are revealed, the factors influencing the energy supply of the regions and improving the energy security of the territories are determined.

Key words: *energy-saving technologies, sustainable development, high quality of people's lives, innovation-driven opportunities, rational use of energy resources.*

1. INTRODUCTION

The highly developed and ramified power system, which was created in the Soviet period, ensures uninterrupted power supply to virtually any territory of Russia. However, the territorial structure of the Russian electric power industry in the part, which is directly related to generation, is very heterogeneous for various reasons: historical, geographic, geological and other ones. As a result, more than 50 Russian regions produced less electricity on their territory than it consumed, figure 1 shows the hierarchy of energy-deficient Russian regions in 2016 (the ratio of production and consumption of electricity in the region) [1].

¹¹⁴Director of the Research Center for Sustainable Development and innovation processes, Professor of Department of Economics and management in industrial production; Perm National Research Polytechnic University, 29, Komsomolsky Av., Perm, Russian Federation

¹¹⁵Postgraduate student, junior researcher the Research Center for Sustainable Development and innovation processes of Department of Economics and business operation; Perm National Research Polytechnic University, 29, Komsomolsky Av., Perm, Russian Federation

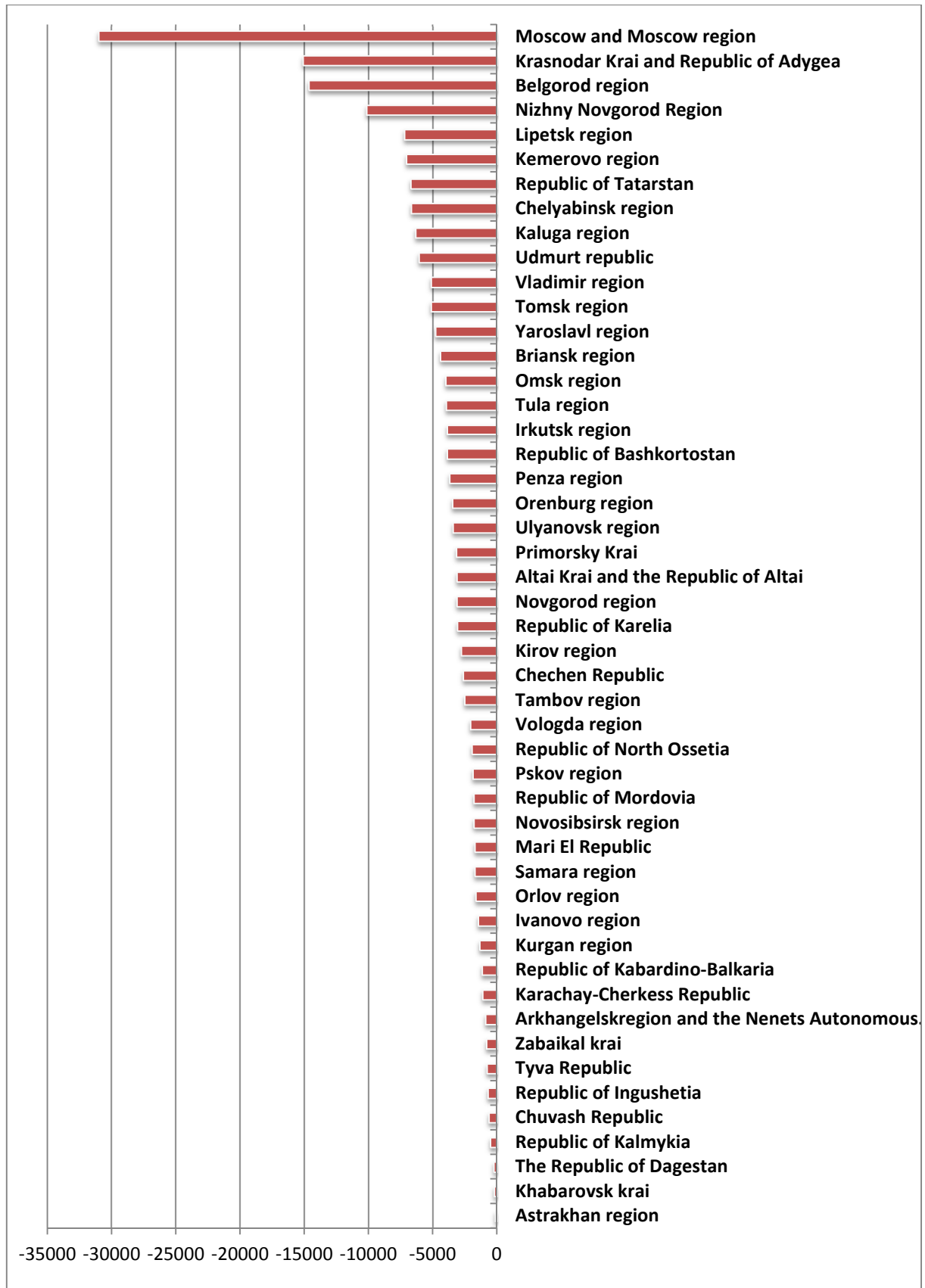


Figure 1: The hierarchy of energy-deficient Russian regions in 2016

An acute shortage of electricity exists in many Russian regions. Among them 8 regions provide themselves with electricity by less than 10% (Belgorod region (3,9%), Bryansk region (0,6%),

Kaluga region (3,8%), Republic of North Ossetia (8,8%), Republic of Kalmykia (5,3%), Tyva Republic (4,9%), Chechen Republic (0,2%) and Republic of Ingushetia (0%).

As a result of the increased electricity deficit, residents of many regions of Russia in recent years have experienced interruptions in electricity and heat in the residential sector and in social organizations (hospitals, schools, kindergartens). It reduces the quality of life of the population as a whole. Thus the issue of finding ways to reduce the energy deficit of the regions, increasing the energy efficiency of all sectors of the economy and society, is acute for the most of the Russian regions.

2. THEORY AND METHODOLOGY

The study of modern domestic and foreign scientific works devoted to the issues of sustainable development of society, the quality of people's life through the prism of consumption of various types of energy and saving of basic energy sources showed the following. Key research is carried out in the direction of analysis and application of a novel selective-constrained energy-saving and emission-reduction dynamic evolution system [2] – [3], analysis for optimizing future energy resources [4], a review on energy saving strategies in individual behavior [5], in industrial sector of different countries [6] – [8], in residential sector [9] and households of different countries [10] – [12].

Part of modern researchers evaluate a higher quality of life through the creation of low-carbon communities - i.e. communities that use non-hydrocarbon (oil, gas) energy sources, and alternative energy sources [13] – [15]. Within the framework of this direction, the possibilities of development of alternative sources of energy - the sun, geothermal waters, wind, etc. - are explored [16] – [17]. Also the possibility of introducing people's motivation for engagement of people

Zhanna A. Mingaleva

Professor of Economics, Director of the Research Center for Sustainable Development and innovation processes PNRPU, full professor of Department of Economics and business operation;



Perm National Research Polytechnic University (PNRPU), Faculty of Humanity

Research experience: *Leader more than 15 research scientific projects funded by Eurasia (EERC) Fund, Russian Humanitarian Scientific Fund, Moscow Public Scientific Fund, USA Agency for International Development (USAID), Ministry of Education and Science of the Russian Federation and other.*

Membership in International

Organisations: *AEA (American Economic Association); ISPIM (International Society for Professional Innovation Management); WASET (World Academy of Science, Engineering and Technology); ITHEA-ISS (Information Theories and Applications - International Scientific Society).*

Participation in international projects since 1996 as a leader and member of scientific groups: *3 projects TESIS (1996-1998); 2 projects TEMPUS TACIS (1999-2001); EURASHE project (2000); the projects of US Russia Centre for Entrepreneurship, Moscow International Higher Business School MIRBIS, Russian Association for Entrepreneurship Education and other projects.*

Current Research Activities: *research includes more than 500 journal articles, book sections, and conference papers the field of company valuation, economic development, innovation activity, technological change, government regulation of structural change, economic growth, some of which were published in Germany, France, Japan, UK, Italy, Austria, Australia, Poland, Bulgaria, etc.*

adopting lower-carbon lifestyles is studied [18]. The study of social norms and energy efficiency standards in people's behavior is also conducted [19] – [21].

International databases of effective instruments as instruments for supporting energy efficiency are widely represented in the modern literature [22].

A large block of research is devoted to environmental pollution from electric power and heat-and-power engineering objects. However, little attention is paid to the actual impact of energy conservation on the environment.

Based on the analysis of modern scientific approaches in the field of sustainable development, energy efficiency and improving the quality of people's life, we set the task of conducting comparative analysis and studying the dynamics of energy efficiency and energy availability in Russian regions.

The regions of Russia in the dynamics for 3 years (2014-2016) are used as the basis of the study. The retrospective period equal to 3 years was adopted in accordance with the methodology for assessing the energy supply of the Russian regions of the Ministry of Fuel and Energy of Russia.

The source of information for the survey is Rosstat data [23], energy declarations that include information on energy efficiency of buildings that budget institutions provide to the GIS "Energy Efficiency"¹¹⁶ [2], ratings results prepared by RIA Novosti news agency [25], expert, as well as surveys by the Ministry of Energy of the Russian Federation.

The research methodology assumes a comprehensive analysis of the dynamics of energy supply indicators of Russian regions and the index of their energy efficiency, based on the results of the ranking of Russian regions in terms of energy efficiency in dynamics.

Ksenia M. Lapshina

*Postgraduate student,
Junior research worker of
of the Research Center for
Sustainable Development
and innovation processes
of Department of
Economics and business*



*operation, Perm National Research
Polytechnic University (PNRPU), Faculty of
Humanity*

Education: *graduate of the Department of
National Economy and Economic Security,
Faculty of economics, Perm State National
Research University (PSNRU), 2012*

*Postgraduate student of Department of
Economics and business operation, Perm
National Research Polytechnic University
(PNRPU), Faculty of Humanity*

Research experience: *Author of scientific
articles in the sphere of economic,
participant of competition of scientific
research projects and international scientific
conferences.*

*(Targeted competition of support young
scientists: Assessment of national and
regional peculiarities of innovation activity
clusters creation)*

Sphere of scientific interests: *economic
safety, innovation activity, institutional
economy, technological and management
innovations, economic development*

Current Research Activities: *research
includes more than 25 scientific journal
articles and conference papers in the field of
economic development, economic safety,
innovation activity, institutional economy,
technological and management innovations,
economic growth, some of which were
published in foreign editions (France,
Bulgaria, etc.)*

¹¹⁶ The system GIS "Energy Efficiency" was created in 2015 and already more than 150 thousand institutions work in it (this is more than 300 thousand buildings).

The main indicator in the statistical reporting, which characterizes the work on energy efficiency in the regions of the Russian Federation, is the indicator of the energy intensity of the gross regional product and its dynamics. This indicator is supplemented by a number of technical and organizational indicators (see Figure 1)

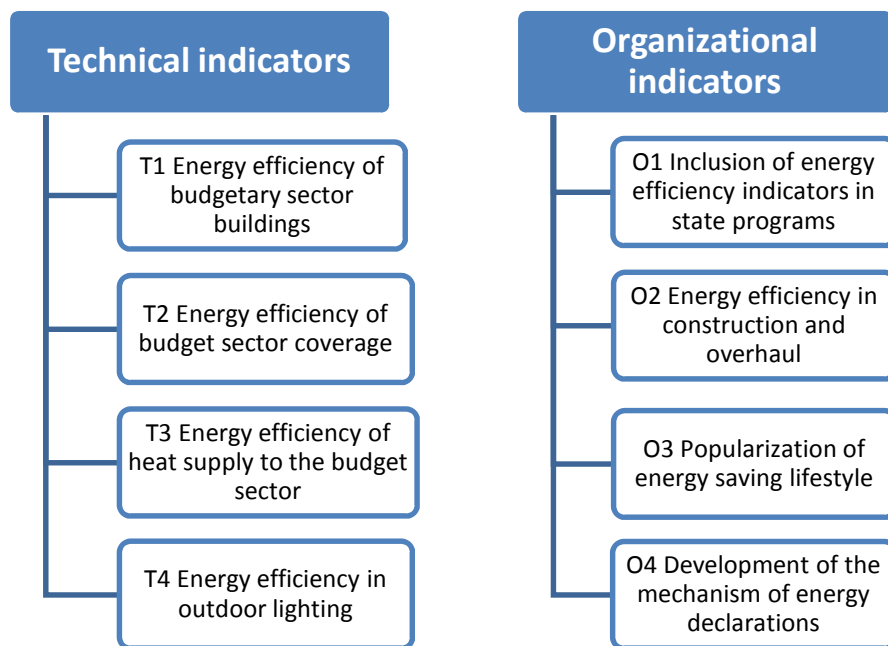


Figure 2: The structure of indicators for calculating the energy efficiency of Russian regions

Methodology of calculation of partial indicators

- **Technical indicators:**
 - T1. The share of buildings with a preliminary energy efficiency class D and above is weighed against the maximum for Russia, and then weighed on the share of energy declarations in the region.
 - T2. Energy efficiency in outdoor lighting. The share of sodium and LED light sources in outdoor lighting systems is weighed against the maximum for Russia.
 - T3. Energy efficiency of budget sector coverage. The share of LED light sources in the coverage of the budget sector is weighed against the maximum for Russia, and then weighed on the share of energy declarations in the region.
 - T4. Energy efficiency of heat supply to the budget sector. The share of equipping individual heat points with automatic regulation after major repairs in the amount of 5 million rubles, as well as in new buildings from 2011, is weighed against the maximum value for Russia, and then weighed on the share of energy declarations in the region.

- **Organizational indicators:**
 - O1. Inclusion of energy efficiency indicators in state programs. The share of branch state programs of the subject of the Russian Federation, including indicators of energy efficiency.
 - O2. Energy efficiency in construction and overhaul. Presence of normative recommendations and requirements for energy efficiency in construction and overhaul.
 - O3. Popularization of energy saving lifestyle. Participation in federal events to promote energy saving lifestyle.

- O4. Development of the mechanism of energy declarations.

The availability of funding plays an important role for technical indicators., the availability of funding is already less important for institutional indicators, as it includes the quality indicators of regional sectoral programs in terms of energy efficiency indicators, regulatory opportunities for energy efficiency during overhauls, popularization of energy-efficient behavior, and discipline in filing energy declarations.

Indicators for calculating the rating reflect those key directions in which the Ministry of Energy of Russia has been working with the subjects of the Russian Federation over the past few years. The Ministry aimed the regions in their work to improve energy efficiency exactly in these areas.

In addition, the rating provides new information opportunities for the regional teams themselves - now there are objective comparative data for the formation of plans and programs at the regional level. The results of the rating make it possible to draw certain conclusions, including to the heads of regions and authorized bodies on the ground.

3. RESULTS AND DISCUSSIONS

Improving energy efficiency requires the modernization of the economy of cities and settlements, primarily in the field of lighting and heat supply, as well as working with budget organizations and management bodies.

Since the degree of equipment, for example, with individual heat points, or the possibility of replacing fixtures with LEDs, depend on the availability of funds in the regional and municipal budgets, therefore, it is necessary to consider separately three groups of regions depending on their budget provision. The first group includes the so-called donor regions, the second group - the regions with average budgetary security, the third group - the recipient regions (subsidized regions with a large deficit of regional and municipal budgets).

This method provides comparability of regions of different ranks. The rating is drawn from the largest to the smaller one in the whole set of regions. The rating contains technical and organizational indicators, which were shown in Figure 2. Rating is an important tool for assessing the energy efficiency of regions, allows comparing regions among themselves to influence their work further. The rating shows the efforts of the authorized bodies of the subject of the Federation in the work to improve energy efficiency.

The comparison of 2 ratings - energy efficiency and energy supply - allows to draw a conclusion about the efforts of regional authorities in the field of energy security, quality of people's lives, rational use of energy resources and sustainable development of regions and territories. The ratio of energy efficiency and energy supply of energy-deficient Russian regions in 2016 Figure 3.

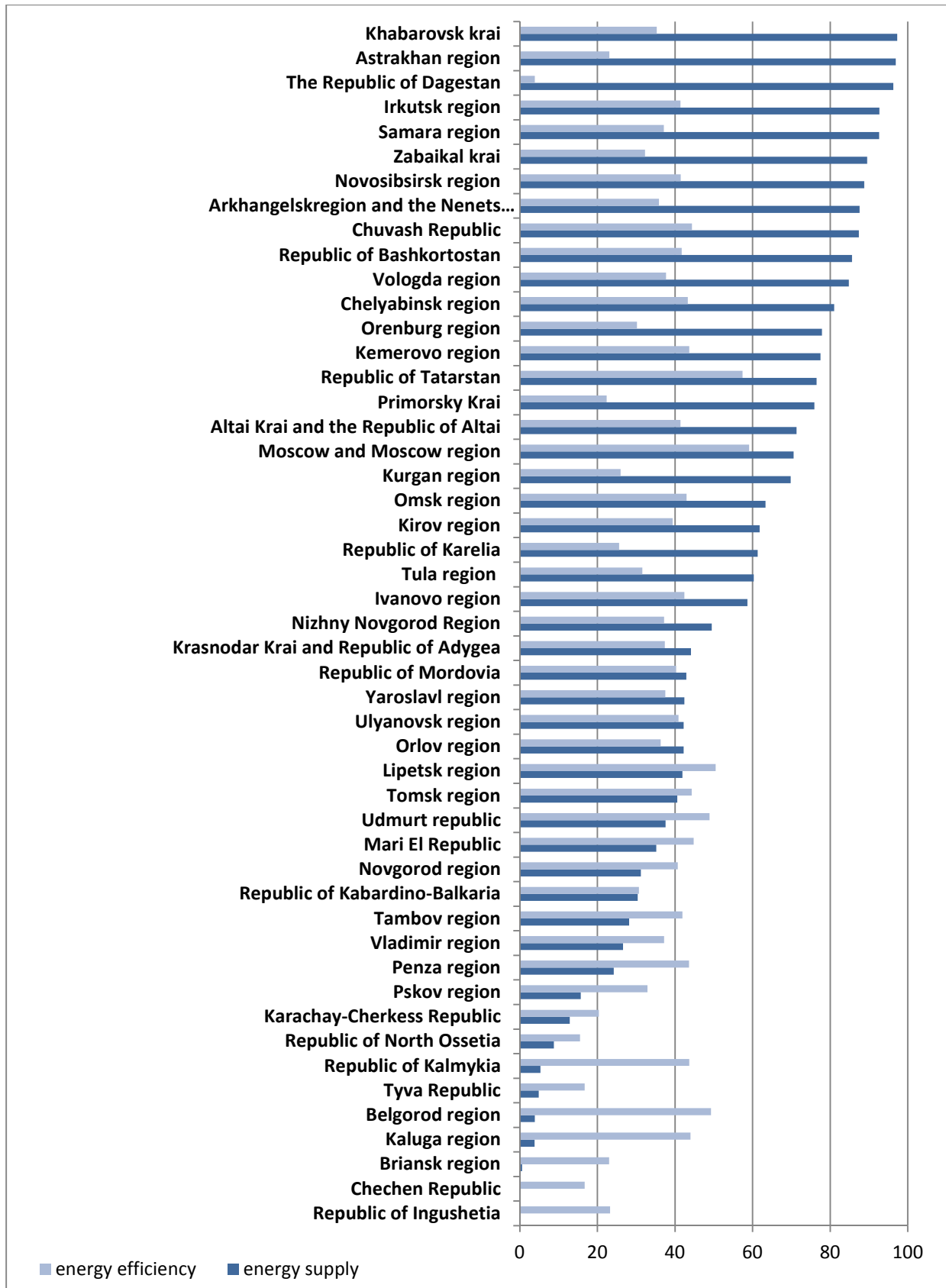


Figure 3: The ratio of energy efficiency and energy supply of energy-deficient Russian regions in 2016

As it can be seen from Figure 3, in many of energy-deficient Russian regions have provided high energy efficiency: Moscow (59,1) and Moscow region (50), Republic of Tatarstan (57,4), Lipetsk region (50,5), Belgorod region (49,3), Udmurt republic (48,9), Tyumen region with autonomous regions (47,1).

The absolute leader in ensuring energy efficiency is the St. Petersburg and the Leningrad Region (65,9), but it is the energy-surplus region. Also among the energy-surplus regions, Stavropol krai showed high rates of energy efficiency - 49,9 points.

Conscientious regions pay close attention to all areas of energy efficiency, and this allows achieving success in increasing energy efficiency, which, in turn, affects their rank in the rating.

Low scores with high budget availability signal that the funds do not focus sufficiently on the recommended directions, which does not allow expecting good energy efficiency indicators (Yamalo-Nenets Autonomous District (39,0); Yaroslavl region (37,5); Samara region (37,1); Sverdlovsk region (30,9)). On the contrary, there are cases when regions with a low budget provision reach high places, which means that work is clearly set, the maximum possible is done through organizational efforts, changes in the regulatory framework, increase in responsibility at various levels and control (Mari El Republic (44,8); Chuvash Republic (44,4); Republic of Kalmykia (43,7); Penza region (43,6).

4. CONCLUSIONS

The high quality of people's lives is becoming an increasingly important task for governments of countries and regions. This is especially important in the context of the formation of sustainable development of territories and social communities.

Energy efficiency improvement is an important task in the global energy balance and national energy's policies over the past 30 years [26]. The results of the studies showed that "without energy efficiency improvements, the OECD nations would have used approximately 49% more energy than was actually consumed as of 1998" [27].

The different energy-efficiency programs are a central component of many countries' energy policy [28]. A major barrier to implementation of these programs is lack of data to determine baselines, assess the potential for cost-effective energy savings, and track results over time to evaluate and verify program impacts.

We made a rating of the Russian regions in terms of energy supply and compared it with the rating of energy efficiency.

The results of this comparative analysis are a definite management tool that allows to control which regions are in line with the current state policy for increasing energy efficiency and how successfully they achieve their goals.

The results of this comparative analysis are an important tool for assessing the energy efficiency of regions, allows comparing regions among themselves to influence their work further.

5. ACKNOWLEDGMENT

The work is carried out based on the task on fulfillment of government contractual work in the field of scientific activities as a part of base portion of the state task of the Ministry of Education and Science of the Russian Federation to Perm National Research Polytechnic University (the

topic # 26.6884.2017/8.9 “Sustainable development of urban areas and the improvement of the human environment”).

REFERENCES

- [1] *Rating of regions by level of energy sufficiency - results of 2016* (2017) Official site: <http://riarating.ru/regions/20170309/630058271.html> (verification date 11.09.2017)
- [2] Fang, G., Tian, L., Sun, M., Fu, M. (2012) Analysis and application of a novel three-dimensional energy-saving and emission-reduction dynamic evolution system, *Energy*, 40 (1), pp. 291-299. DOI:10.1016/j.energy.2012.01.071
- [3] Fang, G., Tian, L., Fu, M., Sun, M. (2014) Government control or low carbon lifestyle? - Analysis and application of a novel selective-constrained energy-saving and emission-reduction dynamic evolution system. *Energy Policy*, 68, pp. 498-507. DOI: 10.1016/j.enpol.2014.01.013
- [4] Ramsden, J. J. (2013) Rational Cost-Benefit Analysis for Optimizing Future Energy Resources. *NATO Science for Peace and Security Series C: Environmental Security*, 128, pp.55-65. DOI: 10.1007/978-94-007-6152-0_6
- [5] Heiskanen, E., Johnson, M., Robinson, S., Vadovics, E., Saastamoinen, M. (2010) Low-carbon communities as a context for individual behavioural change, *Energy Policy*, 38 (12), pp. 7586-7595. DOI:10.1016/j.enpol.2009.07.002
- [6] Abdelaziz, E.A., Saidur, R., Mekhilef, S. (2011) A review on energy saving strategies in industrial sector, *Renewable and Sustainable Energy Reviews*, 15 (1), pp. 150-168. DOI: 10.1016/j.rser.2010.09.003.
- [7] Hamit-Hagggar, M. (2012) Greenhouse gas emissions, energy consumption and economic growth: A panel cointegration analysis from Canadian industrial sector perspective, *Energy Economics*, 34 (1), pp. 358-364. DOI: 10.1016/j.eneco.2011.06.005.
- [8] Fourcroy, C., Gallouj, F., Decellas, F. (2012) Energy consumption in service industries: Challenging the myth of non-materiality, *Ecological Economics*, 81, pp.155-164. DOI: 10.1016/j.ecolecon.2012.07.003
- [9] McNeil, M. A., Bojda, N. (2012) Cost-effectiveness of high-efficiency appliances in the U.S. residential sector: A case study, *Energy Policy*, 45, pp.33-42. DOI: 10.1016/j.enpol.2011.12.050
- [10] Abrahamse, W., Steg, L., Vlek, C., Rothengatter, T. (2005) A review of intervention studies aimed at household energy conservation, *Journal of Environmental Psychology*, 25 (3), pp. 273-291. DOI: 10.1016/j.jenvp.2005.08.002
- [11] Brandon, G., Lewis, A. (1999) Reducing household energy consumption: A qualitative and quantitative field study, *Journal of Environmental Psychology*, 19(1), pp.75-85. DOI: 10.1006/jevp.1998.0105
- [12] Thøgersen, J. (2017) Housing-related lifestyle and energy saving: A multi-level approach, *Energy Policy*, 102 (1), pp. 73-87, DOI: 10.1016/j.enpol.2016.12.015
- [13] Feliciano, M., Prosperi, D. C. (2011) Planning for low carbon cities: Reflection on the case of Broward County, Florida, USA, *Cities*, 28 (6), pp. 505-516. DOI: 10.1016/j.cities.2011.04.004
- [14] Foxon, T. J. (2011) A coevolutionary framework for analysing a transition to a sustainable low carbon economy, *Ecological Economics*, 70 (12), pp. 2258-2267. DOI: 10.1016/j.ecolecon.2011.07.014
- [15] Mingaleva, Zh. A., Gerchanok, G. A. (2012) Sustainable development in the region: Innovation, competitiveness and economic security. *Economy of Region*, 3, pp.68-77.
- [16] Kilkis, I B. (2002) Rational use and management of geothermal energy resources, *International Journal of Global Energy Issues*, 17(1-2), pp. 35-59

- [17] Mingaleva, Z., Shpak, N. (2015) Possibilities of solar energy application in Russian cities. *Thermal science*, 19(2), pp. 457-466. DOI: 10.2298/TSCI150330087M
- [18] Howell, R.A. (2013) It's not (just) "the environment, stupid!" Values, motivations, and routes to engagement of people adopting lower-carbon lifestyles, *Global Environmental Change*, 23 (1), pp. 281-290. DOI: 10.1016/j.gloenvcha.2012.10.015
- [19] Abrahamse, W., Steg, L. (2009) How do socio-demographic and psychological factors relate to households' direct and indirect energy use and savings? *Journal of Economic Psychology*, 30 (5), pp. 711-720. DOI: 10.1016/j.joep.2009.05.006
- [20] Biggart, N. W., Lutzenhiser, L. (2007) Economic sociology and the social problem of energy inefficiency, *American Behavioral Scientist*, 50 (8), pp.1070-1087. DOI: 10.1177/0002764207299355
- [21] Gerke, B. F., McNeil, M. A., Tu, T. (2017) The International Database of Efficient Appliances (IDEA): A new tool to support appliance energy-efficiency deployment, *Applied Energy*, 205, pp. 453-464. DOI: 10.1016/j.apenergy.2017.07.093
- [22] Allcott, H. (2011) Social norms and energy conservation, *Journal of Public Economics*, 95 (9-10), pp. 1082-1095. DOI: 10.1016/j.jpubeco.2011.03.003
- [23] Rosstat (2017) Official site: www.gks.ru (verification date 18.09.2017)
- [24] *Implementation Reports*. Official site GIS "Energy Efficiency": e-saving.energy48.ru/program/reports (verification date 18.09.2017)
- [25] *RIA Novosti news agency* (2017). Official site: russia-insider.com/en/ria_novosti_-_russian_news_agency. (verification date 21.09.2017)
- [26] Van Buskirk, R. D., Kantner, C. L. S., Gerke, B. F., Chu, S. (2014) A retrospective investigation of energy efficiency standards: Policies may have accelerated long term declines in appliance costs, *Environmental Research Letters*, 9 (11), art. no. 114010. DOI: 10.1088/1748-9326/9/11/114010
- [27] Geller, H., Harrington, P., Rosenfeld, A. H., Tanishima, S., Unander, F. (2006). Policies for increasing energy efficiency: Thirty years of experience in OECD countries, *Energy Policy*, 34 (5), pp. 556-573. DOI: 10.1016/j.enpol.2005.11.010
- [28] Aghion, P., David, P. A., Foray, D. (2009) Science, technology and innovation for economic growth: Linking policy research and practice in 'STIG Systems', *Research Policy*, 38 (4), pp. 681-693. DOI: 10.1016/j.respol.2009.01.016

EXTERNAL DETERMINANTS OF GROWTH IN THE BULGARIAN ECONOMY

Vera Pirimova¹¹⁷

Abstract: *The paper aims to uncover the dependence between trade openness and dynamics of growth in the economy of Bulgaria after the country's accession to EU in 2007. In a more specific plan the development and structural components of the foreign trade, the parameters of the export, import and external trade quota, the marginal propensity to import, the multipliers of export are deduced and analyzed. In the research are applied mathematical and statistical methods, the index and differential methods mostly, along with methods of analysis and synthesis. As a result, the specific characteristics of the changed external determination of growth in the Bulgarian economy are summarized. A high degree of trade openness, but poor effectiveness of export of goods, low degree of multiplication, low effects of export on GDP growth in Bulgaria are proved.*

Key words: *foreign trade, trade openness of economy, integration, economic growth*

INTRODUCTION

After Bulgaria's accession to the EU at the beginning of 2007, there were changes in the set of internal and external factors that have an impact on the development of the Bulgarian economy. The changes mainly concern external factors, as regional determinants are increasing, the degree of integration and interdependence in the dynamics of the Bulgarian and EU economies is gradually increasing. They include a significant expansion of foreign trade flows, intensification of foreign direct investment (FDI) flows between Bulgaria and other countries of the regional community. With the changes in the trade and financial openness of the Bulgarian economy, it is interesting to study their parameters and the effectiveness of their impact on the GDP of the country.

The main objective of the present study is to draw and analyze the changes in the external determinants of growth by systematizing the changes in the main indicators of the trade openness of the Bulgarian economy after 2007. More specifically, the tasks are to study the effects of foreign trade on the results of the development of the Bulgarian economy, in this context to define the specific parameters of the export, import and foreign trade quota, the marginal propensity to import, the multiplier of exports. On their basis, an assessment of the competitiveness of the economy and the export can be constructed, which can be identified by a set of different criteria and indicators [4], [1].

MAIN RELATIVE INDICATORS AND EFFECTIVENESS OF BULGARIAN EXPORT

In the current conditions, the results of the development of the total production depend not only on the activity of the national private and public sector, but also to an increasing extent on the developed foreign sector in the economy. Its importance increases when foreign trade occupies a larger share of GDP, sustainable economic links with other countries are built, openness of

¹¹⁷ University of National and World Economy (UNWE), Sofia, Bulgaria

the economy becomes a "measure of the degree of international intertwining of a national economy." [6] The effects of export and import of goods, the contribution of foreign trade to openness and growth of GDP can be assessed on the basis of several key indicators. These include the export, import and foreign trade quota [3], as well as the marginal propensity to import and the multipliers of export.

The structural and dynamic characteristics of Bulgarian export and import are reflected in the predominantly negative foreign trade balance (see Table 1). The dynamics of this complex measure of import-export activity is inconsistent with the direction and rate of growth over most of the period. Trade surpluses were reported only in three years (2011, 2015 and 2016), when growth rates were positive also. In all other years, trade deficits have been formed. It is worth noting that only during the critical for Bulgaria 2009, export and import are falling, while in the other years they are growing but to varying degrees. In the three years with a positive trade balance, export have emerged as a real source of growth - because its rate of growth is ahead of the rate of increase in import. The main prerequisites for this are the gradual recovery of the external demand for Bulgarian goods after the crisis, the increase in the prices of some raw materials and substances, which are more widely present in Bulgarian export [5].

Table 1: GDP, Export, Import, Foreign Trade Balance 2008-2016*

	<i>(mln. Leva)</i>				<i>(%)</i>		
Year	Current Prices				Volume index (previous year = 100)		
	GDP	Export	Import	Foreign Trade Balance	GDP	Export	Import
2008	72756	38228	52604	-14376	106	103	105
2009	72986	30896	36937	-6041	96	88	79
2010	74771	37519	39650	-2131	101	111	99
2011	80759	47704	47400	304	102	113	110
2012	82040	49882	52485	-2603	100	102	106
2013	82166	53122	53459	-337	101	110	104
2014	83634	54373	55161	-789	101	103	105
2015	88571	56781	56650	131	104	106	105
2016	92635	58884	56051	2833	103	106	103

*Sources: National Statistical Institute (NSI) Data.

The volume of foreign trade exchange is increasing almost continuously (with one exception in 2009), with its value exceeding the country's GDP level by 25-30% on average (see Table 2). Even in the critical 2009, it remains within the limits of over 80%, which is used as a criterion for high degree of trade openness. The export and import quotas are also high. Measured by the export/GDP ratio, the export quota ranges between 42% and 65%, averaging more than 58% for the period. As a ratio between import and GDP, the import quota is set at a slightly higher level and the average for the period reaches 61.6%. More than half of Bulgaria's GDP value is exported, so economic growth rates are heavily dependent on foreign trade activity and its secondary effects.

Table 2: Export, Import and Foreign Trade Quota, Marginal Propensity to Import*

Year	Foreign Trade Quota (%)	Export Quota (%)	Import Quota (%)	GDP Increase (Δ GDP) (mln. Leva)	Import Increase (Δ Imp) (mln. Leva)	Marginal Propensity to Import (MPImp = Δ Imp / Δ GDP)
2008	125%	52.54%	72.30%	-	-	-
2009	93%	42.33%	50.61%	230.011	-15666.184	-68.11058602
2010	103%	50.18%	53.03%	1785.381	2712.565	1.519319966
2011	118%	59.07%	58.69%	5987.707	7749.754	1.294277425
2012	125%	60.80%	63.97%	1281.442	5085.171	3.968319284
2013	130%	64.65%	65.06%	125.677	974.203	7.751641112
2014	131%	65.01%	65.96%	1468.238	1702.282	1.159404674
2015	128%	64.11%	63.96%	4936.999	1488.294	0.301457221
2016	124%	63.57%	60.51%	4063.327	-598.725	-0.147348466

* Sources: Calculations of the author according to NSI data.

Under these parameters the openness of the Bulgarian economy is high, but the overall effect of it remains so far rather negative. Pure export is negative for most years of the period, trade deficits have "eaten" altogether about a third or 28.4% of GDP in 2016. Openness parameters are found to be higher for import than for export. Unfavorable and high is the marginal propensity to import shown by the Bulgarian companies (except for the last two years). In some years, it exceeds the average level or is even abnormally high - as in 2012 and 2013. This can be attributed to both conjuncture and long-term factors. These include, for example, rising fuel and energy prices on world markets, the purchase of more and more expensive machinery and tooling for the company's technical equipment, the preference of trade to production activity, the import of quality and expensive raw materials to use of local raw materials. Thus, some of the peculiarities of import-export flows prove the wider opening of the Bulgarian economy to foreign markets, but this does not yet have the necessary stimulating effect on economic growth.

A more accurate assessment of the effectiveness of export can be represented by the multiplier derivative it caused, i.e. multiplier effect on GDP. For this purpose, it is necessary to calculate the coefficients of export multiplier obtained by comparing the GDP growth and the export growth ($M = \Delta GDP / \Delta Exp$). When other components of GDP are assumed to be invariable, they show how much GDP increases as a result of a unit further increase in the value of the country's export (see Table 3).

Table 3: GDP and Export Increase and Export multiplier

Year	GDP Increase (Δ GDP)	Export Increase (Δ Exp)	Export multiplier ($M = \Delta$ GDP / Δ Exp)
2008	-	-	-
2009	230.011	-7332.053	-0.03137061
2010	1785.381	6623.061	0.269570369
2011	5987.707	10184.132	0.587944756
2012	1281.442	2178.488	0.588225411
2013	125.677	3240.399	0.038784421
2014	1468.238	1250.234	1.174370558
2015	4936.999	2407.896	2.050337307
2016	4063.327	2102.949	1.932204252

The indicators in Table 3. show that the conditional coefficients of export multiplier are basically low in numeric terms. Just in the last three years they exceed one, only in 2015 the multiplier exceeds 2. In the case of similar values of the multiplier, it is not guaranteed to recover the costs incurred (for $M < 1$) and the losses are not prevented or the funds invested are recovered, but without additional revenue (with $M = 1$). Therefore, during most of the past period, the secondary activation impacts are limited in size, it is difficult to maintain the existing level of production of the exported goods. Prerequisites and reasons for the expectation that it will develop in the upward direction will only be created in 2014-2016 when $M > 1$. These are also the years of a more significant export quota and more significant GDP growth, due to a greater extent also to the increasing export of Bulgarian goods and services. Thus, at first, the high openness of the Bulgarian economy contrasts with insufficient, which is subsequently transformed into moderate marginal export conditionality of the growth. The stabilization of this trend requires that, through export, such amounts of common currency incomes to be made, that allow for the financing of larger new capital investments and a more sustained impulse for GDP growth.

STRUCTURAL CHARACTERISTICS OF THE FOREIGN TRADE OF BULGARIA

The unsatisfactory effectiveness of the export of goods from Bulgaria is a specific reflection of the geographic and commodity structure of export and import. In recent years, there are a number of changes recorded in them due to the reorientation of foreign trade flows following Bulgaria's accession in 2007 as an EU member.

Geographically, export and import are shifting clearly from east to west, to European countries and markets. In parallel, the emergence of Bulgarian companies to markets in other countries in the world increases, as well as the number of countries with which Bulgaria establishes and maintains foreign trade contacts. It can be taken as a success that Bulgarian companies manage to overcome competitive pressure and to impose on demanding, previously inaccessible to them or more distant markets. In most cases, this is due to the higher quality achieved, the lower and favorable price or the specific character of the manufactured products. They complement and enrich the range of goods offered on traditional and conquered new foreign markets.

Export and import flows are sharply shifting to EU countries, accounting for almost 65% of export value and over 63% of import value for 2017 (see Table 4 and Table 5). As the main prerequisites for this are the stricter adherence to the introduced foreign trade regulations between the EU Member States since 2007 and the collapse of the share of the CEECs in export due to the destroyed system of guaranteed export of certain groups of goods within the framework of the CMEA. The lost positions of Bulgarian industrial production in Russian and Asian markets since the beginning of the 1990s are gradually offset by successful contacts with companies from other countries. Geographically import is also oriented mainly to EU countries but also to Russia (over 10%) and reflects the high raw material and energy dependence of the Bulgarian economy, especially with regard to the necessary import of crude oil, oils and natural gas. Some countries have a particularly good performance, both in the export and import of goods. Among them are Germany, Italy and Russia, as well as Bulgaria's neighbors Greece, Turkey and Romania. The basis of Bulgaria's foreign trade contacts with these countries are long-established and traditionally maintained ties, territorial proximity and/or other beneficial factors.

Table 4: Exports by leading groups of countries and major trading partner countries*

<i>(mln. Leva)</i>									
Countries and Groups of Countries	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	22881.6	30435	39633.6	40622.9	43559.2	43233.5	44949.5	17742.6	20527.4
EU	14857.7	18520.1	24652.1	23779.8	26111.1	26921.1	29049.4	11990.8	13283
Belgium	1298.3	1148.7	1954.5	1497.9	1256.9	1766.9	1658	360.1	728.7
Germany	2582.5	3244.1	4606.4	4159	5361.6	5659.6	5659.6	2405.4	2880.1
Greece	2186.2	2419	2784.2	2923.1	3023.7	2954.7	2954.7	1202	1322.2
Italy	2137	2955.6	3443.8	3449.8	3765.5	4180.2	4180.2	1865.5	1756.1
Romania	1975.2	2772.2	3781.1	3274.3	3364.1	3419	3691.8	1573.1	1621.6
France	1025.1	1229	1672.7	1623.4	1877.8	1854.2	1908.8	804.7	844.8
Third Countries	8023.9	11914.9	14981.5	16843.1	17448.1	16312.4	15900.1	5751.8	7244.4
CIS	1176.5	1819.7	1941.9	1987.8	2383.6	1881.7	1431.1	404.7	601.2
including:									
Russia	571.1	863.2	1060.3	1100.2	1140	1030.4	783.6	244.6	396.1
OECD	2414.4	3560.2	4843.7	5677.6	5619.8	5558.5	5466.7	2012.4	2331.9
including:									
Canada	61.9	53.9	169.9	207.3	148.7	78	80.9	33.1	31.3
USA	357.7	414.7	518.2	725.3	594.9	607.1	718.2	252.2	249.5
Turkey	1655.6	2576.2	3389.6	3828.9	3919.8	4061.5	3923.8	1462.8	1767.4

*Sources: NSI Data, <http://www.nsi.bg/bg/content/7498/износ-и-внос>

Table 5: Imports by leading groups of countries and major trading partner countries*

<i>(mln. Leva)</i>									
Countries and Groups of Countries	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	33005.4	37639.5	45778.5	49793.7	50515.4	51097.4	51549	19615.4	23560.6
EU	19789.1	22015.2	27183.7	29200	30164.7	31512.3	33157.2	13197.8	14912.7
Belgium	557.8	712.1	777.4	872.3	936.8	1052.4	1186.5	475.3	490.5
Germany	4057.4	4374.5	4960	5537.4	5463.9	6284.1	6640.6	2659.2	2849.6
Greece	2015.3	2232.7	2568.1	3017.2	2807.4	2614.9	2479.7	910.7	1012.6
Italy	2544.1	2773.7	3269.8	3299.1	3758.1	3600.3	3902.5	1690.8	1771.3
Romania	1868.7	2622.4	3161.5	3260.6	3365.1	3489.1	3494.3	1356.8	1725.4
France	1162.2	1231.7	1487.3	1450.3	1501.8	1552.6	1629.8	698.1	687.5
Third Countries	13216.3	15624.3	18594.8	20593.7	20350.7	19585.1	18391.8	6417.6	8647.9
CIS	6600.9	8125.9	10201.6	11862	10781.1	9047.1	7308.1	2165.3	2825.6
including:									
Russia	4424	6115	8071.8	10363	9353.2	7751.2	6201.9	1754.7	2392.2
OECD	2809.5	3035.1	3735.5	3664	4495.3	4386.3	4576.3	1823.2	2182.5
including:									
Canada	98.3	57.5	61	68.3	32.2	60.7	54.6	26.5	44.2
USA	280.4	260.9	384.9	338.2	386.2	546.3	474.7	172.3	211.1
Turkey	1798.3	2047	2164.5	2324.9	2953.9	2871.4	2924.9	1184.6	1477.1

* Sources: NSI Data, <http://www.nsi.bg/bg/content/7498/износ-и-внос>

Changes in the geographical structure of foreign trade do not yet contribute to optimizing the conditions and stabilizing the growth of the Bulgarian economy. For this purpose, it is necessary not only to multiply, but also to stratify the foreign trade contacts. The switch from one to another group of countries (from the CMEA to the EU) corresponds to the economic benefit and long-term interests of the companies. It is in response to the post-2007 interest of Western firms in expanding their products with unfamiliar to the consumer Bulgarian products, as well as result of the efforts of Bulgarian producers to long-term secured and higher foreign exchange earnings. But companies and the whole economy face a greater risk of sudden collapse in the markets in foreign trade partner countries, i.e. the threat of transferring regional crisis and cyclical impulses is greater. Namely, crisis-related symptoms that have been carried over with a certain time lag, shrinking the demand for foreign and Bulgarian products on the markets of the EU countries were one of the prerequisites for the last economic crisis in 2009 in the country.

The dynamic changes in the commodity and industry structure of Bulgarian export and import contribute to a greater extent for the unsatisfactory effectiveness. In general, there is a tendency to slightly increase the export of products of sectors for which comparative advantages are revealed. Nonetheless, there are instances of unused benefits and, in parallel, export when there are comparative disadvantages. As a result, the overall end-effect of export activities is decreasing, slowing the possible longer-term export impulse of growth. It is insufficient also in view of the fact that lower value added and resource-intensive products are present in the export, the share of products of the manufacturing industry is not growing sufficiently rapidly. Only in recent years there has been some reduction in export of unprocessed (raw) materials, unfit for consumption (excluding fuels), while at the same time export of machinery, equipment

**Pirimova Vera, Assoc. Prof.
PhD**

Work experience:

Since 2012 – Member of the Economic and Social Council of Bulgaria, Head of the Commission for International Cooperation and Economic Integration of the ESC of Bulgaria

2007 – 2011 - General Secretary of UNWE for the ECTS

2006 – 2015 - Head of Centre for Students and Teachers Mobility at UNWE

2005 – 2015 - Institutional Erasmus coordinator of UNWE

2005-2006 – Head of Centre for Professional Training, Institute for Postgraduate Studies at UNWE

Since 2002 – Associate Professor, Department of Economics, UNWE

2001 – 2012 - Vice Head of the Department of Economics, UNWE

1988-2001 – Assistant Professor, UNWE

Main activities and responsibilities:

Member of Working Group No 31 in the Europe 2020 strategy with advisory functions, determined by order of the Minister of finance No: 3MF-716/03.08.2016,

Member of the General Assembly of UNWE, Member of the Faculty Council, Faculty of General Economics, UNWE

2011 – 2015 - Member of the Commission of UNWE for recognition of acquired higher education and training periods completed in foreign universities

Since 2011 - Consultant to the Council for academic recognition, the National Centre for information and documentation

2008 – 2015 - Coordinator of UNWE on the financial mechanism of the European economic area and the Norwegian financial mechanism

2007 – 2011 - Member of the University Commission for the recognition and transfer of credits, UNWE

Lecturer in Micro- and Macroeconomics, Economic Growth, Applied Microeconomics

Participant in more than 50 national and international scientific research projects and conferences

Author of more than 120 publications: books, papers, articles, textbooks and study guides in Bulgarian, English and German, in the field of economic growth mostly



and vehicles and other end products is increasing. However, the contribution of the most highly represented commodity groups cannot be assessed unambiguously as positive, as analogous commodity groups occupy the largest relative shares in both export and import. According to data of the Ministry of Economy in the export and import in 2016, the machines and equipment, the non-ferrous metals and their products, the mineral products and the chemical industry products occupy leading position.

In perspective, it is advisable to better utilize the available higher potential capabilities. They cover, for example, the long-maintained and good contacts, the favorable natural resources of the country, the capacity built in the energy sector, the sustainable demand for some Bulgarian products from neighboring or territorially closer countries. More efforts should be made to expand the bigger before export of agricultural produce, whose size has been significantly reduced. Among the main reasons for this are the large fragmentation of land ownership, the difficulty in granting bank loans to farmers, the frequent changes in the cultivated crops. Retarding action have some deviations from standardized European requirements (mainly quality indicators, phyto-sanitary requirements, etc.), lower prices of offer and realization on external markets for some agricultural products. The share of export of some products of the agro-food industry, in which a large part of the problems of agrarian production are reproduced, is also shrinking. Although it shows a limited upward trend, the share of high-tech export remains unsatisfactory so far. Encouraging the investment process aimed at upgrading existing equipment and updating production in the same industries can increase export and boost the competitive position of the Bulgarian economy. That is why, at the beginning of the 21st century, the need to prioritize "achieving sustainable competitiveness of industry" is emphasized. [2].

Despite some progress, there are still cases where part of Bulgarian industrial production fails to be present convincingly on foreign markets due to poor or unsupervised constant quality, outdated modifications, high production costs and price. In other cases, good competition has been achieved, but export faces different and difficult to overcome obstacles. For example, the limited production capacity and working capital of the predominantly small Bulgarian firms do not allow to satisfy the external demand for larger volumes of production, the delivery of which is required within certain short deadlines. Because of the differentiated scale of Bulgarian and foreign companies, the export of knitwear and textiles, as well as of other types of light industry products, is particularly impeded. For these reasons, national companies cannot benefit from facilitated and limited access of Bulgarian industrial goods to the European market (after the liberalization of their import into the EU member states as of 01.01.1998). A definite obstacle to the increase of export is also the high relative weight in the GDP of the service sector, the regulation of trade with which lags behind on a regional and global scale.

The displacements made in the geographical and industry structure of export and import make it difficult to draw a clear trend towards improving export parameters and accelerating influence on growth in the Bulgarian economy. The simultaneous expansion of export and import of identical products is a sign of neglecting local production of produce that is traditional and well-equipped with favorable natural and skilled labor resources. Therefore, there are unused potential opportunities for higher export of higher added value products, which will stimulate the development of competitively sustainable and export-oriented industries.

CONCLUSION

From the analysis it is concluded that after 2007, the flows of the foreign trade contribute to the relatively high openness of the Bulgarian economy and to the gradual increase of the return and the effectiveness of the export. Foreign trade contacts are increasing, but the dominant export of low profitable, resource-intensive types of production has to be overcome, to stimulate the production and export of high-tech products, reinvestment of realized foreign exchange earnings and profits. The absolute and relative import ratios indicate a large dependence of domestic production on imported raw materials, which does not allow a significant reduction in import flows. It may even be expected that they will be increased under the influence of the growth of Bulgarian production, the price increase of the main raw materials and of the energy carriers on the international markets. For the more sustained acceleration of growth in Bulgaria, it is necessary to stimulate the domestic demand, more decisive encouragement with indirect means of export of competitive Bulgarian goods and services.

REFERENCES

- [1] *Анализ и оценка на ефективността на провежданите политики за повишаване на конкурентоспособността на българската икономика в изпълнение на Националната програма за реформи*, (2009), Център за икономическо развитие, http://www.osf.bg/?cy=10&lang=1&a0i=222667&a0m=read&action=4&proj_id=97
- [2] Кеймекс Т. (2001) *Бъдещето на разширения Европейски съюз*, с. 95
- [3] Маринов В. (2006) *Отвореност и растеж на националната икономика*, София, Годишник на УНСС, р. 13, http://www.unwe.bg/uploads/Yearbook/Yearbook_2006_No1_V%20Marinov.pdf
- [4] Стефанов Ст. (2002) *Преходът към пазарна икономика в контекста на проблема за конкурентоспособността*, сп. Икономическа мисъл: бр. 1
- [5] Ярлийска М., Н. Димитрова (2012) *Конкурентност на българския износ*, с. 10, <https://www.minfin.bg/document/12150:2>
- [6] *Lexikon der internationalen Wirtschaftsbeziehungen*, 1996, Hrsg. T. Plümper, München, S. 262.
- [6] <https://www.mi.government.bg/bg/themes/vanshnotargovska-statistika-126-332.html>
- [7] <http://www.nsi.bg/bg/content/7498/износ-и-внос>

IMPROVING TRANSPORT CONNECTIVITY OF REGIONS AS THE BASIS FOR ECONOMIC GROWTH

Anna Mingaleva¹¹⁸

Abstract: *The task of increasing the coherence of the territories of regions and countries through the creation of new efficient intelligent transport systems is one of the important economic tasks that allow increasing the efficiency of the functioning of economic systems at various levels. The development and creation of such transport systems will significantly improve the transport accessibility for people and the delivery of goods, increase the reliability and speed of transportation, will allow accelerating the development of many territories, and will contribute to the creation of new reliable and efficient international transport corridors. The purpose of the research is to study the possibility of forming a single transport and logistics infrastructure in several adjacent regions of Russia and creating conditions for the year-round transportation of industrial products, including transit transport from the countries of South-East Asia to Europe and North America through the Northern Sea Route.*

In the process of research, such basic scientific approaches were applied as system, structural, optimization, integration and directive ones.

In the process of research, the hypothesis was proved that the creation of a single modern transport and logistics infrastructure that unites several regions with common borders will allow for greater coherence of the territory of the Russian Federation, and will also allow the incorporation of many continental industrialized regions into the international transport and logistics system with direct access to seaports. The creation of such a transport and logistics infrastructure will provide more efficient transport communication between many regions of the country, year-round operation of the main cargo flows along the Northern Sea Route, including the expansion of transit transport opportunities, as well as socio-economic development of the Arctic and adjacent territories. The results of the research make it possible to propose recommendations for the creation of a transport infrastructure for several bordering regions.

Key words: *transport connectivity, sustainable development, transport and logistics infrastructure, Northern Sea Route, regional development, high quality of people's lives.*

1. INTRODUCTION

The Northern Sea Route is the main transport artery in the Arctic. It connects the European and Far Eastern seaports of different countries into a single transport network, providing transportation of goods from one country to another, also it provides transportation of products from the northern territories of different countries.

The Northern Sea Route is a part of an international transport network that provides transit transport of goods between countries in North America, Europe, and South-East Asia [1]. According to the estimates of foreign scientists, about 5% of world trade can be sent along the Northern Sea Route (NSR) only in the Arctic during year-round and unimpeded navigation, providing additional income for many countries in Europe and East Asia [2]. At the same time,

¹¹⁸ VShEM, Ural Federal University named after the first President of Russia B. N. Yeltsin, Ekaterinburg, Russia

the distance from Europe to Asia along the Northern Sea Route is half the length of the traditional sea route through the Suez Canal. This creates great opportunities for commercial navigation between Asia and Europe along the Northern Sea Route (see Figure 1 [3]).

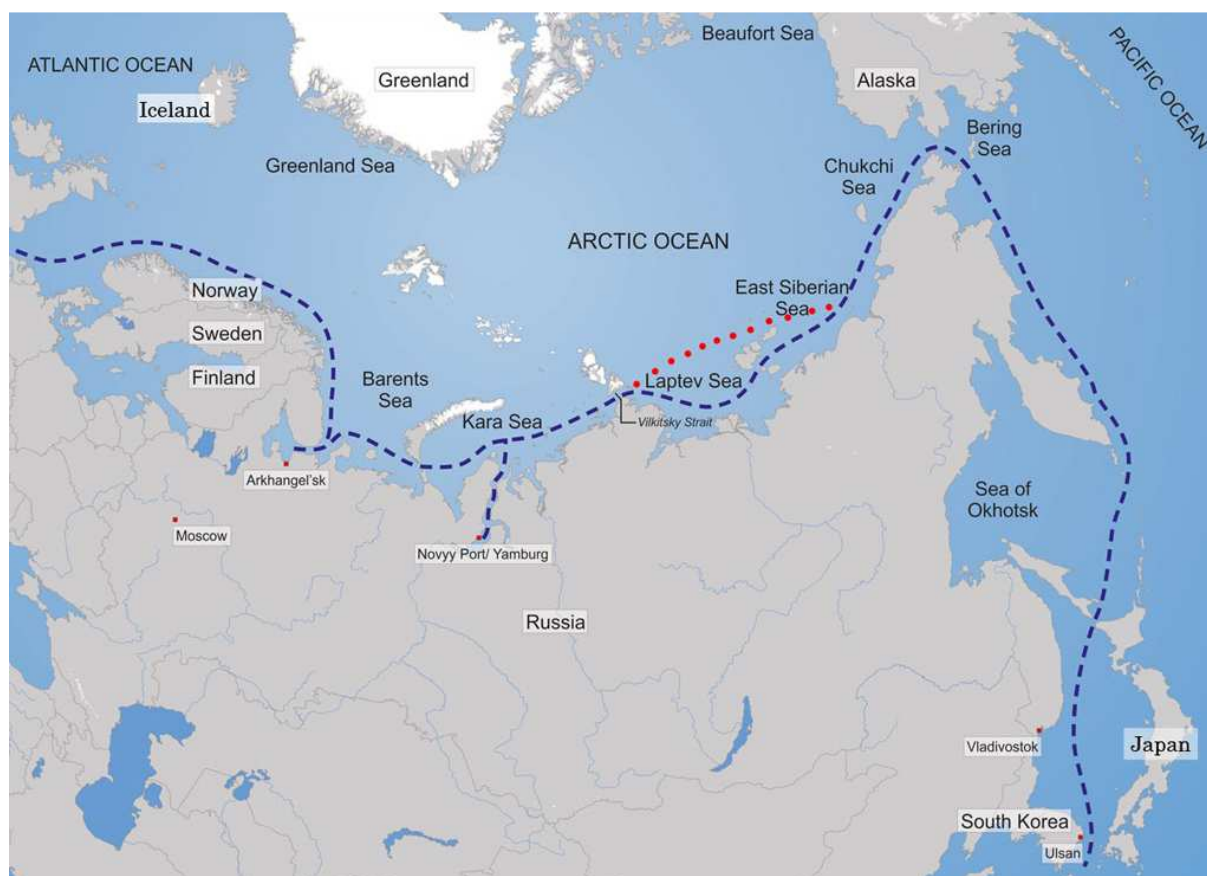


Figure 1: The route of the Arctic container line within the framework of the NSR

Interest of various companies from foreign countries has increased significantly to the Northern Sea Route. These are the countries of Northern Europe (Sweden, Finland, Norway), as well as China and Korea. In particular, the representatives of China and Korea plan to use the Northern Sea Route in their export-import operations and transport development. Prospects for the growth of northern territories, many scientists have identified in the development of the Northern Sea Route [4] – [5].

2. THEORY AND METHODOLOGY

The situation with the current state of the Northern Sea Route and the prospects for its more active use is widely discussed in the scientific literature in recent years.

Foreign researchers are primarily concerned with such matters as commercial shipping with new routes [6], resources, governance, technology and shipping infrastructure [7]. Also, the issues of climate change in the Arctic zone under the influence of economic activities development (navigation and its maintenance) along the Northern Sea Route are actively discussed [8] - [11].

Russian researches are focused on the development of the Northern Sea Route, the organization of navigation throughout the whole year, the construction of new ports and reconstruction of

existing ones, the prospects for the construction of a new icebreaker fleet, the tasks of expanding the transport accessibility of new seaports and other issues [12] - [14].

Russian and foreign researchers singled out fuel and energy resources (crude oil, oil products, liquefied gas, coal), expansion of container transportations, including transit [15] - [16]; transshipment of industrial products from central regions of Russia; transshipment of products of extractive industries (ore, forest, other minerals) as promising areas for the development of the Northern Sea Route [17] - [18].

Prospects for the development of the Northern Sea Route are seen through the creation of the so-called "Arctic container line" by both scientists and representatives of the Russian authorities.

A study of the prospects for the development of the NSR was carried out with the help of methods of bibliographic and comparative analysis, qualitative analysis, mapping.

The activities of Russia's national programs "The Basics of Russia's State Policy in the Arctic to 2020" [19], the Program of Socio-Economic Development of the Arctic Zone of the Russian Federation for the Period to 2020 year" [20] and a number of other strategic documents were analyzed with the purpose of assessing the size and directions of state support for the development of the Northern Sea Route, the Government of the Russian Federation [21]. Analysis of regulatory documents in the development of the transport system in Russia, such as the materials of the Federal Target Program "Development of the Transport System of Russia (2010-2020)" [22] and the study of the scientific approaches of foreign and Russian researchers to the development of the world's transport infrastructure, made it possible to actualize the problem.

The main direction of the study is the assessment of the possibility of forming a transport and logistics corridor for year-round transportation of products through the Northern Sea Route and the creation of a modern transport infrastructure in the northern and arctic regions of the country [23].

3. RESEARCH AND DISCUSSION

An assessment of the prospects for the development of the Northern Sea Route has showed that the cost of transportation on the lines of the Northern Sea Route even in winter with the use of a modern large-tonnage fleet is lower than the cost of bulky goods transporting by land transport modes. At the same time, the calculations have showed that investment costs in the development of the maritime transport infrastructure are several times lower than costs for land transport projects, since the volume of transportation by block trains is increasingly limited by the capacity of the railways [24].

Energy costs (fuel) per unit of products transportation by sea transport are also less. Estimation of investment costs for the purchase of the fleet has showed that they do not require large government subsidies and budgetary expenses, because this task can be solved at the expense of credit sources and private investors.

Prospects for the development of the Northern Sea Route are seen not only in the expansion of coastal shipping, but also in ensuring the transport component in the import and export flows of foreign trade, formed in the western and eastern regions of the world and in increasing the

volume of freight transportation by foreign charterers for Scandinavian countries with transport of Murmansk.

Currently, the weak link of the Northern Sea Route is the Arctic ports. The current status and actual availability of ports along the entire Northern Sea Route route is the main obstacle to the rapid build-up of the potential of the Northern Sea Route and the growth of freight traffic along the Northern Sea Route.

The task of improving the safety of navigation in seaports and their approaches and the construction of infrastructure for seaports were set to the solution of this problem within the framework of the state policy for the development of the Arctic.

The main directions for modernization and development of the existing port infrastructure of the coastal regions of the Russian North and the Arctic affect the following points.

Firstly, it is necessary to deepen the forester in a number of existing ports, which would allow vessels with deeper drafts to be carried out when carrying out large-scale container shipments. This is especially actual for the ports of Arkhangelsk, Varandey, Kharasavey. A construction of a new deep-water port with an area of 180 hectares is planned with an approximate investment of 35 billion rubles to the solution of this problem within the framework of the transport strategy of the Russian Federation until 2030.

Secondly, it is necessary to expand existing or create new distribution terminals for servicing sea vessels, especially in cases of goods transit by trans-shipment to other modes of transport (rail, road, river). The operational processing of the increased volume of cargo will be greatly hampered without the creation of new specialized highly automated terminals.

Thirdly, an important area of the port infrastructure development of the maritime

Anna Mingaleva, student of Graduate School of Economics and Management, the Applied Economy Department, Ural Federal University named after the first President of Russia Boris Yeltsin.



Sphere of scientific interests: innovations, innovative development of the economy, maintenance of employment in economy, methods of stimulation of entrepreneurship activity

Current Research Activities: research includes 13 scientific journal articles with a total amount of 4,7 conditional printed pages, including 3,28 author's pages. 3 articles are in the collection of scientific works indexed in Web of Science, 4 articles in the journals reviewed by Higher Attestation Commission of Russian Federation and 6 articles in the collections of international conferences.

The topics of the published works cover current trends in the field of stimulating innovation activity, including: analysis of trends in the development of innovative and patent activities in the Russian Federation; identification of perspective areas of innovative research of universities in the field of environmental technologies and innovative approaches to solving environmental problems based on the application of "green" technology; the study of scientific approaches to the interpretation of the concept of innovative susceptibility; the analysis of the phenomenon of entrepreneurship in modern conditions.

Participation in international research conferences: the Diploma of the XVI International scientific and practical conference for the best report in the field of the analysis of innovative potential, the diploma for the best report in the section "Econometric methods of the analysis of the social and economic phenomena and processes: theory and practice" in All-Russian conference of the Oxford Russian Fund scholarship students, the Diploma for the second place in nomination "The best research work of the bachelor students" II All-Russian competition of students and graduate students research works "The best study of coastal and border regions of Russia" organised by the Committee of the State Duma of the Russian Federation on regional policy and problems of the North Federal University, Baltic Federal University and Far Eastern Federal University. Scholarships: a personal scholarship of Oxford Russian Fund, the scholarship of the first President of Russia Boris Yeltsin and the scholarship of the governor of Sverdlovsk region for excellent study and research activities.

regions of the Northern Sea Route is the expansion of their specialization. At present, some of the existing Arctic ports, as well as those under construction (Varandey, Kharasavey, Sabetta, Teriberka) are primarily oriented towards transshipment of fuel and energy resources (crude oil, oil products, coal, liquefied gas) [25]. However, it is necessary to expand the capacity of these ports' transshipment capacities in order to involve the potential of these ports in enhancing the connectivity of the country's territory more fully by creating new efficient intelligent transport systems, improving the transport accessibility of these regions and cities for people, increasing the volume of cargo transportation. This requires the construction of new transshipment stations in the coastal cities of the Arctic, for which purpose it is necessary to create specialized multifunctional distribution terminals for their maintenance. Such a construction is quite expensive, as it is necessary for such stations to be connected to the power system and utilities. On the other hand, the problem of providing new port complexes with electric and thermal energy can be solved by using part of the volumes of oil and gas that are supplied and will be supplied by the increasing volume to these ports from the shelves of the northern seas. At the same time, the principle of the most favored formation of a regime for sustainable social and economic development of the subjects of Russia outside the Arctic Circle should be the basic calculation of the socio-economic expediency of expanding the opportunities of the Northern Sea Route.

Fourthly, it is promising to create modern transport junctions with the inclusion of several regions in them in conditions of a potential increase in cargo traffic along the Northern Sea Route in both directions - to the west and east. As the most promising and economically attractive projects in this regard, we can name the project "Belkomur", as well as the project on the establishment of the HAB with access to the port of Sabetta.

The implementation of the project for the construction of the Belkomur railway and the motorways providing it will ensure a significant increase in the efficiency of the transport system in Russia. The construction of Belkomur will help to increase the competitiveness of exports of enterprises of the Pechora Coal Basin and industrial enterprises of the Perm Territory and the Arkhangelsk Region, which are currently cut off from direct access to the foreign market. In addition, the construction of a transport highway in the framework of the Belkomur project will help to reduce the costs of industrial enterprises in terms of railroad transportation costs by about 40-65%, which will accelerate the economic development of not only the regions that provide construction (the Arkhangelsk Region, Perm Krai, the Komi Republic), but also other territories. More than 40 enterprises will be in the area of the new railway line. They will have the opportunity to increase competitiveness and development by improving transport accessibility. More than 100 enterprises entering the gravitational zone will also be able to increase the efficiency of their activities. The implementation of the project will create new jobs, which will take about 45 thousand people. The volume of private investment in business development is estimated at more than 750 billion rubles [26].

"Belkomur" provides the transit of goods (coal, potash fertilizers, containers, products of the timber industry and pulp and paper industry) from the central regions of the country in the amount of approximately 35-55 million tons per year, which must be sent by sea in the future.

The implementation of the Belkomur project will provide a number of positive social and economic effects for all regions within its scope. So, after the implementation of the project the total GRP of the participating regions will increase by 5.1% according to experts' estimates; the budget efficiency index will be 14.1. Also, the implementation of the project will create an infrastructural basis for the effective development of the richest natural resources of the

participating regions and territories in the gravitational zone, which will allow us to change the trajectory of development of a number of regions in a positive direction [27, p.21].

The peculiarity of the Belkomur project is that the railway which is being built creates a new "diagonal" direction in the system of international transport corridors of the European part. Before that main roads were built in the direction of "south-north" and "east-west" (Figure 2 [28]).



Figure 2: The transport corridors of the Belkomur project

The implementation of Belkomur will contribute to the development of rail communications on the scale of several northern and Ural territories of Russia; the development of sea and rail communication on a transcontinental scale across North America - Northern Europe - Asia; and the development of latitudinal road traffic [29].

In general, the launch of the highway will reduce the distance from the countries of Northern Europe to Central Asia, China, and Kazakhstan in comparison with the current total distance of 800 km. Also, this transport corridor will reduce the time and distance of traffic and redistribute cargo flows from the ports of the Baltic countries, including the Russian Baltic, to the ports of the Russian North [30].

4. CONCLUSIONS

The development of the Northern Sea Route should ensure in the future the optimization of domestic and international freight and passenger traffic both in Russia and other countries. Also, the development of the Northern Sea Route will reduce the cost of many types of products by reducing transportation costs, which for a number of products reach 50-70% at its cost price.

The development of the Northern Sea Route will allow reducing the terms of transportation of goods. Currently, the period of products transportation from the countries of the Asian region to the European part of the continent takes 30 days or more. As part of the trial shipments of similar cargoes along the Northern Sea Route, the transportation period was 10-15 days with the fastest passage of the route in 9 days.

The expansion of land rail and road transport routes in the northern and border regions of Russia will contribute to the development of the Northern Sea Route and the increase of transport connectivity of Russian territories. Belkomur is one of such projects, which, like other projects, will ensure the creation of a unified transport space for Russia based on a balanced development of an efficient transport infrastructure based on:

- elimination of "bottlenecks" and disruptions within the existing transport network of the country;
- creation of new convenient transport approaches to large transport hubs, seaports and border crossing points;
- the formation of a single transport (road) network, which is accessible all year round for the population and economic entities;
- development and maximum implementation of the transit potential of the country as a whole and of coastal territories;
- reducing transport costs of large commodity producers and the total transport costs of the economy as a whole;
- formation of conditions for transport support of social and economic growth in Russia;
- optimization of commodity circulation and passenger traffic.

REFERENCES

- [1] Sintsov A. G. (2004). *North in the system of geopolitical coordinates of modern Russia*. Moscow: Gorodets, 207 p.
- [2] Yumashev, D., van Hussen, K., Gille, J., Whiteman, G. (2017) Towards a balanced view of Arctic shipping: estimating economic impacts of emissions from increased traffic on the Northern Sea Route. *Climatic Change*, 143 (1-2), pp.143-155. DOI: 10.1007/s10584-017-1980-6.
- [3] The development of the Arctic: "Sevmorput" returns (2017). Military Review. [Electronic resource]. Access mode: topwar.ru/91647-osvoenie-arktiki-sevmorput-vozvrashaetsya.html. Date of circulation: 18.10.2017
- [4] Dellink, R., Chateau, J., Lanzi, E., Magné, B. (2017) Long-term economic growth projections in the Shared Socioeconomic Pathways. *Global Environmental Change*, 42, pp.200-214. doi: 10.1016/j.gloenvcha.2015.06.004
- [5] Shelomentsev, A.G., Kozlova, O.A., Mingaleva, Z.A., Bedrina, Y.B., Terentyeva, T.V. (2015). Comparative analysis of regional development of Northern Territories. *Asian Social Science*. 11 (14), 349-356. DOI: 10.5539/ass.v11n14p349
- [6] Smith, L. C., Stephenson, S. R. (2013) New Trans-Arctic shipping routes navigable by midcentury. *Proceedings of the National Academy of Sciences of the United States of America*, 110 (13), pp. E1191-E1195. doi: 10.1073/pnas.1214212110
- [7] Buixadé Farré, A., Stephenson, S. R., Chen, L., Czub, M., Dai, Y., Demchev, D., Efimov, Y., Wighting, J. (2014) Commercial Arctic shipping through the Northeast Passage: routes, resources, governance, technology, and infrastructure. *Polar Geography*, 37 (4), pp. 298-324. doi: 10.1080/1088937X.2014.965769
- [8] Wang, C., Corbett, J.J., Firestone, J. (2008) Improving spatial representation of global ship emissions inventories. *Environmental Science and Technology*, 42 (1), pp.193-199. doi: 10.1021/es0700799
- [9] Browse, J., Carslaw, K. S., Schmidt, A., Corbett, J. J. (2013) Impact of future Arctic shipping on high-latitude black carbon deposition. *Geophysical Research Letters*, 40 (16), pp. 4459-4463. doi: 10.1002/grl.50876

- [10] Stephenson, S. R., Smith, L. C. (2015) Influence of climate model variability on projected Arctic shipping futures. *Earth's Future*, 3 (11), pp. 331-343. doi: 10.1002/2015EF000317
- [11] Stroeve, J. C., Kattsov, V., Barrett, A., Serreze, M., Pavlova, T., Holland, M., Meier, W. N. (2012) Trends in Arctic sea ice extent from CMIP5, CMIP3 and observations. *Geophysical Research Letters*, 39 (16), art. no. L16502. doi: 10.1029/2012GL052676
- [12] Ivanov, Yu. M., Romanenko, A. A., Lebedev, G. V. (2013) Sea ports of Russia - the development trajectory. *Transport of the Russian Federation*. 5 (48). pp. 8-12.
- [13] *Year-round navigation along the routes of the Northern Sea Route - tasks and solutions* (2015). Vestnik SKF, 4, pp. 6-7.
- [14] Lebedev, G. (2013) Modernization of the infrastructure of the Arctic marine transport system. *Marine Collection*. 10. pp. 40-45.
- [15] Verny, J., Grigentin, C. (2009) Container shipping on the Northern Sea Route. *International Journal of Production Economics*, 122 (1), pp. 107-117. doi: 10.1016/j.ijpe.2009.03.018
- [16] Lasserre, F. (2014) Case studies of shipping along Arctic routes. Analysis and profitability perspectives for the container sector. *Transportation Research Part A: Policy and Practice*, 66 (1), pp. 144-161. doi: 10.1016/j.tra.2014.05.005
- [17] Khon, V.C., Mokhov, I.I., Latif, M., Semenov, V.A., Park, W. (2010) Perspectives of Northern Sea Route and Northwest Passage in the twenty-first century. *Climatic Change*, 100 (3), pp. 757-768. doi: 10.1007/s10584-009-9683-2
- [18] Melia, N., Haines, K., Hawkins, E. (2016) Sea ice decline and 21st century trans-Arctic shipping routes. *Geophysical Research Letters*, 43 (18), pp. 9720-9728. doi: 10.1002/2016GL069315
- [19] The fundamentals of the state policy of the Russian Federation in the Arctic for the period up to 2020 and the further prospect (approved by the President of the Russian Federation on September 18, 2008 N Pr-1969). [Electronic resource]. Access mode: http://www.consultant.ru/document/cons_doc_LAW_119442/. Date of circulation: 08.09.2017.
- [20] Decree of the Government of the Russian Federation No. 21 April 2014 366 "On approval of the state program for the socio-economic development of the Arctic zone of the Russian Federation for the period until 2020". [Electronic resource]. Access mode: <http://government.ru/docs/all/91474/>. Date of circulation: 03.09.2017.
- [21] Decree of the Government of the Russian Federation No. 228 of March 14, 2015 "On approval of the Regulations on the State Commission for the Development of the Arctic". [Electronic resource]. Access mode: <http://government.ru/docs/all/95235/>. Date of circulation: 03.09.2017.
- [22] Decree of the Government of the Russian Federation No. 848 of 05.12.2001 "On the Federal Target Program Development of the Transport System of Russia (2010-2020)". [Electronic resource] Access mode: <http://base.garant.ru/1587083/1> Date of circulation: 03/09/2017.
- [23] Lorange, P., Fjeldstad, T. D. (2010) Redesigning organizations for the 21st century: Lessons from the global shipping industry. *Organizational Dynamics*, 39 (2), pp. 184-193. doi: 10.1016/j.orgdyn.2010.01.007
- [24] Selin, V., Larichkin, F., & Novoseltceva, V. (2014). Economic development of the Russian Arctic space by upgrading transport and logistics sector. *Archives of Transport*, 31.
- [25] Minin, M. (2014). Prospects for development of the coastal infrastructure of the Northern Sea Route on the basis of design experience of the seaport in the Teriberskaya Bay and the seaport of Sabetta. *J. "Hydrotechnics"*, 4, 101-106.

- [26] Alsufiev, A. V. (2016) Implementation of the project for the construction of the Belkomur railway. *Transport and logistics in the Arctic. The Northern Sea Route: the course is the Far East. Almanac 2016*/ed. S.V. Novikov. M. Technosphere, 2, p.39.
- [27] Alsufiev, A. V, Anisimova, G. A. (2017) "Belkomur" is a strategic project for the development of territories. *State audit. Right. Economy*, 1, pp.18-25.
- [28] Project "Belkomur". The complex industrial and infrastructural development program of Komi Republic, Perm Territory and Arkhangelsk area. [Electronic resource]. Access mode: <http://slideplayer.com/slide/8535843>. Date of circulation: 13.10.2017.
- [29] Kokin, S. V., Andrusenko, V. Yu. (2017) Infrastructure projects as a point of growth of the support zones of the Russian Arctic. *State Audit. Right. Economy*, 1, pp.58-63.
- [30] Kuratova, E. (2011) The Belkomur railroad is a land alternative to the western section of the Northern Sea Route. *Transport business of Russia*. 9, pp. 88-89.

THE DYNAMICS OF AGGREGATED INDICATORS OF EFFICIENCY OF ELECTRICITY CONSUMPTION BY RUSSIAN REGIONS AT THE FIRST STAGE OF IMPLEMENTING THE ENERGY STRATEGY OF RUSSIA TILL 2030

Lyudmila Yu. Bogachkova¹¹⁹
Shamam G. Khurshudyan¹²⁰

Abstract: *The policy of energy efficiency in the Russian Federation is determined by the Energy Strategy of Russia for the period till 2030 (hereinafter – ES -2030). ES-2030 has been implemented stage-by-stage: from 2005 to 2015; from 2015 to 2022; from 2022 to 2030. By 2015 energy intensity and particularly electricity intensity must have decreased to 78% and 84% as compared to the indicators of 2005. The first stage of ES-2030 has been completed by now, and certain reduction of GRP has been achieved. According to the Ministry of Energy of the Russian Federation, structural shifts and economic growth could make the main contribution to the reduction of energy intensity of Russian economy from 2005 to 2014, while the influence of technology factor was insufficient.*

Today, the system of statistics and analysis of energy intensity of the Russian economy is in its infancy. In the regional context, in contrast to the sectoral one, the factor analysis of the dynamics of GRP energy intensity and the comparative analysis of the technological indices of energy intensity are not carried out. This fact updates the independent research on energy consumption in the regions of the Russian Federation and the evaluation of the technological factor's influence on the energy intensity of the regions, since the key role in increasing the energy efficiency of the Russian economy is played by technological energy saving. When studying the performance of state policy on energy efficiency in the regions of the Russian Federation, it is necessary to take into account the high degree of their differentiation according to the types of energy-economic development. The typology is based on the GRP sector structure ensuring the correctness of interregional comparisons of energy efficiency indices.

The authors of the given research use the example of electricity consumption to reveal the common trend in the dynamics of energy efficiency indicators in the Russian regions with regard to technology factor influence estimated by means of decomposition analysis of electricity consumption growth. The authors also point out the features of the mentioned dynamics associated with the types of energy-economic development of territories.

Key words: *energy efficiency, regional economy, decomposition analysis, indices of energy efficiency, energy-economic development of the region.*

¹¹⁹ Regional Economics and Management School, Department of Mathematical Methods in Economics, Volgograd State University, Prosp. Universitetsky, 100, Volgograd, 400062, Russia

¹²⁰ Regional Economics and Management School, Department of Mathematical Methods in Economics, Volgograd State University, Prosp. Universitetsky, 100, Volgograd, 400062, Russia

1. INTRODUCTION

Over the past decade, a number of long-term state programs of energy saving and energy efficiency have been developed and implemented in Russia at the federal and regional levels. Since 2014, the Ministry of Energy of the Russian Federation has monitored the implementation of federal and regional programs of energy efficiency in partnership with experts from the National Research University Higher School of Economics [1]-[3]. These programs contain by-sector estimations of specific energy consumption in various production processes and outline the influence of a wide range of factors on energy consumption. However, the mentioned programs do not imply carrying out factor analysis of the regional dynamics of GRP energy intensity, as well as interregional comparing of technological indices of energy intensity.

The present research aims at revealing the overall trend and typological features, associated with the energy-economic development of territories, in the dynamics of electricity consumption efficiency in the subjects of the Russian Federation. The differential accounting of the influence of objective factors (economic growth and structural shifts) and the technological factor (the most relevant from the viewpoint of state policy of energy efficiency) on electricity consumption serves as the basis for studying the abovementioned trend.

We use the term ‘energy-economic development’ of the territory, which means economic development of the region by increasing the efficiency of using energy resources as the most important factor of production.

2. LITERATURE REVIEW

The method for development and evaluation of complex long-term programs of energy saving and energy efficiency in modern Russia is presented in the academic research by experts of the Center for the Effective Use of Energy, and also in the research by other scientists [4]-[9].

The problems of monitoring energy consumption in the regions of the Russian Federation are reflected in [10]-[19] and other publications.

Theoretical methods and models, used in world practice for analyzing energy intensity and

Lyudmila Yuryevna Bogachkova, Doctor of Economic Sciences, Professor, Head of Department of Mathematical Methods in Economics, Volgograd State University. She



graduated with distinction from the Faculty of Mechanics and Mathematics of the Rostov State University in 1981. Candidate of Physical and Mathematical Sciences (1989), Associate Professor (1992), Doctor of Economic Sciences (2007), Professor (2010). Since 1984 Lyudmila Bogachkova has been working at the Volgograd State University. Since 2000 she has been head of the Department of Mathematical Methods in Economics. She wrote more than 120 scientific papers, qualified 6 candidates of sciences. Honored Worker of Higher Professional Education of the Russian Federation. Member of the Volgograd Regional Branch of the Russian Association of Statisticians. Member of the Editorial Boards of academic journals published in the Russian Federation: Regional Economy. South of Russia; Modern economy: problems and solutions; Bulletin of the Astrakhan State Technical University. Economy; Economics. Business. Computer science.

evaluating the effectiveness of energy efficiency policies are described in [20]-[26] and other researchers.

Vast academic literature is devoted to the issues of information and analytical support for the management of energy efficiency in the Russian regions. However the problems of analyzing the factors of energy consumption in the subjects of the Russian Federation and estimating the regional indices of technological energy efficiency have not yet been sufficiently studied. The comparison of interregional indicators of energy efficiency should be carried out taking into account the types of energy-economic development of territories.

3. METHODS

The index of GRP energy intensity (I_x) is one of the main indicators of performance of energy efficiency policy:

$$I_x = \frac{X^t}{X^0} = \frac{E^t \cdot A^0}{A^t \cdot E^0} = I_x(A; S; T); \quad (1)$$

$$X = \frac{E}{A}; \quad (2)$$

$$E = E(A; S; T). \quad (3)$$

where X – GRP energy intensity (2); A – gross product; E – total volume of energy consumption in the economy, which depends on the level of economic development (A), industrial composition of the economy (S), and technological factor (T). Index 0 denotes the values of variables in the reference period, and index t – in the accounting period. Gross product (A) is considered in constant prices of the reference period. As shown in (1–3), energy intensity of regional economy (X), as well as the index of energy intensity (I_x), depend on the factors of economic growth and structural shifts, and also on technological factor (T), the most relevant from the viewpoint of state policy performance in the sphere of regional energy efficiency. The index of GRP energy intensity (I_x) characterizes the dynamics of energy efficiency of regional economies, but it does not allow revealing the factors having the greatest influence on the dynamics.

3.1. *The method of decomposition of electricity consumption increase and estimation of the aggregate index of technological energy efficiency of the region.* To differentiate the influence of the technological factor, economic growth and structural shifts on the increase in electricity consumption in the region, we use the methodology representing the specified methodology of decomposition analysis [5] used to estimate electricity consumption in the region. The methodology includes a way of bringing the official data on the GRP structure and the structure of the regional energy balance of the subject of the Russian Federation into one-to-one correspondence. The fact is that the sections of GRP and energy balance structures do not coincide. The initial version of the methodology is presented in [27] and assumes a two-sector representation of the structures of GRP and energy balance. However it is known that the more gradations these structures have, the higher the accuracy of calculations. In the present research we use a modified version of the methodology, based on the formation of five enlarged sectors of the GRP and energy balance structures.

Agreed notation: I_A, I_S, I_T – indices characterizing the reduction of electricity consumption solely due to one of the three studied factors, assuming the constancy of the other two factors:

I_A – due to GRP growth; I_S – due to structural shifts (changes in the magnitude of gradations of gross product's sectoral structure). I_T – is an aggregate index of the region's technological electrical efficiency, which characterizes the reduction of electricity consumption in the subject of the Russian Federation for the period under consideration due to reduced energy intensity of gross product in various sectors of the regional economy.

3.2. *The method of Russian regions classification by type of their energy-economic development.* It is assumed that the type of economic development of the territory depends on the GRP structure. The regions with a larger industrial share in the GRP sectoral structure are objectively more energy intensive, while the regions characterized by more developed service sector are less energy intensive.

We use a step-by-step method proposed earlier in [28] in order to build up an empirical typology of the subjects of the Russian Federation by the nature of their energy-economic development. This method allows classifying the subjects by the GRP structure. It consists in singling out the homogeneous groups from the total number of regions. These groups include those subjects of the Russian Federation, the GRP sectoral structure of which is dominated by a particular GRP sector (as compared to the average by-region structure). The methodology is based on the following principles: formation of enlarged GRP sectors (agrarian-bioresource, raw-material, industrial, trade-financial, budget-dependent); using the method of k -means clustering; and satisfying the criterion of homogeneity of formed groups of regions.

The implementation of this method on the basis of Rosstat (Russian State Statistics Service) data for 2005 (reference period) and for 2014 (accounting period) made it possible to identify in both periods five overlapping groups of regions formed by the type of production specialization, as well as one group of diversified regions, the GRP structure of which is close to the average by-region structure.

3.3. *The method of revealing the general regularity and typological features as the measures of central trends in the dynamics of energy efficiency indicators in the Russian regions.* Average-weighted values of the indicators are used as the measures of central trends in the dynamics of energy efficiency indicators, both general (for the total number of regions) and typological (for groups of regions with the same types of energy-economic development). It should be noted that the weights are selected in such a way as to ensure the sustainability of the central trend measure in relation to anomalous values of the indicators [29]:

$$WM = \frac{\sum_{i=1}^n (w_i \cdot x_i)}{\sum_{i=1}^n w_i}, \quad (1)$$

where WM – average-weighted value, or the measure of central trend; n – number of regions; x_i – value of indicator for i region; w_i – weight coefficient for value x_i ; weight coefficients are calculated as the values inverse to the average distance of value from all the rest values x_j of this indicator:

$$w_i = (n-1) \cdot \left(\sum_{j=1}^n |x_i - x_j| \right)^{-1}. \quad (2)$$

The calculations are based on the official data of Rosstat and are performed in MS Excel 22 and STATISTICA 7.0 data processing packages. The studied period (2005–2014) corresponds to the first stage of ES-2030. We analyze the consumption of electricity, since the Rosstat website provides official statistical data necessary for calculations only on this energy resource. 80 subjects of the Russian Federation are under study.

4. RESULTS

4.1. *Decomposition of electricity consumption increase and estimation of the aggregate index of technological efficiency of electricity consumption in the region (I_T).* The indices of GRP electric intensity of (I_X) and the indices of technological efficiency of electricity consumption (I_T) were calculated for 80 subjects of the Russian Federation for the period 2005–2014. The regions were ranked by both indices. The studied 80 subjects of the Russian Federation shared 43 ranks by the index (I_X), and 52 ranks – by the index (I_T), since some subjects showed practically the same values of the indices. Taking into account the regional indices (I_T) and the corresponding ranks of the regions R_T in addition to the indices (I_X) and ranks R_X lets specify the performance of energy efficiency policy of the subject of the Russian Federation, as shown in Table 1. For example, the performance of energy efficiency policy in the Chukotka Autonomous Okrug is higher, than follows from analysis of the energy intensity index of GRP (I_X). The rating of this region by the criterion (I_T) is equal to ($R_T=3$), i.e. the region ranks 3rd out of 52, and by the criterion (I_X) – it is only 20th out of 43, since $R_X=20$. The Belgorod Region demonstrates the opposite tendency: the performance of the energy efficiency policy by the technological index is lower after excluding the contributions of objective factors into the dynamics of energy consumption ($R_T=14$ as compared to R_X).

R_T	R_X	Regions	I_X	I_T (%)	I_A (%)	I_S (%)	δE (%)
1	1	Kamchatka Krai	0,12	-114 (min)	30	0	-84
2	2	The Mari El Republic	0,52	-74	69	-7	-13
3	20	Chukotka Autonomous Okrug	0,82	-65	45	40	20
.....							
14	13	Saratov Region	0,74	-33	48	-6	9
	5	Belgorod Region	0,64	-33	96	-38	25
.....							
26	20	Pskov Region	0,82	-18	21	-4	-1
	19	Volgograd Region	0,81	-18	17	-4	-5
	18	Novgorod Region	0,80	-18	45	-10	16
.....							
51	37	The Chechen Republic	1,00	136	69	-136	69
52	43	Amur Region	3,66	323 (max)	19	-5	337

Table 1. Rankings of the regions of the Russian Federation by the index of technological performance of electricity consumption (R_T) and by the index of GRP electric intensity (R_X) for 2005–2014

4.2. *An empirical classification of the classification of the regions of the Russian Federation by the types of their energy-economic development was carried out according to the data at the*

beginning and the end of the analysed period (2005 and 2014). It is revealed that the typology of territories changes with time: some regions come out from one group and fall into other groups. At the same time, the so-called core groups, or subgroups of regions, are found, and the types of their development coincide in the reference period and in the accounting period. The list of core homogeneous groups of the same-type regions is given in Table 2.

4.3. *Revealing the general regularity and typological features in the dynamics of energy efficiency indicators in the regions of the Russian Federation.* Top underlining is used to denote the measures of central trends.

The average by-region indicators in the Russian Federation: the electric intensity of regional economies (X) decreased by 18% ($\overline{I_x} = 0,82$); the aggregate volume of electricity consumption increased by 11% ($\overline{\delta E} = 11\%$), while contributions to this increment from economic growth, structural shifts and the technological factor made, respectively: $= +37\%$; $= -7\%$; $= -19\%$. The growth of GRP made the largest absolute-value positive contribution into the dynamics of power consumption. The structural factor played an insignificant role – its contribution is the smallest by absolute value. The general trend of structural shifts provoked the redistribution of GRP shares from the production sphere (industrial and agrarian-bioresource sectors) to non-productive sectors (budget-dependent sector). The contribution of the technological factor turned to be the second by absolute value.

Types of regions	Regions
Diversified	Altai Krai, Bryansk Region, Volgograd Region, Kaliningrad Region, Kirov Region, Kurgan Region, Murmansk Region, Orel Region, Penza Region, The Khakassia Republic, Rostov Region, Ryazan Region, Saratov Region, Smolensk Region, Stavropol Krai, Tver Region, Ulyanovsk Region.
Industrial	Vladimir Region, Vologda Region, Krasnoyarsk Krai, Kursk Region, Leningrad Region, Lipetsk Region, Nizhny Novgorod Region, Novgorod Region, Omsk Region, Perm Krai, The Mari El Republic, Samara Region, Sverdlovsk Region, Tula Region, Chelyabinsk Region, Yaroslavl Region.
Budget-dependent	The Jewish Autonomous Region, Zabaykalsky Krai, Kamchatka Krai, The Karachay-Cherkess Republic, Magadan Region, The Altai Republic, The Republic of Ingushetia, The Republic of North Ossetia-Alania, The Tyva Republic, The Chechen Republic
Agrarian-bioresource	The Altai Republic, Kamchatka Krai, The Karachay-Cherkess Republic, The Republic of North Ossetia-Alania, The Mari El Republic, The Kabardino-Balkar Republic, The Republic of Kalmykia, Kursk Region.
Raw-material	Arkhangelsk Region, Kemerovo Region, Magadan Region, Orenburg Region, The Komi Republic, The Sakha (Yakutia) Republic, The Republic of Tatarstan, Sakhalin Region, Tyumen Region, Udmurtia
Trade-financial	Amur Region, Moscow, Saint Petersburg, The Jewish Autonomous Region, Moscow Region, Nizhny Novgorod Region, Novosibirsk Region, Primorsky Krai, Sverdlovsk Region, Yaroslavl Region, Zabaykalsky Krai

Table 2. Cores of empirical classification – subgroups of regions with time-stable types of energy-economic development (2005–2014).

Typological features of the dynamics of electricity consumption efficiency in the regions of the Russian Federation for 2005–2014 were identified as the measures of central trends by the core groups of regions that are characterized by the same type of energy-economic development. The average-weighted values of the index of the electrical intensity of the GRP physical volume

(\bar{I}_x) are shown in Figure 1. The average-weighted values of the contributions of economic growth, structural shifts and the technological factor to the increase in electricity consumption of regions with a certain type of energy-economic development are shown in Figure 2.

The integral rating was made up to determine the relative performance of the regional energy efficiency policy, taking into account both indices – (\bar{I}_x) and (\bar{I}_t) . The rating is based on the average-weighted indicators: the GRP index of electric intensity and the index of technological efficiency of electricity consumption in the regions included in the core group of regions of each type. This made it possible to compare the levels of performance of energy efficiency policy that are typical for the regions with each of the types of energy-economic development:

Level of performance of energy efficiency policy	Types of regions
high	agrarian-bioresource
above-average	industrial and diversified
below-average	trade-financial and budget-dependent
low	raw-material

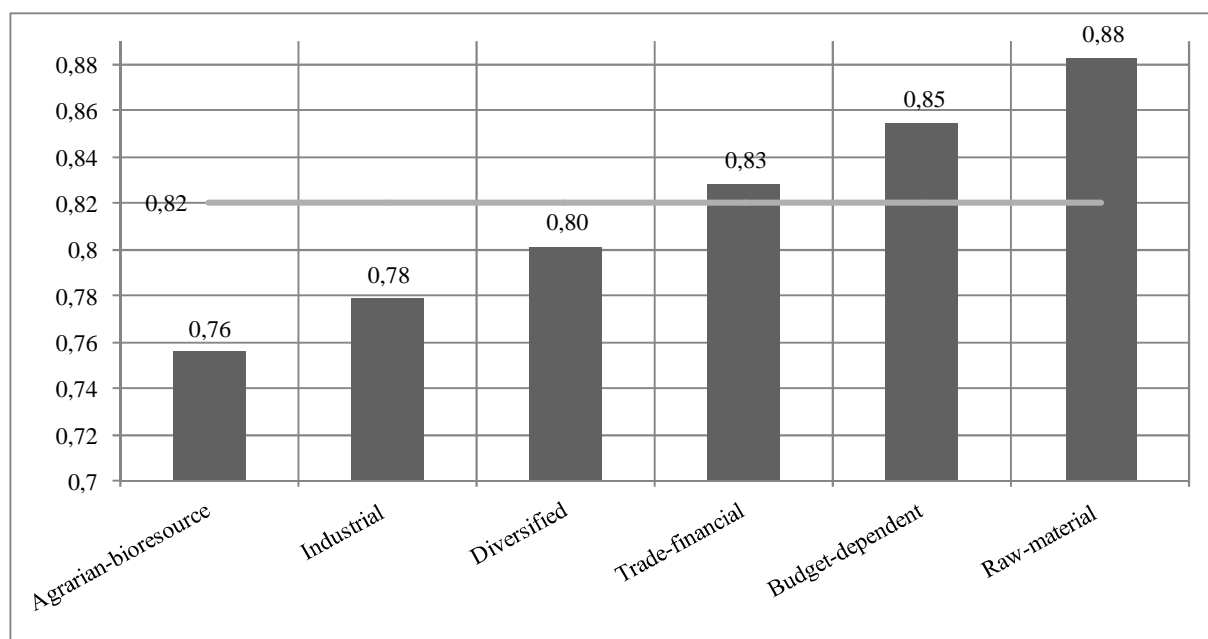


Figure 1. The average-weighted index of GRP electric intensity (\bar{I}_x) for 2005–2014 by the core groups of the same-type regions. The horizontal line in the Figure is the average level for all subjects of the Russian Federation.

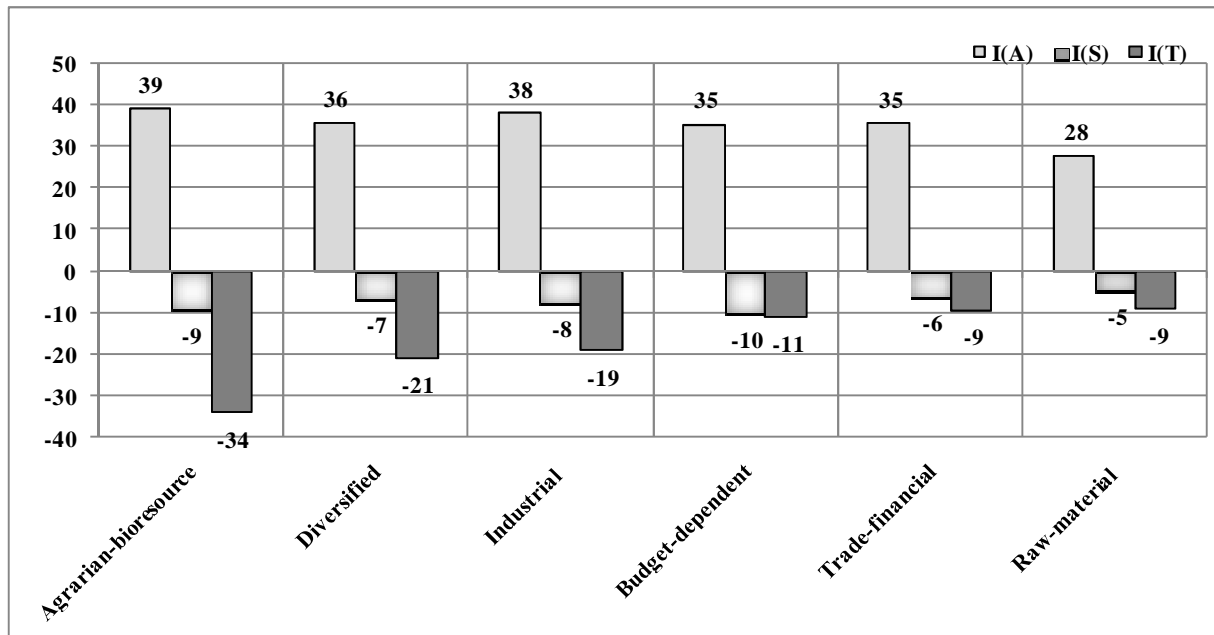


Figure 2. The average-weighted values of indices of economic growth ($\overline{I_A}$), structural shifts ($\overline{I_S}$) and the technological factor ($\overline{I_T}$) by the core groups of the same-type regions (for 2005–2014 rr., in %)

The agrarian-bioresource regions, which demonstrate the highest level of performance of energy efficiency policy, are distinguished by the biggest values of the contributions of all factors. They experienced the highest rates of economic growth, structural shifts and the most intense technological improvements. Conversely, in the raw-material regions, on average, we observe the smallest rates of economic growth, minor changes in GRP structures, as well as the least obvious reduction in electric intensity in all sectors of the regional economy.

5. DISCUSSION

In the present research, we accept the following hypotheses simplify the calculations to the maximum:

- structural shifts are considered notably as changes in the GRP sectoral structure, while they actually represent a broader concept;
- in the context of energy efficiency policy, structural shifts are considered as an objective phenomenon, while they can be the result of the state's structural policy;

Shamam Garnikovna Khurshudyan, Junior Researcher, Department of Mathematical Methods in Economics, Volgograd State University. In 2014 she graduated with distinction from the Institute of Management and Regional Economy of the Volgograd State University with the profile “Mathematical Methods in Economics”. From September 2014 to September 2017 Shamam Khurshudyan had been a postgraduate student; from October 2017 – Junior Researcher. She has numerous awards for research in the field of economics at scientific conferences of young researchers, including: personal scholarship of the Egor Gaydar Foundation (Russian Federation, Moscow, 2014); personal scholarship of the Government of the Volgograd Region (Russian Federation, Volgograd, 2014); laureate of the All-Russian Forum of Young Scientists in the field of Economics and Management (Russian Federation, Ekaterinburg, 2017).



- the effect of the technological factor is estimated by the average-weighted change in the specific consumption of electricity in economic sectors, i.e. without the use of disaggregate exogenous data on energy intensity of individual production processes. This is conditioned by the limited availability of statistical data.

The development of the Russian information system of energy consumption indicators and the tools of analyzing energy efficiency of the regions of the Russian Federation will allow obtaining more accurate estimates of the performance of the state energy efficiency policy in the future.

6. CONCLUSION

On the average, the GRP electric intensity reduced by 18% (2% higher than the target value set for 2015 in ES-2030) in all Russian regions during the period 2005–2014. The average increase in electricity consumption made + 11%, including: + 37% – due to economic growth; -19% – due to the technological factor; -7% – due to the change in GRP structure. Thus, the well-known idea on the main role of the structural factor in reducing the energy intensity of the Russian economy in relation to the energy consumption of regions can be associated with the underestimation of the technological factor's influence.

From 2005 to 2014, the regions of agrarian-bioresource type had been characterized by a high rate of increase in the efficiency of electricity consumption; the regions of industrial and diversified types – an above-average level; the trade-financial and budget-dependent regions – a below-average level; the regions of raw-material type – a low level.

ACKNOWLEDGEMENTS

The research was funded by the Russian Fund of Fundamental Research and Administration of the Volgograd region, project “Development of tools for decision-making on estimating the effectiveness of energy saving policy and increasing energy efficiency of the region” no. 17-12-34041.

REFERENCES

- [1] Ministry of Energy of the Russian Federation (2017) *State report on energy saving and energy efficiency in the Russian Federation in 2016*. Ministry of Energy of the Russian Federation, <<https://minenergo.gov.ru/node/5197>>. (Russian). (accessed 1 September 2017).
- [2] Ministry of Energy of the Russian Federation (2016), *State report on energy saving and energy efficiency in the Russian Federation in 2015*. Ministry of Energy of the Russian Federation, <<https://minenergo.gov.ru/node/5197>>. (Russian). (accessed 1 September 2017).
- [3] Ministry of Energy of the Russian Federation (2015), *State report on energy saving and energy efficiency in the Russian Federation in 2014*. Ministry of Energy of the Russian Federation, <<https://minenergo.gov.ru/node/5197>>. (Russian). (accessed 1 September 2017).
- [4] Bashmakov, I.A. (2010), *Indicators of low qualification or set of critical analysis and methodology for calculating targets for energy efficiency*, <<http://www.cenef.ru/file/Indications.pdf>>.

- [5] Bashmakov, I.A., Myshak, A.D. (2012), *Russian accounting system to improve energy efficiency and energy savings*. CENEF, Moscow, <<http://www.cenef.ru/file/Indexes.pdf>>.
- [6] Bashmakov, I.A., Myshak, A.D. (2016) Dynamics of energy consumption and energy intensity of GRP in the regions of Russia. Driving with a raised hood. *The Electronic Journal ENERGOSOVET*, no. 2, April-June, pp. 12-20. (Russian).
- [7] Bashmakov, I.A. (2013) *Development of complex long-term energy saving and energy efficiency programs: methodology and practice*. PhD thesis. Moscow, 2013. 429 p. (Russian).
- [8] Akulova, Ya.N. (2014) System of indicators of energy efficiency estimation as a factor of economic growth of the regional economy. *Bulletin of the OSU*, no. 4 (165), April, pp. 33-38. (Russian).
- [9] Sheveleva, A.V. *On the issue of developing a methodology for estimating the energy efficiency of the oil and gas industry in Russia*. URL: https://library.ru/download/elibrary_25323548_77348611.pdf. (Russian).
- [10] Artyukhov, V. V., Zabelin, S. I., Lebedev, E. V., Martynov, A. S., Mirutenko, M. V., Ryzhov, I. N. (2011) *Ratings of sustainable development of regions of the Russian Federation*. Moscow, Interfax. <<http://interfax-era.ru/reitingi-regionov/2009/kniga>>.
- [11] Artyukhov, V.V., Martynov, A.S. (2010) *Methods of estimation of the environmental and energy efficiency of the Russian economy*, Moscow, Interfax CJSC, <http://interfax-era.ru/sites/default/files/page/files/reiting_eco.pdf>.
- [12] Gachot, E. G., Puzakov, V. S., Stepanova, M.V. (2012) *Features of the implementation of energy saving policy in the region: analytical compilation*. Moscow, Analytical Centre affiliated to the Government of the Russian Federation.
- [13] Gasho, E.G., Stepanova M.V. (2015) Development of regions through energy efficiency increase. *Energy policy*, iss. 3, pp. 59-66. (Russian).
- [14] Gasho, E.G. (2017) Solution of the energy saving problem in Russia. Some results and myths. *Energy-saving*, no. 2, pp. 36-41. (Russian).
- [15] Gitelman, L.D., Bokarev, B.A., Gavrilova, T.B., Kozhevnikov, M.V. (2015) Anti-crisis solutions for regional energy. *The Economy of the Region*, no. 3 (43), pp. 173-188. (Russian).
- [16] Golovanova, L.A., Ivanchenko O.G. (2010) Energy-economic approach to regulating the development of industrial production. *Bulletin of the Pacific State University*, no. 1, pp. 109-119. (Russian).
- [17] Lebedev, Y., Letyagina, E. N., Sidorenko, Y. (2012) On the estimate of energy efficiency of regions. *Management of economic systems*, vol. 4 (40), pp. 5-34, <<http://www.uecs.ru/uecs40-402012/item/1273-2012-04-21>>.
- [18] Marchenko, E.M., Belova T.D. (2015) Analysis of factors affecting the energy efficiency of the region: management aspect. *Management issues*, no. 4 (16), pp. 105-112. (Russian).
- [19] Popov, A.S., Gainalov I.D. (2015) Evaluation of energy-economic development of the region. *Fundamental Research*, no. 7, pp. 625-629. (Russian).
- [20] Ang, B.W. (2004) Decomposition analysis for policymaking in energy: which is the preferred method? *Energy Policy*, vol. 32, iss. 9, pp. 1131-1139.
- [21] Ang, B.W., Lue F.L. (2001) A new decomposition method: perfect in decomposition and consistent in aggregation. *Energy*, vol. 26, pp. 537-548.
- [22] Ang, B.W., Muand A.R., Zhou P. (2010) Accounting framework for tracking energy efficiency trends. *Energy Economics*, vol. 32, pp. 1209-1219.
- [23] Wade, S.H. (2002) Measuring change in energy efficiency for the Annual Energy Outlook. *Energy information administration*. US Department of Energy. Washington, D.C.

- [24] Marrero, G.A., Francisco J. (2013) Activity Sectors and Energy Intensity: Decomposition Analysis and Policy Implications for European Countries (1991–2005). *Energies*, vol. 6, pp. 2521-2540.
- [25] Su, B., Ang, B.W. (2012) Structural decomposition analysis applied to energy and emissions: Some methodological developments. *Energy Economics*, vol. 34, iss. 1, pp. 177-188.
- [26] Xu, X.Y., Ang B.W. (2014) Analysing residential energy consumption using index decomposition analysis. *Applied Energy*, vol. 113, pp. 342-351.
- [27] Bogachkova, L.Yu., Khurshudyan Sh.G. (2015) Quantitative Analysis of Energy Efficiency Indices in the Regions of the Russian Federation as Exemplified by Energy Consumption. *International Journal of Energy Economics and Policy*, no. 5 (4), pp. 376-382.
- [28] Khurshudyan, Sh.G. (2016) Typology of Russian regions by the structure of GRP as a factor of the energy intensity of the economy: methodical aspects. *Science Journal of Volgograd State University. Global Economic System*, no. 3 (36), pp. 66-78. DOI: <https://doi.org/10.15688/jvolsu3.2016.3.7>. (Russian).
- [29] Dodonov, Yu.S., Dodonova Yu.A. (2011) Sustainable measures of the central trend: weighing as a possible alternative to data truncation in the analysis of response times. *Psychological studies*, no. 5 (19), <<http://psystudy.ru>>. (Russian).

STRUCTURAL DEPENDENCE OF ECONOMIES IN THE ERA OF GLOBALIZATION

Leon Olszewski¹²¹
Pawel Dobrzanski¹²²

Abstract: *The world order after the Second World War characterized by the asymmetrical dependence of nations on each other, has placed developing countries in a situation of structural dependence on Western countries. Among the theories that explain the underdevelopment mechanisms, the important place is occupied by the idea of an unevenly distributed development in space. A valuable contribution on the mechanisms of imbalances at different levels gave François Perroux, eminent French economist (1903-1987). The starting point of his analysis is a concept of power-domination. In developing the concept of the dominant economy, F. Perroux introduced the notion the d'emprise de structure (structural dependence).*

The analysis of the dominance of one country over another is a multidimensional aspect. There is no one acceptable method that would show the dependency between countries. It is possible to analyze individual categories. The purpose of this article is to answer the question: to what extent is the concept of structural dependence useful in the era of globalization to analyze certain aspects of structural relations between strong and weak countries? The paper presents a statistical analysis for economic dependence. The empirical analysis confirmed strong dependence of the German economy over the Polish economy. The results of the research may be used by developing countries and policymakers in aim to reduce country dependences.

Key words: *Inequalities, domination, structural dependence, globalization, Structural Adjustment Programs*

1. INTRODUCTION

After the Second World War, the global economy changed dramatically. The United States has become the world's largest economic power and took a hegemonic position in the world. The Bretton Woods agreements put in place the so-called Gold Exchange Standard system. The dollar began to play a key role in the replacement of gold - the main currency of the 19th century global economy. The creation of the International Monetary Fund and the World Bank with GATT (1947) resulted in the establishment of a new international order. The neoliberal policy of these institutions based on the regulation of the economy by the markets, reducing the role of the states has ensured the dominance of the United States in the world.

The post-war Western European countries entered the phase of economic expansion unprecedented in history. *Les Trente Glorieuse* was a period of stability, prosperity and the rapid rise of the ruins of the Second World War. The Bretton Woods system of fixed, but adjustable exchange rates came under increasing pressure in the 1960s. The lack of a close link between the balance of payments deficit and purchasing power has led to a significant increase in the world's credit base, which has led to strong inflationary pressures. Changes in exchange

¹²¹ University of Wrocław, University of Business in Wrocław, Poland

¹²² Wrocław University of Economics, Poland

rates were insufficient to cope with major disruptions in international payments. In 1971 the convertibility of the dollar was suspended and then the dollar declared inconvertible. The collapse of the Bretton Woods system has increased the social and political destabilization of the economies of Western countries.

The Second World War encouraged the intensification of nationalist movements in the colonies for the struggle against colonial rule. It has been an accelerator in a political evolution towards independence. In the sixties of twenty century there was a process of decolonization of Africa and Asia. Britain, France, Germany lost its colonies, but still by the old political and economic links with the independent countries, they tied these countries with the western economic system. As a result of independence movements third world countries were formed with common characteristics - low level of economic development measured by income per capita and high population growth. The specificity of their development required a new theoretical and analytical approach. Numerous analyzes of institutional development framework factors in Third World countries have led to the development of a new branch of the economy: the development economy. The development aspects of the Third World in the economic, political, geographical, environmental and other fields have become a dominant of post-war economic analysis.

These conditions of post-war development had a major impact on the theoretical concepts of F. Perroux, especially on the concepts of the economic space, the dominant economy, the structure hold.

2. THE WORK OF FRANÇOIS PERROUX

François Perroux (1903-1987), a prominent French economist was the author of numerous concepts of theory and economic development policy. The theoretical concepts developed large group of authors, were characterized by a broader view of economic events and processes than that current dominant theory of liberal economics. Perroux belonged to the generation of French economists, who analyzed economic problems in a wide spectrum of philosophy, sociology and political science. By actively participating in public administration units, he knew and mastered good practices. Perroux often refers to the practice. This regular confrontation of theoretical visions with the socio-economic and political reality facilitates the understanding of the essence of the problem and creates bridges between the theory of economics and economic policy. The concept of economic space is one of the first original Perroux's concepts [1]. He preceded remarks concerning the dominant economy and the analysis of macro-decisions [2]. These concepts are the foundation of his latest theories [3].

Perroux distinguishes three aspects of the economic space: the economic space as plan content, as a force field, as a homogeneous whole. An economic space of the firm is a set of relations defining the plan of the unit and the plan of the other units. The economic space consists of centers (poles) from which centrifugal forces emanate and centripetal forces. The homogeneity relations are relative to the units and their structure and to the relations between these units. These definitions are a starting point for Perroux the characteristics of the different types of economic space, characteristic of the national, international and world economy. The concept of homogeneous space is used for the examination of the variety of international structures and for the good choice of the policy of international economic integration and cooperation. Perroux pays the greatest attention to space as a force field. He was fascinated by the phenomenon of asymmetry resulting from the imbalance of forces between different units - companies, industrial sectors, continents, national economies. The appearance of the power phenomenon

causes the structures to change under the influence of forces acting in different directions. The most important problem is the consequences of asymmetry, named economic domination [4] [5] [6].

Perroux examined the problem of domination in one of his first articles [7]. Given that the economic world is in fact a set of relations between the dominant and the dominated, it is essential that we must include factors of power and coercion in the theoretical analysis of the effect of domination in the world economy. Considering only two economic units A and B, we will say that exerts an effect of domination by A on B if A influences B, when, apart from any particular intension of A, A exerts a determined influence on B without the reciprocal be true or without it to the same degree [8]. The effect of domination can occur because of intentional and unintentional links. This can occur as a result of a change in the structure of A. When the structural change of A causes a structural change of B, while there is no inverse dependence, it occurs in its pure form as effect of domination the effect of the domination of A on B by changes of structure.

The strength of the effect of domination is determined by the bargaining power of units, its size, and belonging to the active economic sphere. Defining a dominant economy, Perroux stressed the importance of a good understanding of the national economy. In order to understand the origin and effect of the effect of domination, the national economy must be considered as a complex system governed by a common action of the decisions of the State, the enterprises and the consumers.

3. THE CONCEPT OF STRUCTURAL DEPENDANCE OF F.PERROUX

One of the most important concepts in Perroux's theory and policy of development was the concept of structure hold. Presented in the late 60s it was another step in the development of earlier concepts. However, already in his previous work the economy of the twentieth century, writing about the dominant economy, expresses the view that power, power and coercion are inherent in economic life. In theories of the liberal economy they are reduced. Classical economists speak of a public authority and the monopoly, the Marxists of the class struggle, while the phenomenon of power has a multilateral dimension. It also applies to categories such as the state. Each country has a specific structure, consisting of a production apparatus, enterprises, institutions, which form a network of links that constitute a macro-unit that affects the environment. The ability of companies and institutions to rapidly adapt their foreign trade to the global market, the creativity of businesses and the research sector to create and implement innovation creates conditions for expansion and asymmetric influence. Structural relations depend mainly on trade flows and foreign direct investment. At the same time, the nature of the monetary system and the currency used in international settlements play an important role. Economic relations between countries can only be treated as trade and investment relations between companies. Behind them are the structures of national economies with their institutions, norms and values. Trade also means confrontation and cooperation in areas indirectly related to economic activity. In response to shaping the structure of the national economy by stronger economic partners, Perroux proposes to pursue a strategy of independence. It would be based on preferential policy (structural preference), i.e. taking into account the optimal conditions of one's own country. It is in contradiction with the politics of transnational corporations, financial groups and economically stronger countries [9] [10]. The problem of dependence and independence in relations between national economies Perroux presented on the example of the French economy. However, the ability to collect appropriate

data and the advancement of statistical analysis tools did not allow for a thorough examination of the problem.

The basic objection to the Perroux concept is its abstract and general character. According to Hansen [11] Perroux theory is a concept composed of other subconscious, rather unclear and freely interrelated, the concepts and expressions created by Perroux need to be defined more precisely, and their form should be clearer and coherent. Paelinck [12], Boudeville [13] and Friedman [14] all agree that Perroux concept is misunderstood due to lack of precision. Moreover Lasuén [15] emphasized that Perroux's theories are not able to answer the basic questions: why and how are dominant economies formed and how to measure dominance effect? Subsequent analyzes of international relations has shown the usefulness of Perroux's concepts. F. Perroux was the precursor of contemporary analysis of economic forces [16].

4. MEASURING STRUCTURAL CHANGES

Contemporary economic literature devotes much attention to the question of the structure of the national economy. This is particularly true for the problems of developing countries, which, to get out of underdevelopment are forced to make radical changes in its economic structure. In the 1990s, when the collapse of the communist empire of the Soviet Union allowed countries in transition to move from centralized control to a market economy, the problem of structural change became a primary goal of from these countries. The theory and framework of the mainstream trend of structural change policy has been defined by the IMF and the World Bank Economists Group. In the late 1950s, a policy framework for economic growth initiated by the structural policy model was described [17]. This model has been systematically developed and completed. Since then, the attention of economic development economists has focused primarily on the formalized analysis of foreign trade factors and direct investment in the transformation of the economic structure. They are essential in changing the economic structure of the national economy. In this article Authors will focus on trade aspect of dominance effect. Analysis related to FDI aspect will be presented in future articles.

Leon Olszewski, Professor - University of Business in Wroclaw, Poland, professor emeritus University of Wroclaw, Poland.



Head of the Department of Management University of Business in Wroclaw. Former Director of the Institute of Economic Sciences at the Faculty of Law, Administration and Economics (University of Wroclaw), former Editor of the *Ekonomia series* at the Faculty of Law, Administration and Economics, National Director of CEDIMES in Poland - Wroclaw Centre d'Etudes du Développement International et des Mouvements Economiques et Sociaux - Paris, Member of the Scientific Committee of the *Revue Internationale des Economistes de Langue Francaise*, Editor of the 20 collective works. Recent scientific work: *Economic structure of the national economy in the period of transition. The case of central European countries [in:] The trajectory of growth and structural transformation of the world economy amid international instability*, S. Balashova, V. Matyushok (editor), Moskow (Russia) 2014 (Co-author – Pawel Dobrzanski), *Les Changements structurels des pays d'Europe Centrale en transition (1990-2014). Quelques remarques*. W : A. Redslob (red.). *Croissance, population, protection sociale : faits et theories face aux enjeux*. Editions Pantheon-Assas, Paris 2016

One of the most important factors that affect the economic power between countries is trade. It must be remembered that trade is related to other factors, but authors focused on trade. Other factors will be analyzed in future research. Trade dependence is a sum of export and import. There are many indicators describing international trade, but only few are measuring power of this relation between two countries. Interesting concept was presented by S.Fink, D. Rempe, A. Obermeier. In their research dependence indicators are based on trade flows and are measuring asymmetric of trade relations, and hence power to one of the partners.

It's worth to highlight that asymmetrical interdependence doesn't translate into power [18] [19] [20], but asymmetrical interdependence offers the potential to wield power.

Trade relation can be explained with export and import dependence score. The first indicator – the export dependence score – assesses the export dependence from the perspective of state A. This dependence can be expressed as the relation between the proportion of the exports from A to B on A's total exports. The indicator for import dependence was constructed according to the same basic logic as the indicator for export dependence. Import dependence measures the proportion of the exports from A to B on B's total imports. If export dependence is higher than import dependence the trade flow is less important for state A, than for state B ~ state A is more powerful/less dependent than state B. If export and import dependence has the same value it means that importance of the trade flow is equal for both partners.

$$\text{export dependence} = \frac{\text{exports}_{A \rightarrow B}}{\sum \text{exports}_A} \quad (1)$$

$$\text{import dependence} = \frac{\text{exports}_{A \rightarrow B}}{\sum \text{imports}_B} \quad (2)$$

The empirical study in this paper focuses on trade relation between Poland and Germany in years 2000-2013. Analysis will answer what is the dependence between Poland and Germany. Those two countries are close neighbors and bilateral trade is important for both countries. After Polish accession to European Union in 2004 trade flow intensified. Table 1 presents trade data of import and export for Poland and Germany.

Table 4 Trade between Poland and Germany in million EUR

	Import from Germany to Poland mln EUR	Export from Poland to Germany mln EUR	Balance
2000	12690	11978	-712
2001	13427	13819	393
2002	14220	14070	-150
2003	14721	15351	629
2004	17397	17909	512
2005	20024	20142	118
2006	24202	23870	-332
2007	28948	26370	-2 578
2008	32755	29124	-3 631
2009	24053	25686	1 632

2010	29362	31427	2 065
2011	34042	35664	1 622
2012	32836	36057	3 221
2013	34006	38888	4 882

Source : author's own study based on Yearbook of Foreign Trade 2014, Central Statistical Office (GUS), Warsaw

Table 2 presents export and import dependance scores. Germany is dominant economy for both indicators. In 2000 German over Poland export dominance score was 0,349, which means that for Poland trade with Germany was 18 times more important. During research period this valued decreased significantly to 0,251 in 2013. Import dependence score increased during resarch period from 0,019 in 2000 and 0,035 in 2013. Ratio for export dependence to import dependence is decreasing over resarch period from 18,846 to 7,205. This can be interpreted that trade is still more important for Polish side, but this dependency is decreasing. Analysis confirmed strong dependance of the German economy over the Polish economy, but during research period this dependence is decreasing and this trend seems to continue.

Table 5 Economic trade dependence Germany vs. Poland

	A → B		export dependence/ import dependence	difference export dependence - import dependence
	A Poland	A Poland		
	B Germany	B Germany		
	Export Dependence	Import Dependence		
2000	0,349	0,019	18,846	0,330
2001	0,344	0,021	16,337	0,323
2002	0,323	0,023	14,302	0,300
2003	0,323	0,024	13,513	0,299
2004	0,301	0,026	11,604	0,275
2005	0,282	0,027	10,528	0,255
2006	0,272	0,028	9,788	0,244
2007	0,259	0,029	8,975	0,230
2008	0,250	0,030	8,243	0,220
2009	0,262	0,032	8,247	0,230
2010	0,261	0,033	7,939	0,228
2011	0,261	0,033	7,899	0,228
2012	0,251	0,033	7,660	0,218
2013	0,251	0,035	7,205	0,216

Source : author's own study based on Table 1 and equations (1) and (2)

5. CONCLUSION

The aim of this article was to analyze the usefulness of F. Perroux's theoretical concepts. He was born in post-war times in economic realities with a high degree of protectionist economic policy. We live now in a time of great liberalism in international relations and very limited opportunities for the state to pursue autonomous economic policies. Is the problem of structural

preferences for the long-term development of the national economy for a given country and its relative independence still valid?

The analysis of the dominance of one country over another is a multidimensional aspect. There is no one acceptable method that would show the dependency between countries. It is possible to analyze individual categories, such as trade relationship. The empirical analysis confirmed strong dependence of the German economy over the Polish economy. However, it is worth noting that from year to year this dependence is reducing and Poland is becoming an equivalent trading partner.

An analysis of a longer period or taking into account additional factors could lead to more general conclusions, resulting in a significant increase in the volume of the article. This analysis will be the subject of further research by the authors.

REFERENCES

- [1] Perroux F. (1950), *Economic Space: Theory and Applications*, The Quarterly Journal of Economics, Volume 64, Issue 1, 1 February 1950, pp. 89–104.
- [2] Perroux F. (1949) « L'effet de domination dans les relations internationales », *Hommes et Techniques*, Janvier republié dans *Economie appliquée*, tome XL, n° 2, 1987, pp. 271-290.
- [3] Olszewski L. (1988), The concept of space in Francois Perroux theories. Concepts and methods in geography, number 3. Special issue, The problems of space and time in regional studies, Poznan, pp. 95- 106.
- [4] Perroux F. (1949) « La notion d'Economie Internationalement Dominante et les taches des Etats-Unis aujourd'hui », repris dans *l'Économie du XXè siècle*, PUF, 1961.
- [5] Perroux F. (1990) *L'Europe sans rivages (1954)*, nouvelle édition augmentée, Grenoble, PUG.
- [6] Perroux F. (1981), *Pour une philosophie du nouveau développement*, Aubier, Les presses de l'Unesco, Paris.
- [7] Perroux F. (1948), "Esquisse d'une théorie de l'économie dominante". *Économie Appliquée*, 1(2-3), pp. 243–300.
- [8] Perroux F. (1964), *L'économie du XXIème siècle*, Deuxième édition, Bordas, Paris, p. 652.
- [9] Perroux F. (1969), *Indépendance de l'économie nationale et interdépendance des nations* Aubier Montaigne, Paris 1969.
- [10] Perroux F. (1973), *Pouvoir et économie*, Dunod, Paris
- [11] Hansen N. M. 1967, Development pole theory in a regional context, *Kyklos*, 20, 3, pp. 709– 727.
- [12] Paelinck J., La teorie du developpement regional polarisé, 'Cahiers de l'I.S.E.A', Paris 1965, no.15, série L, pp. 9-11.
- [13] Boudeville J.R., *Problems of Regional Economic Planning*, Edinburgh University Press, Edinburgh 1966.
- [14] Friedmann J., A General Theory of Polarized Development, [w:] N.M. Hansen (ed.), *Growth Centers in Regional Economic Development*, Free Press, New York 1972.
- [15] Lasuén J.R., *Ensayos sobre economía regional y urbana*, Ariel, Barcelona 1976, p. 264.
- [16] Sandretto R.(2009), Francois Perroux, a precursor of the current analyses of power. Documents de Travail - Working Papers W.P. 09-04. Groupe d'analyse et théorie Economique . UMR 5824 du CRNS.
- [17] Polak, Jacques J., (1957), Monetary Analysis of Income Formation and Payments Problems. *IMF Staff Papers*, Vol. 6 (November), pp. 1–50.

- [18] Baldwin, D. A. (1979). Power Analysis in World Politics: New Trends versus Old Tendencies. *World Politics*, 31: 161-194.
- [19] Baldwin, D. A. (1980). Interdependence and Power: A Conceptual Analysis. *International Organization*, 34: 471-506
- [20] Wagner, R. H. (1988). Economic interdependence, bargaining power, and political influence. *International Organization*, 42: 461-483.

CONTEMPORARY CHALLENGES FOR THE KNOWLEDGE-BASED ECONOMIES IN THE LIGHT OF CURRENT GLOBAL TRENDS – REFLECTIONS ON THE REPUBLIC OF MACEDONIA –

Pece Nedanovski¹²³

Abstract: *Being in a constant pursuit of knowledge and making use of it is something that has been crucially important for the development of economies and societies over the centuries. During the last few decades, the mankind has been witnessing radical changes in this sense. Namely, current transformations of the ‘ordinary’ economy and society into knowledge-based economy and society have been evidence of the increased significance of knowledge. The above mentioned also refers to the change of the pattern of knowledge production, dissemination and use. Under these circumstances, countries and companies that will not both understand and adapt to this fact will not further take advantage of the opportunities that follow.*

The focus of the paper is on the knowledge-based economies in South East Europe and the challenges they face under the circumstances of the current global trends. No one can doubt the key role the innovation and use of ICTs have for the knowledge-based economies. But, surprisingly, they are also a kind of cornerstone for a potential crisis. Bearing in mind the previously mentioned, the question that arises now is how to direct the debate to discover the characteristics that mark the intrinsic nature of knowledge-based economies. Responding to this challenge, the knowledge-based economies should once more take into consideration the human nature and the knowledge policies should incorporate insights of psychology about human behavior. Obviously this would lead to a reassessment of conventional welfare economics, i.e. to establishing new kind of welfare economics. Such economics would rely to a greater extent on research on human behavior and happiness.

The institutional aspects of the production, dissemination and use of knowledge are very important for the growth of knowledge-based economies. This is an important lesson for the Republic of Macedonia too. Namely, Macedonia ought to design institutions that are needed for enabling transition to knowledge-based economy. In the meantime, the ideas regarding the knowledge-based economy and society would have certain reflections on the education and employment policy that goes beyond the socioeconomic scenario they want to characterize.

Key words: *knowledge-based economy, research and development, innovation, South East Europe, Republic of Macedonia.*

1. INTRODUCTION

The current technological revolution has been making human communication more released from time and space constraints, speeding up knowledge accumulation. The available knowledge is transformed in new contents and widely spread by increasingly powerful combinations of software and hardware. Social institutions work in a different way and even markets become more knowledge intensive, as displayed by financial markets or e-commerce. (Rodrigues, 2002).

¹²³ Ss. Cyril and Methodius University in Skopje, Faculty of Economics - Skopje; address: Blvd. Goce Delcev 9-v, Skopje, R. of Macedonia

Having in mind the previously mentioned, it is clear why knowledge becomes main source of wealth and power on one hand, and a reason for difference between nations, regions, companies and people on the other hand (for instance, the innovation based on a specific knowledge became the main competitive advantage of a company). Consequently, the education systems face the challenge of building a learning society as a precondition for establishing knowledge-based society and knowledge-based economy.

During the second decade of the twenty-first century most economies can either be described as knowledge-based economies or as those aspiring to develop into such economies. This paper argues about a contemporary knowledge-based economies perspectives having in mind that innovation and intensive use of ICTs are their key features. In this sense, perspectives are not meant to minimize the impact of other factors, but to re-direct discussion to the intrinsic nature of knowledge-based economies. This also requires that a knowledge-based economies perspective “takes human nature seriously”. (Engelbrecht, 2009, p. 404)

The paper is organized as follows. The next section discusses the contemporary aspects of the concept of knowledge-based economies, focusing on the current global trends and knowledge-based economies, relations between knowledge-based economies and human nature, as well as knowledge-orientation in economics. This is followed by an exploration of South East European countries as knowledge-based economies (R&D and competitiveness in SEE), the issue of restructuring R&D systems in SEE, and the ways of strategic approaches towards innovations in this group of countries. This opens a window for the case analysis of the Republic of Macedonia i.e. analysis of the resources dedicated to research and innovation, present constraints, and possible strategic approach. The final section contains some concluding comments.

Prof. Pece Nedanovski, Ph.D.



He was born in Resen in 1963. He completed his undergraduate studies at the Faculty of Economics - Skopje and acquired his M.Sc. Degree at the same Faculty. In 1997 he successfully completed his second postgraduate studies in the field of Applied Economics at the Institute for Advanced Studies in Vienna. He obtained his Ph.D. Degree at the Faculty of Economics - Skopje. In the period from 2005-2008 he was engaged as Vice-Dean for Education Affairs at the Faculty of Economics-Skopje and in 2008 he was elected Vice-Rector for Finance, Investments and Development at Ss. Cyril and Methodius University in Skopje, for the period 2008-2012. By the end of 2007 he was elected as a Member of Supervisory Board of UNI Bank A.D. Skopje. During the period 2008-2011 he was a member of the Board of Directors of the Youth Entrepreneurship Service business incubator, Skopje. In 2005 he was elected to be a President of the Union of Economists of Macedonia. In the period from 1999-2011 he was a member of the Council of the Minister of Environment. He began his academic career in 1989 at the Faculty of Economics-Skopje. Up to present time, he has had numerous professional stays at universities abroad such as: University Stendhal (Grenoble, France); Institute for Advanced Studies (Vienna, Austria); International Centre for Environmental Technology Transfer (Jokaichi, Japan); Maison des sciences économiques, Université Pantheon-Sorbone (Paris, France); College of Europe (Bruges, Belgium); University of Limerick (Limerick, Ireland); Oxford University (Great Britain); Erasmus University (Rotterdam, the Netherlands). So far he has published 6 books and over 60 scientific and research papers, whereas as a researcher or project leader he has been engaged in the realization of around 40 domestic and international projects.

2. CONTEMPORARY ASPECTS OF THE CONCEPT OF KNOWLEDGE-BASED ECONOMIES

The knowledge-based economy could be seen as production of goods and services coming from knowledge-intensive activities that contribute to an accelerated pace of technological and scientific advance as well as equally rapid obsolescence. A commonly used definition of knowledge-based economies is that provided by the OECD in the mid-1990s, i.e. 'knowledge-based economies are directly based on the production, distribution and use of knowledge and information'. The OECD observes that the emergence of such economies is reflected in trends towards investments and business activities in high-tech industries, but also to highly-skilled labor, and associated productivity gains. The development of knowledge-based economies is related to the emergence of ICTs as 'general purpose technologies' that spread throughout the economy, facilitating productivity gains and further innovations (Engelbrecht, 2009).

The key components of a knowledge-based economy include a greater reliance on intellectual capabilities than on physical inputs or natural resources combined with efforts to integrate improvements in every stage of the production process, from the research and development (R&D) lab to the factory floor, to the interface with customers. These changes are reflected in the increasing relative share of the gross domestic product that is attributable to "intangible" capital.

There are a lot of alternative labels and definitions of knowledge-based economies. According to Godin, during the last decade of 20th century, this term was used by policy-makers as an umbrella concept that enabled them to focus on a broad range of science and technology issues and their importance for the economy. However, it is very important to keep the focus on the production of novel ideas that subsequently lead to innovation i.e. to new or improved goods, services and organizational practices (Powell and Snellman, 2004). Namely, as it is well known, thanks to Schumpeter the innovation was included among the key drivers of economic growth. Consequently, the development of an innovation policy nowadays is considered as one of the cornerstones of the economic strategy of contemporary governments. Even, the European Union has been translated this fact in the development of the EU 2020 and the related Innovation Strategies.

2.1. CURRENT GLOBAL TRENDS AND KNOWLEDGE-BASED ECONOMIES

During the 1990s, the World as a whole, saw greater emphasis than ever before placed on higher education. In both developed and developing nations, higher education was believed to be the key to the continuing growth of national economies. At that time, Alvin Toffler was writing on this topic when the knowledge-based economy was only an intellectual concept and before statistics had been developed to quantify the contribution of knowledge to an economy. However, even in 1990s, the effects of globalization could have no longer been ignored. Toffler was prescient in noting the now well-recognized international trend in employment from blue-collar low-skilled jobs, to white-collar highly-skilled employment, and the importance of widely diffused and ever expanding knowledge that contributes significantly to the economic growth. (St. George, 2006).

In its stock-take of the previous turbulent years and crisis, the OECD notes that they already affected key drivers of long-term growth, as for instance innovation and entrepreneurship. There is slower growth or even decline in firms' research and development (R&D) spending. Also banks, markets and investors have become more risk averse, i.e. there has been a reduction

in internal and external sources to finance R&D. Moreover, the R&D of businesses was re-directed towards short-term, low risk innovations. All this was “affecting the stock of knowledge as highly trained researchers and innovators lose their jobs... Small, innovative firms are particularly hard hit...” (Engelbrecht, 2009, p. 407).

Human capital has been being depreciated and transferred. For example, employment shifts towards information/knowledge workers are found in all OECD economies, irrespective of whether they are predominantly industrial-based, service-based, or even primary industry-based. In this sense, “the sectors where expansion will be the greatest – those that will continue to move the economy away from manufacturing – are the areas where the skills deficit will be the most noticeable”. (Challenger A. John, *Are We Prepared for Knowledge-Based Economy?*, “USA Today”, 2006). While these trends were seen as potentially magnifying the competitive advantage of research-intensive firms who seize the opportunity to reinforce market leadership through increased R&D spending, reduced support by the financial system for, especially, new entrants, is still a major concern. Moreover, the declines in international trade, foreign direct investment (FDI) and access to international financing are endangering the global supply chains that underpin innovation. These supply chains are critical sources of new knowledge and learning.

A further severe difficulty comes from the empirical side. Without doubt economic evolution is most strongly affected by innovation diffusing through the economic system and by this permanently changing its composition. Innovation is made up by knowledge accumulation and learning processes which empirically confronts economics with severe measurement problems and makes life for empirically oriented economists difficult. Knowledge is often no longer only an intangible input into a production function, but often also the output of the production processes (for example, in knowledge intensive service industries) and therefore demands for an adequate measurement in particular also in its qualitative dimension. Despite the fact that Godin analyzed the development of the knowledge-based economies concept from its earliest appearance in the 1960s, Gunnar Eliasson was among the first authors addressing these important questions already in the 1980s. (Pyka and Hanusch, 2006).

2.2. KNOWLEDGE-BASED ECONOMIES AND HUMAN NATURE

The acknowledgement that the 2007-2009 economic crisis was due to pathological knowledge-based economies is a prerequisite for being able to recognize potential dangers of future pathologies developing and implementing policies that reduce the likelihood of their occurrence. It requires a knowledge-based economy perspective on the last crisis. (Engelbrecht, 2009, p. 408). In this sense, the kind of future one can expect for knowledge-based economies depends on whether analysts and policy-makers could recognize the potential pathologies inherent in the nature of such economies. In particular, the policies concerning knowledge-based economies need to take human nature in consideration, i.e. they need to be based on insights about how people actually behave, not on how they ought to behave if they were rational beings. This might appear odd from the point of view of economic science, but the spectrum of the ignorance and risk in the economy speaks in favor of not perceiving this topic as strange or out of place.

While knowledge created in the ‘hard sciences’ can be assumed to contain a high degree of rationality, the people who create such knowledge are not necessarily very rational in much of the decision-making affecting their research or their lives in general. The link between knowledge creation, innovation, subjectivity and self-delusion is more obvious in the ‘soft

sciences' dealing with how people behave, including in finance (Engelbrecht, 2009). If anything, this should lead mainstream economists to reassess their models that employ rational expectations. The latter include the role of confidence in investment behavior, and the impact of considerations of fairness, trust, corruption, antisocial behavior, money illusion etc. They have long been recognized in behavioral economics, but finally they were confirmed with the recent awarding of the Nobel Prize for Economics to Richard Thaler for his research achievements in this domain. So, they need to be incorporated into macroeconomic theory if one wants to understand 'how the economy really works'. This will lead to a new welfare economics that takes insights from behavioral research into account.

Despite the close links between knowledge and economic outcomes, it is important to note once more that economic outcomes are not the final goal of economic activity. The need for such a new welfare economics is also becoming more obvious in the context of the debate about the environmental sustainability of knowledge-based economies. However, the diverse evidence acknowledges that the value of renewable and non-renewable natural resources is associated with high levels of subjective well-being in developed countries, providing a link between sustainability and psychological factors, and pointing to the need for a new kind of welfare economics (Engelbrecht, 2009, p. 410).

The institutions that underlie the production, preservation and distribution of knowledge are central to growth in knowledge-based economies. Obviously, these institutions have changed over time, but they have not been optimal yet. However, from a specific knowledge-based economies viewpoint it seems reasonable to take human nature in designing institutions as well, in order to minimize potential pathologies of knowledge-based economies. (Engelbrecht, 2009).

2.3. TOWARDS KNOWLEDGE-ORIENTATION IN ECONOMICS

The knowledge-based economy is more than the so-called new economy. The fashionable term 'new economy' is sometimes limited to software and multimedia business, supported by active financial markets. But this is the tip of the iceberg (Rodrigues, 2002). A much wider change is going on which encompasses all sectors of activity, from services to manufacturing and even agriculture under the pervasive effect of information technologies and telecommunications. A deluge of technological innovations is invading all these sectors and transforming our lives. As a matter of fact, the ongoing changes are not only technological, but also institutional and they concern something more than transformation, namely knowledge.

Permanent change in the impact, speed and direction of innovation processes leads to continuous development and qualitative change strongly visible especially in industrialized economies. On the one hand, new companies and often even new industries emerge, whereas established firms are confronted with severe transformation processes. On the other hand, these changes exert a crucial impact on the development potential of regions and whole economies. In this perspective, the competition is no longer only price competition, but increasingly gains an extremely important innovation dimension. Competition for innovation determines the international market position of firms, as well as the competitiveness of regions and national states within the framework of a growing international division of labor.

So-called key technologies, such as information and communication technologies (ICT) and modern biotechnology play a decisive role in these development processes. Industries applying and improving these technologies are in the center of interest of the financiers, politicians, industrial actors, and in particular of the creative entrepreneurs. The development in these industries will not only lead to important innovations for science and technology, but they are

also the foundation for economic, social and organizational changes in the twenty-first century.

Beyond these processes stands the transformation of economies to so-called knowledge-based economies. The decisive difference with respect to traditional manufacturing-based economies has to be seen in the dominant role for economic welfare which is played today by knowledge creation and diffusion processes. However, only to push forward the scientific and technological frontiers (exploration) is not sufficient to cope with these pervasive developments. What additionally counts is to be prepared for permanent transformation processes of the whole economic system which is strongly connected with the effective exploitation and use of the various kinds of new knowledge in a preferably broad set of economic activities.

The knowledge effects are most obvious in knowledge-intensive industries such as ICT and biopharmaceuticals. Also in knowledge-intensive service industries such as business consultancy and financial industries, they become more and more visible. Without doubt, however, at least indirectly all sectors of an economy are affected by the increasing importance of knowledge. To highlight this development some authors even use the term weightless economy emphasizing the fact that today knowledge and information account for the major share of economic transactions.

Traditional neoclassical analysis cannot deal with the rich complexity and dynamics characterizing the knowledge-based economy because of the restrictive assumptions underlying the mainstream economic reasoning. So, instead of incentive-orientation of neoclassical industrial economics, knowledge-orientation is underlying the investigation of industries and innovation processes in particular. In this sense three points need to be mentioned which are of outstanding importance for the discussion about economic development processes (Pyka and Hanusch, 2006):

- First, Neo-Schumpeterian economics wants to explain how innovations emerge and diffuse over time. A specific feature of these processes is uncertainty which cannot be treated adequately by drawing on stochastical distributions referring to the concept of risk. Therefore, we cannot rely more on the assumption of perfect rationality, underlying traditional models. Instead the concepts of bounded and procedural rationality are needed, because the economic agents face incomplete knowledge.
- Second point concerns the heterogeneity and variety. Due to the assumption of perfect rationality, in traditional models homogeneous agents and technologies are analyzed. Heterogeneity as a source of learning and novelty was neglected, or treated as temporary deviation from the representative agent.
- Third point deals with the time dimension in which learning and the emergence of novelties (as dynamic processes) take place. They are important because the possibility of irreversibility does not exist in the mainstream approaches (which rely on linearity and optimal equilibrium states).

Thus, traditional economic theories as incentive-based approaches and focused on rational decisions only are excluding crucial aspects of agents' competences and interactions. These competencies and interactions are influenced by several factors such as learning, individual and collective motivation, trust, and so on. The role of these factors should be taken into account when it comes to the knowledge-oriented economics. By switching from the incentive-based perspective to knowledge orientation, the economics will realize a change in the analysis of transformations of economic reality. In this sense, knowledge and new technological know-how are no longer considered as freely available, but as local, firm specific, and complex.

Consequently, knowledge and the underlying learning processes are important sources for the observed heterogeneity among agents. Heterogeneity again is a necessary prerequisite for innovation, growth and development, i.e. it is a kind of driver of the transformation of economic systems and development in terms of economic growth.

This process of endogenous re-structuring of economic systems based on knowledge and accompanied by creativity, learning and innovation leading to increased differentiation and specialization is placed centrally in Neo-Schumpeterian economics. It has to be understood adequately and constitutes a persistent challenge for theoretical and applied economics. The modern economics should encompass specificities of knowledge-based economies in reality, and innovatively introducing new methodologies and empirical tools in order to capture the underlying dynamics and thus help to improve our understanding of the dimensions of modern knowledge-based economies. (Pyka and Hanusch, 2006)

3. SOUTH EAST EUROPEAN COUNTRIES AS KNOWLEDGE-BASED ECONOMIES

According to the European Council, in a Europe that aims to become ‘the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion’, much of SEE countries could remain a backward periphery, a liability to the prosperity and stability of Europe in a globalized world economy increasingly dominated by Asian countries (Lisbon, March 2000, www.europarl.europa.eu/summits/lis1_en.htm). However, accession to the EU of five out of 11 SEE countries (Slovenia, Croatia, Bosnia & Herzegovina, Serbia, Montenegro, Macedonia, Albania, Bulgaria, Romania, Greece and Turkey) and the candidature of three others opens up new possibilities for their integration into the European core.

In the analysis of SEE countries, the issue of the public support of research and development (R&D) becomes very relevant. This is important given that in most of these countries, the economic growth is not based on R&D or innovation. An overview of the arguments for investing in R&D shows that building strong R&D systems linked to private and public users is an important ingredient in economic growth (Radosevic, 2009).

3.1. R&D AND COMPETITIVENESS IN SEE

The approach of World Economic Forum (WEF) inspired by Porter’s competitive advantages, could be useful to show the extent to which technology-based competition plays different roles in different countries. This approach distinguishes between factor, efficiency and innovation driven growth stages:

- In the factor driven stage, countries compete based on their factor endowments while companies compete on the basis of price and sell basic products or commodities;
- In the efficiency driven stage of development, countries begin developing more efficient production processes and increase product quality; and
- In the innovation driven stage, the sustainability of higher wages and associated standard of living in a country is a function of their business sector’s ability to compete with new and unique products (Porter 1990).

Factor driven (FD) stage	Transition from FD to ED stage	Efficiency driven (ED) stage	Transition from ED to ID stage	Innovation driven (ID) stage
	Albania	Bulgaria	Croatia	Greece
	Bosnia & Herzegovina	Macedonia		Slovenia
		Montenegro		
		Romania		
		Serbia		
		Turkey		

Source: Radosevic, 2009, p. 624.

Table 1: SEE countries ranked based on drivers of growth

The above Table 1 ranks countries into one of three groups and into transition stages based on the weights given to attributes as ‘basic requirements’, ‘efficiency enhancers’ and ‘innovation and sophistication factors’. The majority of the SEE countries are in the efficiency driven stage; Slovenia and Greece are in the innovation driven stage; Croatia is in transition from the efficiency to the innovation driven stages; and Albania and Bosnia & Herzegovina are in transition from the factor driven to the efficiency driven stages. This methodology points to the limited role of technology based growth in SEE. Absorptive capacity or the ability to harness the benefits of existing technologies is what matters for growth in the majority of the SEE countries.

Macedonia, Bosnia & Herzegovina, Serbia, Montenegro, and Albania have very low absorptive capacities which could hinder progress in competitiveness despite their better performances in relation to external institutional and business conditions. In general, the SEE countries are quite diverse in terms of levels of competitiveness. Although innovation and technological readiness are relatively the worst dimensions of their competitiveness, differences in levels suggest that the role of R&D varies widely across the SEE countries. This is confirmed by two existing gaps: gap in supply of R&D, and gap in demand for R&D. The very poor R&D infrastructures in Albania, Macedonia, Bosnia & Herzegovina, Serbia, and Montenegro negatively affect their ability to absorb new technologies or to innovate. Namely, with exception of Slovenia and Turkey, supply of R&D is ranked higher than demand in all SEE countries so that most SEE countries have a demand gap. This basically means that despite limited R&D capacities the major constraint for these countries is limited demand for local R&D.

In Slovenia and Turkey, there are signs of a R&D supply gap and limited R&D capacities, or perhaps types of capacities given their demand for R&D. In the case of Turkey this is expected, based on its level of development and recent economic growth; in the case of Slovenia this situation is related more to the structure of the R&D system than its overall size. Like other Balkan states, Greece suffers from weak demand for R&D, which is most likely due to its industry structure which is dominated by small firms in traditional industries. The small R&D demand-supply gap in Albania is mainly a sign of ‘low level equilibrium’ and symptomatic of developmental gaps rather than a situation that could be considered optimal from a growth perspective. The bigger R&D gap in the case of Bosnia & Herzegovina should be interpreted similarly, and in addition to its specific post-war situation.

The major part of SEE economies has noticeable R&D demand gaps meaning that they are not able to employ their R&D capacities effectively. This result about the SEE countries conforms to previous research which indicates that demand for R&D is the most significant weakness of new member states in the enlarged EU (Radosevic 2009). In the case of the SEE, this demand gap may be due to various demand factors such as the high share of business processes that do not use new technologies, or supply factors such as inappropriate structure or quality of R&D

capacity. The problem is worse in Serbia and Montenegro. There are the biggest demand-supply gaps. In Serbia this is probably due to the lack of sophistication of its business processes which do not generate sufficient demand for local R&D, and to extensive R&D capacities which Serbia inherited from the period when it was a part of the former Yugoslavia.

3.2. RESTRUCTURING OF R&D SYSTEMS IN SEE

The turbulent period of military and political conflicts during the 1990s coupled with transition related changes had significant impact on the R&D capacities of most SEE countries. The sudden change from exclusively state planned economies to market economies (for most SEE countries) introduced a degree of uncertainty into the R&D system which led to an erosion of quantity and quality of R&D. The exceptional reduction in national expenditure on R&D in most post-socialist SEE countries driven by economic crises and a related collapse in the demand for local R&D led to brain-drain in these countries. The loss of critical mass due to the formation of new states (the ex-Yugoslav states) promoted additional restructuring. As these changes have not affected Turkey, Greece and partly for Slovenia, they have, in effect, led to a prolongation of the historically inherited polarizations and incoherencies in the SEE region's R&D systems.

The changes that have occurred in individual SEE countries show very large differences in the levels of development and the pace of restructuring of SEE countries' R&D systems with Bosnia & Herzegovina, Albania and Macedonia being the most disadvantaged. These countries are still trying to establish functioning R&D systems and primarily are addressing science policy issues. Reforms in other countries range from some initial, rather tentative and limited changes in the case of Serbia and Montenegro to strongly EU driven and inspired changes in Romania, Bulgaria and to some extent Croatia. In these latter three countries and Turkey, there have been attempts to shift the focus from conventional science policy to innovation policy (Radosevic, 2009).

The divergent trends in R&D employment could be registered. On the one hand, Bulgaria and Romania have suffered significant declines. On the other hand, Greece, Croatia and Turkey have undergone continuous expansion of R&D employment. Serbia, Montenegro and Macedonia have recorded a gradual but continuous decline in employment in R&D while employment levels in Slovenia have remained virtually unchanged.

In regard to the R&D expenditures as a percentage of GDP, three trends could be identified in SEE:

- First, R&D funding in Western Balkan countries has declined constantly during the period of transition;
- Second, gradual increase in relative funding in Slovenia, Croatia and Turkey (probably it is compatible with either increased employment or the increased capital intensity);
- Third, relative funding in other countries has stagnated or has been continuously declining. Bulgaria and Romania have recorded an improvement in relative funding since early 2000, and the relative stagnation of gross expenditures on R&D (GERD) in Greece is inconsistent with the increase in R&D employment.

The conclusion concerning funding of R&D activities in SEE is that with the exception of Slovenia, Croatia and Serbia, relative GERD is quite low. In the countries of the Western Balkans R&D is poorly funded, undervalued and underpaid, and lack of funds has been having a major impact on the development of a science and research infrastructure and, therefore, the

quality of research. Unfortunately, for a significant period of time, most of these countries have not been beneficiaries of full EU Framework funding. Therefore, the share of foreign funding has been very low.

Concerning the dilemma whether government or business sector is a dominant funder of R&D, for less developed SEE countries, the government is the major funder of R&D. In parallel with higher GDP per capita, the business sector becomes the main source of funding and main performer of R&D. A correlation between income levels and relative share of R&D in the case of business sector suggests that increasing importance of business' R&D could indicate a transformation towards innovation or R&D based growth. This situation is in accordance and supported by the economic theory. Namely, with a help of the phenomenon of information asymmetry, the economic theory explains why markets for knowledge are rare and firms prefer in principle to carry out research and development in-house, rather than contracted out or licensed. (Rodrigues, 2002). To conclude, although countries may record high growth rates, these may not be sustainable in the absence of structural changes, including increasing the role of business sector regarding R&D.

The changes in employment towards the business sector have been rather limited in the majority of post-socialist countries. It is only in Slovenia that the business sector plays a dominant role in terms of both funding and performing R&D. This corresponds to Slovenia's level of GDP per capita. Its growth has been driven by innovation (see Table 1). In all other countries the business sector is important as a source of funding, but with the exception of Romania and to a degree Croatia, it plays a relatively smaller role in performance of R&D. In Bulgaria, both funding and performance of R&D is dominated by the government sector and this probably also applies to Serbia, Montenegro and Macedonia. The R&D systems in Bosnia & Herzegovina and Albania are marginal to the economy.

There is no development of a key agency that might enhance weak horizontal linkages such as links between domestic industry and R&D. Links between FDI and local firms are quite undeveloped in terms of R&D capacity. The universities are potential agents that might enhance horizontal linkages in SEE. Unfortunately, so far the implementation of 'Triple Helix' model of dynamic interaction between university, industry and government is very poor in the SEE region. The emergence of this model has been constrained by the presence of weak universities, weak firms and very weak domestic demand for local R&D and innovation. Consequently, SEE universities have been unable to respond to the emerging challenges. Partnerships involving universities and R&D institutes managed by consortia may be a specific SEE response designed to enhance local research and innovation capabilities. (Radosevic, 2009).

3. STRATEGIC APPROACHES TOWARDS INNOVATIONS

The first examples of policies to facilitate innovation in SEE countries were developed in the late 1990s. At that time, Croatia drafted a National Science and Research program for 1996-2000 and Bulgaria developed its National Strategy of Technological Development in 1999. However, these strategies tended to have a narrow focus and several years later, SEE countries started adopting comprehensive innovation strategies. Bulgaria and Romania developed their innovation strategies in 2004 and 2006 respectively, in the path toward their accession to the European Union in 2007. In regard to the group of Western Balkan countries, most innovation-related strategies were adopted between 2008 and 2010.

All the innovation strategies in SEE countries generally pursue the same objective of

developing research capabilities and fostering economic development. Also, some elements such as the need to increase resources dedicated to R&D are common. Namely, almost every innovation strategy in SEE includes a quantitative commitment to increase GERD, but in most cases, this objective is relatively modest. Whereas all SEE countries refer to the EU Lisbon Strategy objective of increasing R&D expenditure to 3% of GDP, only Croatia (as a member of EU) aimed to achieve this goal. Montenegro set a target of 2% of GDP. In Bosnia & Herzegovina, Bulgaria, and Serbia, the goal was to reach close to 1% of GDP. Albania was the country with the lowest objective (Albanian Government targeted public expenditures for R&D to reach 0.6% of GDP).

The innovation strategies in the SEE countries generally list within their key objectives a set of national research priorities, focusing the research effort on a limited number of fields where skills are already well-developed. In general, SEE economies have identified 5-7 priorities. In some cases (Bosnia & Herzegovina, Serbia and Romania), the strategy goes one step further. The rationale behind each priority area is set out and a list of sub-areas is included.

Besides the need to strengthen research institutions and to focus research efforts, most innovation strategies include the need to improve connections between research institutions and society as a whole. In particular, all SEE economies, except Albania and Montenegro, have defined one key objective: establishing linkages between research institutions and private sector. Furthermore, in some economies, for example in Bosnia & Herzegovina, the development of further institutional dialogue within the government is also mentioned as a key priority. Finally, the innovation strategies in Croatia and Montenegro stress the need to further integrate research institutions within international. Although the need to increase connections between research institutions is well-understood, due to the 'science and technology' bias of the various innovation strategies, this objective relates generally to the commercialization of research instead of focusing on supporting the innovation capacity of the private sector.

The various strategies also include other objectives which are more specific to the situation of the economy. In the economies where the innovation system is least developed, the need to strengthen the policy framework is among the key objectives. This is for example the case with Albania, Bosnia & Herzegovina, and Montenegro. However, the measures included in this objective are not horizontal (as for instance, improving the framework conditions, reforming the research system, supporting innovativeness of private companies etc.). Instead, they are focused on the priority research areas.

4. CASE ANALYSIS OF THE REPUBLIC OF MACEDONIA

4.1. RELEVANT TRENDS

The Republic of Macedonia suffered less from the global crisis 2007-2009 than most SEE economies and the economy gradually returned to growth. However, the level of factor productivity suggests that the Macedonian economy is not particularly competitive compared to other SEE economies. For instance, GDP per person employed represents around 80% of the SEE average and only 3/5 of the EU average (Eurostat, 2010). This indicator of global productivity of the economy grew by 1.1% between 2005 and 2008, the lowest growth rate observed in SEE economies. The previously suggests that the competitiveness of the economy compared to that of its peers in the region has been declining in the last decade.

Very important inputs for the analysis of situation in Macedonian economy are human capital,

access to finance and intellectual property rights which enable companies to innovate. The Republic of Macedonia is among the economies that dedicates the smallest share of national resources to R&D, i.e. less than 0.3%. In 2007, the gross expenditure dedicated to research and development represented 0.18% of GDP compared with an average of 0.50% in SEE economies (UNESCO, 2011).

The number of full-time researchers in the country has been on a downward trend over the last decade. Furthermore, the share of researchers in the country is lower than in most neighboring economies. For instance, there are less than 2 researchers, in full time equivalent per 1000 employees in the country which is significantly below the ratios for Bulgaria (3.4), Croatia (3.6), Romania (1.9), and the EU-27 average (6.6). Furthermore, almost 70% of employees in R&D work in higher education institutions and research activities represent only a part time occupation. In higher education institutions, researchers spend on average less than half of their time on research.

While the production of new knowledge is essential to sustain growth in economies and industries that are competing close to the knowledge frontier, for the majority of Macedonian companies, the adoption of existing technologies and business practices is equally important as the development of new-to-the-world innovations. At the aggregate level, the number of users for internet and broadband access are used as proxies for the ability of companies to keep track of recent development abroad. Surprisingly, in the Republic of Macedonia, the use of internet is quite widespread. With more than 50% of the population using internet, the country is ahead of all SEE economies except Serbia. Subscription of fixed broadband services is also high, with 11% of the population subscribing, compared to an average of 10% in SEE.

Unfortunately, companies invest very limited amounts in further developing the skills of employees. Namely, only 18% of companies offer some form of formal training to their permanent employees in 2008 (World Bank, 2011b), less than the SEE average of 32%. Among small firms, only 14% offer formal training while 43% of large firms do.

The limited job prospect for workers, and in particular for young workers fuels an important level of emigration. The Macedonian Government estimates that almost 20% of the total population lives abroad. Emigrants provide an important contribution to the activity of the country through remittances which represented 4.5% of GDP in 2009 (World Bank, 2011a). Although the stock of migrant population is high, companies and research institutions do not face particularly high constraints linked to the 'brain drain'. This is consistent with the idea that the lack of employment opportunities, in particular among people with limited educational attainment is a prime motivation factor for migrants to leave the country. However, the problem appears to be more acute in research institutions focusing on more technical subjects.

Exporting companies innovate more than companies producing only for the domestic market. Namely, more than 80% of exporting companies have introduced at least one type of innovation while less than 60% of non-exporting firms did innovate. This higher export propensity of innovating firms is in line with trade theory (Melitz, 2003) and empirical findings (Bernard et al., 2007; Mayer and Ottaviano, 2007) that suggest that only the most productive firm export. Innovation is crucial for firms to increase their productivity and this increased productivity allows firms to cover the fixed costs associated to exporting. However, causality can also run from exporting to innovation. Exporting may help firms to innovate more, either as a reaction to stronger competition in foreign markets or through learning effects from exporting.

4.2. RESOURCES DEDICATED TO RESEARCH AND INNOVATION

Absorptive capacity, i.e. the “ability to recognize the value of new information, assimilate it, and apply it to commercial ends” (Cohen and Levinthal, 1990) is an important aspect of the process of research and innovation. Several studies show that having staff dedicated to research, investment and the development of human capital are key aspects of innovation capacity (OECD, 2008). However, these aspects are very much underdeveloped in the Republic of Macedonia. Only 1/5 of companies have staff devoted to R&D activities within the company. Furthermore, investment in R&D is likely to directly impact absorptive capacity since the more a firm invests in R&D, the more it will be able to fully appreciate the value of new external information. Investment in R&D is very low. Less than 40% of the companies have some type of expenditure related to innovation activities. Also, market changes are the main motivation for research and innovation. In this sense, companies introduce innovations to answer customers’ needs and preferences, and as a result of competitors’ pressure. This suggests that companies react to their environment but fail to proactively take initiatives.

The linkages between universities and research institutions on one hand, and the private sector on the other hand are weak and underdeveloped. The research institutions perform research and development as best as they can give the limits of their highly constrained budgets. Unfortunately, this is rarely geared towards co-operation and commercialization involving the private sector. In fact, university-industry interactions are normal part of the innovative process. These interactions arise spontaneously, they form and reform unpredictably over time to address many different kinds of problems, and finally, the forms of connection are of different kinds. This kind of division of labor depends on two factors: the ability of the universities to maintain an open perspective in the face of resource and governance pressures; and the willingness of firms to invest in innovation and develop the absorptive capacity to engage with the science base in academia. (Metcalf, 2010) Having in mind the previous, it is expected that this type of research/universities-industry cooperation should generate gains for the researchers, firms, economy and society as a whole.

4.3. CONSTRAINTS

In the case of the Republic of Macedonia, several constraints could be identified to research and innovative capacity of the private sector. The most severe among them are the following:

- Lack of financing instruments for innovation support. Few financial instruments for innovation exist and the existing loans from the commercial banks are hardly accessible and very expensive. The Ministry for Education and Science has a yearly program for technological development and supports 20-30 innovative projects submitted by SMEs. Commercial banks are very restrictive regarding innovation projects and are offering just classical loans. Business angel support is in its embryonic phase, while participation in EU (FP7, CIP, etc.) and other donor related projects is rare among companies.
- Lack of institutional support. There is a lack of support instruments for innovation development. The most serious problem is the shared and overlapping responsibilities for innovation support amongst institutions. Innovators and innovative companies need having a centralized institution in charge of innovation support.
- Low level of collaboration between business sector and academia. Direct collaboration between industry and academia, especially the use of research centers and laboratories is very weak. Universities tend to focus on teaching, with few exceptions. Moreover, there are only a few research centers and they are not available for private sector.
- Lack of awareness and innovation culture. It seems that company culture could be an

obstacle to innovation. Furthermore, there is evidence that although many companies do not innovate at all, there are some innovative activities in practice. In particular, accountants within companies often do not register R&D investments. More generally, there is a limited recognition of innovative activities.

- Lack of management skills. There are only few innovators which take in consideration the commercialization of the product or developing line production. A significant problem is the lack of management skills and business knowledge of innovators.

4.4. POSSIBLE STRATEGIC APPROACH

The Republic of Macedonia faces a number of very significant challenges regarding knowledge creation. Namely, the performance of the economy is low, both compared to EU member countries and to neighboring economies. These issues derive from the limited policy focus and decreasing resources dedicated to research over the last decade. The low innovativeness of the economy may reduce the ability of domestic companies to remain competitive and export, because no one could neglect that “transition towards a knowledge-based economy requires a major investment effort in what can be defined today as knowledge investment: R&D, software, ICT hardware, telecommunications, education and training.” (Rodrigues, 2002, p. 48).

Over the last few years, a number of economic programs enacted by the Government referred to the need to foster innovation. However, these documents include few concrete measures targeting innovation specifically and a comprehensive framework for innovation policy is still lacking.

Bearing in mind all the previously mentioned, the Republic of Macedonia needs to define relevant long-term objectives. As a candidate country to join the EU, these objectives need to be compatible with the EU 2020 objective to promote ‘smart, sustainable and inclusive growth’. However, the particularities of the country call for a number of specific objectives:

- Build stronger research and more market-relevant institutions. The capacity of research institutions is weak. Very limited financial resources are dedicated to research and development and the number of researchers is also low. As resources (in particular from the Government) have been decreasing over time, research expenditures are mainly used to pay researchers’ salaries and almost no investment is conducted to maintain, not to modernize the research infrastructure. Investments to develop research capacities are required but given the constrained funding possibilities, a targeted approach is needed. In this way, a rationale for policies focusing on the importance of investment in knowledge accumulation should be provided. Such investments are likely to have high so-called ‘social’ rates of return, often much higher than the private rate of return. So, investment in knowledge cannot be simply left to market. (Rodrigues, 2002)
Support might be prioritized towards the most successful existing research areas and to new areas that are closely linked to the needs of users. Furthermore, there is a strong disconnection between research institutions and the private sector. Despite few examples of successful collaboration, the innovation outcome of research is extremely limited. In the long run, increasing the resources for research and development is likely to have limited impact on innovation unless an institutional dialogue between researchers and the private sector is established.
- Enhance the business sector’s propensity to innovate. The participation of the private sector in innovation is currently low. In order to be competitive at the domestic and export market, firms need to effectively engage in innovation activities. Efforts therefore need to be made to raise the awareness of companies that currently do not

innovate on the advantages of doing so. The companies that are innovating should be supported by the Government, and relevant mechanisms should be developed.

- Foster linkages and knowledge transfer. The knowledge flows between producers and users of knowledge need to be strengthened. Policies that target inter-firm networks such as the promotion of clusters enable collaboration between customers and suppliers and can help improve knowledge flows. Moreover, there is a need to create links between innovative companies, including multinational enterprises, with the rest of the private sector. This would ensure that innovative companies are not operating as ‘islands of knowledge’ but contribute to the development of the economy. Collaboration between research institutions and businesses is weak. However, since both the public and private sector carry out few R&D activities, the commercialization of research should not be a priority for the country at its current state of development. Collaboration with public research institutions may therefore focus on training for skills development and on technology adaptation.
- Co-ordination of the policy’s design, implementation and monitoring. Innovation can help increase productivity and the quality of goods and services, making firms more competitive. However, developing a sound innovation policy requires understanding the existing capacities of the country and identifying problems to offer solutions. Moreover, policies supporting knowledge creation touch upon a number of policy areas, including among others research, education and small and medium sized enterprises (SMEs) support. Therefore, a continuous inter-institutional dialogue needs to occur. Furthermore, as policies in these areas ultimately aim to develop a competitive private sector, a public-private consultation forum needs to be developed. The institutional setting should be adapted, and possibly specific institutions could be set up, to ensure that a consistent approach is adopted throughout the design and the implementation of innovation related measures.

5. CONCLUSION

The key components of a knowledge-based economy include a greater reliance on intellectual capabilities than on physical inputs or natural resources combined with efforts to integrate improvements in every stage of the production process. Today there is no doubt that the economic evolution is most strongly affected by innovation diffusing through the economic system and by this permanently changing its composition.

Modern policies concerning knowledge-based economies need to take human nature in consideration, i.e. they need to be based on insights about how people actually behave. This should lead to a new welfare economics that takes insights from behavioral research into account. Bearing in mind the previously, the economic science should encompass specificities of knowledge-based economies in reality, and innovatively introducing new methodologies and empirical tools in order to capture the underlying dynamics. In this way, it will help to improve our understanding of the dimensions of contemporary knowledge-based economies.

The role of R&D varies widely across the SEE countries. This is confirmed by two existing gaps: gap in supply of R&D, and gap in demand for R&D. So far, the changes that have occurred in individual SEE countries show very large differences in the levels of development and the pace of restructuring of national R&D systems. In this sense, Bosnia & Herzegovina, Albania and Macedonia, are the most disadvantaged countries.

So far the implementation of ‘Triple Helix’ model of dynamic interaction between university,

industry and government is very poor in the SEE region. All the innovation strategies in SEE countries generally pursue the same objective of developing research capabilities and fostering economic development. Besides the need to strengthen research institutions and to focus research efforts, most innovation strategies include the need to improve connections between research institutions and society as a whole.

Resources dedicated to R&D in the Republic of Macedonia are very modest. Minor part of companies have staff devoted to R&D and much less than half of the companies have some type of expenditure related to innovation activities. In addition, several constraints could be identified to research and innovative capacity of the private sector, as for instance: lack of financing instruments for innovation support, lack of institutional support, low level of collaboration between business sector and academia, etc.

Bearing in mind all the previously mentioned, the Republic of Macedonia needs to define relevant long-term objectives. As a candidate country to join the EU, these objectives need to be compatible with the EU 2020 objective, but in the same time the particularities of the country call for a number of specific objectives as follows: building stronger research and more market-relevant institutions; coordinating the design, implementation and monitoring of the relevant policy; fostering linkages and knowledge transfer, etc.

REFERENCES

- [1] Bernard, A. B., Jensen, J. B., Redding, S. J., and Schott, P. K. (2007). "Firms in International Trade", *Journal of Economic Perspectives*, 21(3), pp. 105-130.
- [2] Cheung, H. Y. and Chan, A. W. H. (2010). "Education and competitive economy: how do cultural dimensions fit in?", *High Educ*, Springer, No. 59, pp. 525-541.
- [3] Cohen, W. M., and Levinthal, D. A. (1990), "Absorptive capacity: A new perspective on learning and innovation", *Administrative Science Quarterly*, Vol. 35, No. 1, pp. 128-152.
- [4] Eliasson, G. (2009). "Knowledge Directed Economic Selection and Growth", *Prometheus*, Vol. 27, No. 4, pp. 371-387.
- [5] Engelbrecht, H. (2009). "Pathological Knowledge-Based Economies: Towards a Knowledge-Based Economy Perspective on the Current Crisis", *Prometheus*, Vol. 27, No. 4, pp. 403-414.
- [6] Eurostat (2010), Key figures on European Business, Eurostat, Brussels.
- [7] Green, A. (2006). "Models of Lifelong Learning and the 'knowledge society'", *Compare*, Vol. 36, No. 3, pp. 307-325.
- [8] Ishmael, B. A. (2008). "Clusters and Competitiveness: The Development of Sustainable Competitive Industries in Small Developing Countries", *The Round Table*, Vol. 97, No. 396, pp. 453-474.
- [9] Kaufmann, D., Kraay, A., and Mastruzzi, M., (2010). *The worldwide governance indicators: Methodology and analytical issues*, The World Bank, Development Research Group, available at: www.govindicators.org.
- [10] Mayer, T. and Ottaviano, G. (2007), *The happy few: the internationalisation of European firms*, Blueprints, Bruegel, 12.
- [11] Melitz, M. J. (2003), "The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity," *Econometrica*, 71(6), pp. 1695-1725.
- [12] Metcalfe, J. S. (2010). "University and Business Relations: Connecting the Knowledge Economy", *Minerva*, 48, pp. 5-33.
- [13] OECD (2008). *More than Jobs. Workforce Development in a Skills-Based Economy*, OECD, Paris.

- [14] OECD (2011). Draft Review of the National Innovation System, unpublished.
- [15] Porter, M. E. (1990). *The Competitive Advantage of Nations*, New York, Free Press.
- [16] Powell, W. W. and Snellman, K. (2004). "The Knowledge Economy", *Annual Review of Sociology*, pp. 199-220.
- [17] Pyka, A. and Hanusch, H. (2006). *Applied Evolutionary Economics and the Knowledge-based Economy*, Edward Elgar.
- [18] Radosevic, S. (2009). "Research and Development, Competitiveness and European Integration of South Eastern Europe", *Europe-Asia Studies*, Vol. 61, No. 4, pp. 621-650.
- [19] Rodrigues M. J. (editor), Lundvall B.-Å., Esping-Andersen G., Soete L., Castelis M., Telò M., Tomlinson M., Boyer R., and Lindley R. M. (2002). *The New Knowledge Economy in Europe*, Edward Elgar, Cheltenham, UK, Northampton MA, USA.
- [20] St. George, E. (2006). "Positioning higher education for the knowledge based economy", *Higher Education*, 52, pp. 589-610.
- [21] Strydom, W. F., Funke, N., Nienaber, S., Nortje, K., and Steyn, M. (2010). "Evidence-based policymaking: A review", *South African Journal of Science*, Vol. 106, No 5/6, pp. 1-8.
- [22] UNESCO (2011), *Unesco Institute for Statistics*, UNESCO, Paris.
- [23] Vence-Deza, X. and Gonzalez-López, M. (2008). "Regional Concentration of the Knowledge-based Economy in the EU: Towards a Renewed Oligocentric Model?," *European Planning Studies*, Vol. 16, No. 4, pp. 557-578.
- [24] World Bank (2011a), *Migration and Remittances Fact book 2011*, World Bank Group, Washington DC.
- [25] World Bank (2011b), *Business Environment and Enterprise Performance Survey Datasets*, World Bank Group, Washington DC., available at <http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/0,,contentMDK:20699245~pagePK:64214825~piPK:64214943~theSitePK:469382,00.html>.
- [26] Zacher, L. W. (2006). "Social Sciences and Humanities in the Integrating Europe – Building Potential for Knowledge-Based Society", *Dialogue and Universalism*, No. 3-4, pp. 149-157.

PROPERTY FUND – A VIABLE SOLUTION FOR THE ROMANIAN CAPITAL MARKET?

Catalin Gheorghe¹²⁴

Abstract: *Created on November 24, 2005 by law 247/2005 in Romania, Property Fund collects a part of the debts that other countries owe to Romania. The shares distribution constitutes the means to repair the injury suffered by persons and families that have been wrongfully dispossessed of their properties during the communist totalitarian period (1945–1989). Romania was the only Eastern country trying to compensate at a fair value the people who have been dispossessed by the communist regime. The article proposes an analysis of this solution on the Romanian capital market. For this purpose, the relevant issues are analyzed over a period of 2005-2016: capital and corporate purposes, management, structure of the shareholders, portfolio structure, compensation scheme and financial performances.*

Key words: *Investment fund, compensation, share, financial performances*

1. INTRODUCTION

Romania is the only country of the Eastern Europe which tried to find a solution, for the restitution at the real value of the properties, seized by the communist state. The creation of an efficient and rapid system for granting the fair compensations was necessary, taking into consideration the legal frame concerning the judicial regime, applicable to the nationalized real estates and the complexity of the issues which appeared in practice, determined by the situation in which the restitution in kind was not possible. Following up to the accomplishing of some stages which were strictly determined by the law, the owners of the rights of compensation, became shareholders of the Property Fund. The eligible persons, whose properties were seized during the communist governments, received shares at the Fund as a form of compensation. The compensation was done using shares, representing the actual value of the real estate which were not the subject of a restitution in kind. The Property Fund was set up for providing the financial resources necessary, in order to compensate the persons expropriated in an abusive manner by the communist state.

2. COMPENSATION SCHEME

The Property Fund (Fondul Proprietatea SA in Romanian) was set up based on the article 108 of the Constitution of Romania, republished, on the articles 6 and 12 of the Law 247/2005 concerning the reform in the field of the properties and of justice, as well as, on some adjacent measures, the article 30 of the Law 500/2002 concerning the public finances [1]-[3]. According to the article 1 of the Decision number 1481/2005, the Property Fund was set up as collective placement undertaking, company of investments type closed and had as unique shareholder the Romanian state, represented by Ministry of Public Finances, up to the transmission of the shares from the state property to individual according to the provisions of the Law 247/2005 [4]. Up to the appointment of a company for management, the Property Fund was managed by the Ministry of Public Finances, through the Supervisory Board, according to the Law 247/2005

¹²⁴ Transilvania University of Brasov, Department of Engineering and Industrial Management, 29 Eroilor Street, Brasov, Romania

[2]. The length of functioning of the Property Fund was regulated at 10 years, with the possibility of its extension, according to the laws in force.

The main object of activity consists in the administration and management of the portfolio, in order to grant the compensations afferent to the real estate, which could not be the subject of the restitution in kind, by transfer of the shares for free, from the state property towards the entitled persons (article 2). The right to own participations at the Property Fund belonged to all the individual to whom were granted compensations by equivalence, based on special laws of retrocession. The shares issued by Property Fund were transferred, for free, to the owners of the compensation titles, issued at the date the Fund was set up, to the subsequent acquirers of them or to the persons compensated by decisions, which were issued subsequently to the moment the Property Fund was set up.

The number of the transferred shares was established by reporting to the value of the owned titles of compensation. The gaining of the shares at Property Fund was performed based on conversion of the titles of compensation into shares. The conversion was done based on algorithm of calculation established by the Order of the Central Committee for Establishing the Compensation – body which was set up according to the Law 247/ 2005 [2].

The shares of the Property Fund could be traded by their owners, freely, on the regulated markets. For this aim the Property Fund initiated the legal procedure for the admission of the shares for trading at Bucharest Stock Exchange [6]. By the valorization of the shares, meaning their sale or by obtaining of dividends resulted from the annual activity of the Property Fund, it was obtained the effective compensation of the ex-owners of the nationalized real estates.

3. CAPITAL AND CORPORATE PURPOSES

The face value of one share issued by Property Fund was of 1 RON (official abbreviation for leu- Romanian currency) [7]. Beginning with the 16th of June 2017 the face value of one share issued by Property Fund is 0.52 RON following up to more cash distributions [8]. At the moment of its setting up the share capital of the Fund was of 14,240,540,675.00 RON (round 3.9 billion Euro) and it was set up from the assets mentioned at article 9 of Law 247/2005 with its subsequent changes. To this amount must be mentioned the fact that were added expenses for the setting up of 500,000.00 RON (article 3) [5]. The share capital of the Fund was mainly set up due to the contribution of some packets of shares owned within the portfolio of the public

Gheorghe Catalin

Education and training

1990-1995 Transilvania University of Brasov, Faculty of Technological Engineering. Title of qualification awarded: Engineer

1996-2000 Bucharest University of Economic Studies, Finance, Insurance, Banking and Stock Exchange Faculty. Title of qualification awarded: Engineer

2006 Transilvania University of Brasov, Faculty of Technological Engineering. Title of qualification awarded: Phd in Industrial Management

Scientific activity

Books published in Romanian publishers (as single author): 3

Books published in foreign publishers (as single author): 1

Articles published in Romanian review (as single/first author): 21

Articles published in proceedings of international conferences (as single/first author): 35



authority, issued by trade companies of Romanian nationality. According to the Memorandum of Association the share capital had to be increased, based on the amounts resulted from:

- receivables collection;
- recovering some rights of Romania, which result from agreements of international trade and cooperation agreements;
- activity of alienation of some state participations of the state owned at a series of trade companies [5].

For the persons compensated by decisions issued subsequently to the setting up it will be proceed to the increasing of the share capital of the Property Fund, the shares being subscribed based on the decisions issued according to the article 12 of the Law 247/2005, with its subsequent changes [2]. The initial legislation which governed the Property Fund mentioned that, in case the amount of the applications for the compensations exceeds the value of the contributions to the share capital of the Fund, the Romanian State (by the Ministry of Public Finances) will perform a addition by increasing the capital of the Fund.

In spite of all these, taking into consideration that the Property Fund is a private company, any increase of the capital should have been approved by the shareholders of the Fund. Following up to this process of compensation and conversion, the participation of the Romanian state to the share capital of the Fund was diminished up to 369,470,398.00 shares on 31st December 2016, out of which 5,658,048.00 were paid up [7].

In February 2006 the Ministry of Public Finances began to contribute to the share capital of the Fund with certain amounts in cash, derived from the external debt received by the Romanian State from different countries. In the period October 2007 – July 2010 the Romanian State contributed in cash/with real estate for the payment of the unpaid shares, from different sources mentioned by the Law number 247.

The report of evaluation issued in October 2008 by an independent evaluator, according to the provisions of the Urgent Government Ordinance number 81/2007, revealed that the value of the assets brought as contribution to share capital of the Fund, established based on the rules included in this urgent ordinance is of 13,282,601,016.00 RON (meaning the initial share capital of 14,240,540,675.00 RON minus 957,939,659.00 RON) [7]. The shares corresponding to this amount and allotted to the Romanian State were considered unpaid. The Urgent Government Ordinance number 81/2007 dated the 29th of June for the acceleration of the procedure of granting the compensations afferent to the real estate taken in an abusive manner, has modified the Law 247 and recognized the necessity to evaluate the contribution of the Romanian State to the share capital of the Fund and, as a consequence, established the criteria of evaluation for the assets of the portfolio of the Fund [9]. By the same law were eliminated certain shares of the portfolio of the Fund, while the contribution of the Fund to certain companies was increased and also were added some other assets. In November 2007 the Fund had in his portfolio shares at 114 Romanian companies and the total value of the contributions of the Fund to the companies of stock exchange was of 7,43.00 billions RON (round 2,13.00 billion Euro) [7] .

Beginning with March 2008 it was possible the sale of the shares of the Fund, fact which allowed to the foreign funds of investments, as well as to some other individuals, to enter as shareholders of the Fund, even they had no connection with the process of compensation of the properties seized by the communist regime (Figure 1). The table 1 presents dividends and returns of capital during period 2006-2016 [10].

<i>Description</i>	<i>Year of payment</i>	<i>Gross value of declared distribution (RON)</i>	<i>Gross distribution per share (RON)</i>	<i>Number of shares</i>
Dividend 2006	2007	36,076,046	0.00250	14,240,540,675
Dividend 2007	2008	89,997,678	0.00660	13,644,179,910
Dividend 2008-2009 (sum)	2010	1,124,316,804	0.08160	13,778,392,208
Dividend 2010	2011	432,729,046	0.03141	13,776,792,200
Dividend 2011	2012	507,658,517	0.03854	13,172,250,055
Dividend 2012	2013	536,437,206	0.04089	13,119,031,695
Return of capital	2014	601,325,852	0.05000	12,026,517,031
Return of capital	2015	534,322,868	0.05000	10,686,457,366
Return of capital	2016	516,886,344	0.05000	10,337,726,877

The number of shares on the last column is calculated as the number of shares representing the subscribed capital of the Fund minus the total number of unpaid shares and minus the total number of shares repurchased (in the form of ordinary shares or GDRs corresponding to ordinary shares) at the registration date set by the General Meeting of Shareholders which decided on the distribution of the dividends and the distribution of the capital return.

Table 1: Dividends distribution between 2006-2016

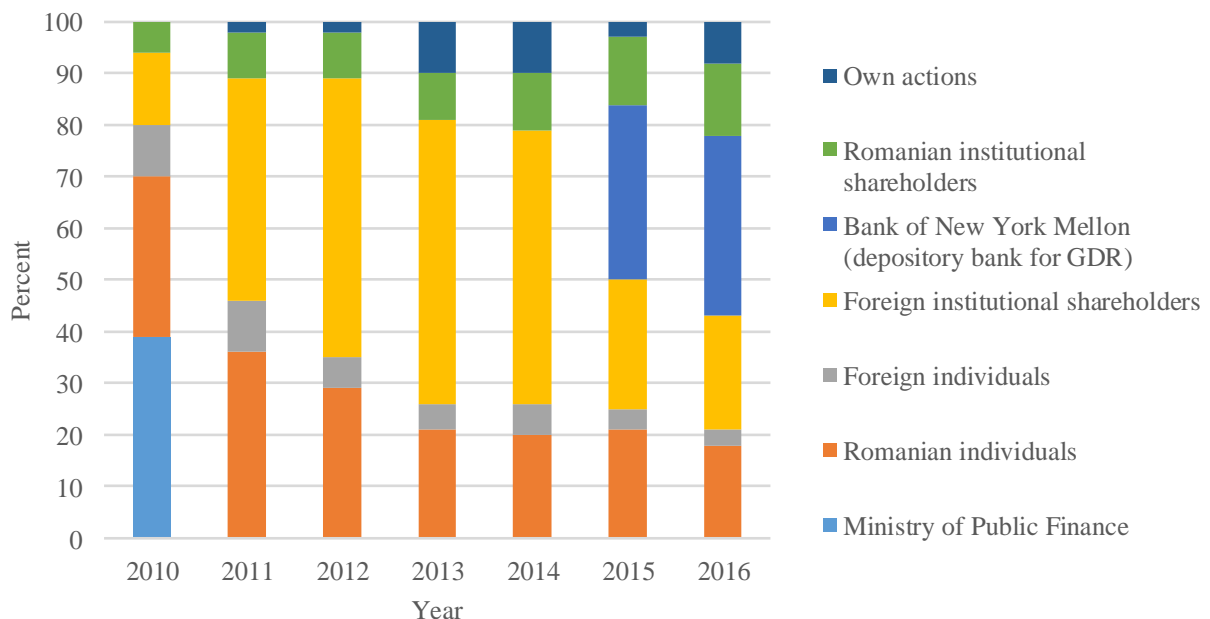


Figure 1: The structure of shareholders between 2010-2016

4. MANAGEMENT AND FINANCIAL PERFORMANCES

In 2008 began the process of international selection of the Manager of the Fund, so that, in June 2009, Franklin Templeton Investment Management Ltd. of UK is declared the winner of the process. In December 2009 the Property Fund had in its portfolio 84 companies, out of which 27 were listed at Bucharest Stock Exchange, the cumulated value of the packets owned by the listed companies was of 3,64.00 billion RON [6]. On the 25th of February 2010 took place the signing of the Contract of Management by whom Franklin Templeton Investment Management Ltd. of UK was appointed Company for the Management of the Investments of the Fund and

Unique Manager.

On the 17th of July 2010 was promulgated the Law number 142/2010 which mentioned the necessity to diminish the share capital of the Fund by the decision of the Supervisory Board from 14,240,540,675.00 RON to 13,757,592,587.00 RON by the cancellation of a total number of 482,948,088.00 unpaid shares of the Romanian State. According to the provisions of the Law number 247, the Supervisory Board approved in July 2010 the diminishing of the share capital of the Fund.

On the 3rd of August 2010 the Supervisory Board approved the increasing of the share capital of the Fund from 13,757,592,587.00 RON to 13,778,392,208.00 RON, reflecting the contributions from the dedicated sources of the Ministry of Public Finances to the share capital of the Fund.

The Fund was listed on the 25th of January 2011 on the regulated market managed at Bucharest Stock Exchange to the Ist Category: Shares of the Market Securities (actually Premium Category on the regulated market, managed by Bucharest Stock Exchange) under the number ISIN ROFPTAACNOR5 and with the market symbol “FP”, the shares being listed directly and not by an initial public offer [6].

Beginning with the 15th of March 2013, date at which the Urgent Government Ordinance number 4/2012 entered into force, the process of compensation was suspended [11]. In January 2015 entered into force the Law number 10/2015 which confirms the fact that the Romanian state will not use for the future the shares issued by Property Fund for the process of compensation.

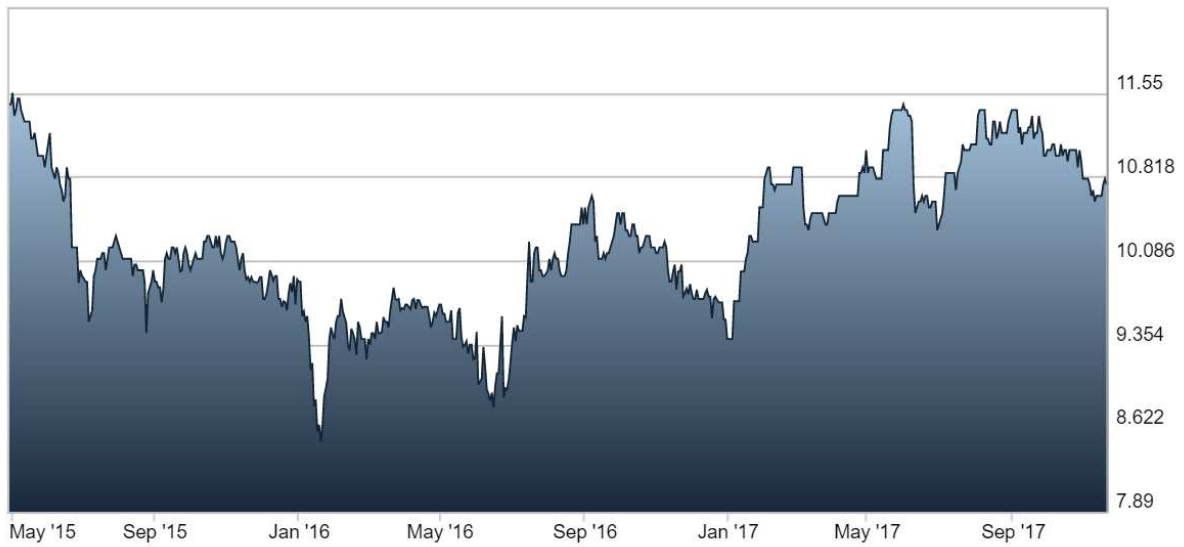
The analyze of the period between from the moment of setting up of the Property Fund and the decision of the Romanian state for suspending the process of compensation revealed as follows:

- the emergency and the necessity to adopt some measures (which contributed to the setting up of e Fund), allowing the concretization of the rights concerning the granting of the compensations, resulted from the application of the laws concerning the restitution of the properties so that, the entitled persons to be the beneficiary of the granting of certain, foreseeable and predictable compensations, according to the practice of the European Court for Human Rights [12];
- the necessity of the existence of a time intervals, in order that the Romanian State to identify some financial solutions, concerning the continuation of the process for granting the compensations;
- late establishment of evaluation criteria for the Fund assets;
- the moments of the exhaustion of the Property Fund were not correlated with the adoption of the regulation concerning the way in which the process of granting the compensations is continued;
- foreign funds of investments had no connection with the process of compensation of the properties seized by the communist regime;
- in case of a lack of contribution of the State to the Property Fund , it could not be passed all the stages of the process granting the regulated compensations, meaning that the entitled persons were in the impossibility to exert the right concerning the compensation based on using their shares owned in the Property Fund;
- taking into consideration the provisions of the article 138 paragraph (5) of the Constitution of Romania, republished, which mention the fact that “no budgetary expense cannot be approved without the establishing the sources of financing”, the

contributions of the Romanian state to the Fund were conditioned by maintaining the budget balance and by the observing the assumed domestic and international commitments [1].

Actually the Fund is registered with the Authority for Financial Supervising at the category of “Other Collective Investment Undertakings” and it is listed on the regulated market of Bucharest Stock Exchange, since the 25th of January 2011 and on London Stock Exchange – Specialist Fund Market since 29th of April 2015.

Figure 2: FP share market price on London Stock Exchange (USD) [13]



The main activities of the Fund, according to the Classifications of the Activities of National Economy (NACE) and of the Memorandum of Association of the Fund are those connected to the trusts, funds and other similar financial entities (NACE 643) and the main activity is the performing of financial investments (NACE 6530).

Beginning with the 1st of April 2016 the Property Fund is managed according to the provisions of the Directive 2011/61/EU of the European Parliament and of the Council dated 8th of June 2011 concerning the managers of the funds of alternative investments. The register the shareholders of the Fund is kept, according to the legal provisions in force, by an independent company of register named “Depozitarul Central SA” (Central Depository joint stock company) having the headquarters in Bucharest. Beginning with the date of 29th of April 2015 the GDRs (Global Depository Receipts) of the Fund are listed on LSE – Specialist Fund Market under the symbol of transaction “FP” (Figure 2). The Bank of New York Mellon was appointed by the Fund as a depository Bank for the GDR facility.

REFERENCES

- [1] The Official Journal of Romania, Part I, no. 767 from 31.10.2003 *Constitution of Romania*, republished 2003.
- [2] The Official Journal of Romania, no. 653 from 22.07.2005 *Law 247 concerning the reform in the field of the properties and of justice*, 2005.
- [3] The Official Journal of Romania, Partea I, no. 597 from 13.08.2002, *Law 500 concerning the public finances*, 2002.
- [4] The Official Journal of Romania, Part 1, no. 1092 from 5.12.2005, *Government Decision*

- on the establishment of the Commercial Company „Fondul Proprietatea” - S.A., 2005.*
- [5] The Official Journal of Romania, Part 1, no. 1092 from 5.12.2005, *Constitutive Act of „Fondul Proprietatea” - S.A., 2005.*
 - [6] <http://bvb.ro/> Official site of Bucharest Stock Exchange. Accessed 25.09.2017.
 - [7] <http://www.bnr.ro/> Official site of National Bank of Romania. Accessed: 2.10.2017.
 - [8] <https://fondulproprietatea.ro>. Accessed: 20.09.2017.
 - [9] The Official Journal of Romania no. 446 from 29.06.2007, *Urgent Government Ordinance number 81/2007 to speed up the procedure for granting damages related to abusively taken property, 2007.*
 - [10] *Fondul Proprietatea Annual Report of the Unique Administrator, 2016.*
 - [11] The Official Journal of Romania, Part 1, no. 169 from 15.03.2012, *Urgent Government Ordinance number 4/2012 regarding some temporary measures in order to consolidate the normative framework necessary for the application of some provisions of Title VII The regime of establishment and payment of damages related to buildings abusively taken over by Law no. 247/2005 regarding the reform in the field of property and justice, as well as some adjacent measures, 2012.*
 - [12] <http://www.echr.coe.int> Official site of European Court of Human Rights. Accessed: 27.07.2017.
 - [13] <http://www.londonstockexchange.com>. Official site of London Stock Exchange Accessed 9.10.2017.
 - [14] <http://www.rocaen.ro>. *Classifications of the Activities of National Economy*. Accessed 16.10.2017.

SOVEREIGN WEALTH FUND APPLICATIONS IN TURKEY AND THE WORLD

Seçkin Arslan¹²⁵
Ayberk Nuri Berkman¹²⁶
Tuğba Kayıkçıoğlu¹²⁷

Abstract: *In the study, general information on Sovereign Wealth Funds (SWF) which are applied in many world countries and have been increasing rapidly since the year 2000 is provided. The examples of Norway, Abu Dhabi, and China, which are in the first three ranks regarding the size of the fund, are included, and Azerbaijan and the recently established Turkey's SWFs are examined. Upon examining the given examples, it is tried to determine the similarities or differences between Turkey's SWFs and conventional SWFs in terms of objectives and resources.*

Key Words: *Sovereign Wealth Funds, Savings, Foreign Exchange Surplus*

1. INTRODUCTION

The funds with the aim of transferring a large portion of current account or budget surpluses, natural resources and privatization revenues to future generations by means of overseas investment, are referred to as Sovereign Wealth Funds (SWFs). Dating back in the 1950s, SWFs have gained more and more importance over time in the international financial system, especially after the 2008 crisis. Being initially established by countries with natural resources such as oil and natural gas, these funds have recently been established by countries with no oil revenue or current account surplus. The efforts in the establishment of SWFs in Turkey is completed on 26th of August in 2016.

Along with the establishment of Turkey's SWF, it is aimed to increase the stability of the economic system in the country, to contribute to the development of the country's economy by efficient management of public assets and to create a stronger Turkey for future generations. This study aims to give information about SWFs in Turkey and the World. In order to better analyze SWF, this study first introduces conceptual information about the definition, objectives, characteristics, types and development of SWFs, and then to examine SWFs in Norway, Abu Dhabi, China and Azerbaijan, as well as information on the establishment, objectives, resources, and economic and political necessity for Turkey's SWF.

2. THE SOVEREIGN WEALTH FUNDS

Wealth, in general, is a compound of entities and objects subjected to market value under possession (Gürsoy, 2007: 26). Fund, however, is defined as banknotes, coins, deposit money or electronic money (Şimsek, 2015: 3).

¹²⁵Niğde Ömer Halisdemir University, Faculty of Economics and Administrative Sciences, Department of Banking and Finance, Turkey

¹²⁶ Niğde Ömer Halisdemir University, Faculty of Economics and Administrative Sciences, Department of Banking and Finance, Turkey

¹²⁷ Niğde Ömer Halisdemir University, Graduate School of Social Sciences, Turkey

SWFs, in general, are expressed as public savings of the countries that are allowed to be invested abroad using transferring a considerable part of current account/budget surpluses, natural resources as well as privatization revenues to future generations for them to live more comfortable lives (Aykın, 2017: 2).

In other words, SWFs are the total amount of state-owned or state-controlled financial assets (Truman, 2008: 1). SWFs are investment instruments based on foreign assets, mostly by rich countries in Asia and the Middle East with oil, natural gas, and high trade surplus, but are managed separately from other assets and aim to evaluate the state-owned national savings (Vural, 2008: 14).

Dr. Seçkin ARSLAN is a full-time Assistant Professor at the Department of Banking and Finance, Faculty of Economics and Administrative Sciences at Niğde Ömer Halisdemir University, Niğde, Turkey. Financial Accounting, Cost Accounting, Cost Management and International Financial Reporting Standards are within the scope of his teaching and research fields. He published two books and several articles. He is married and has two children.



2.1. Characteristics of the SWFs

Being under the control of a state government is the most important feature that differentiates SWF from other well-known collective investments such as hedge funds (Akbulak, 2008: 4). SWFs are funds outside the official reserves consisted of foreign currencies and gold which have been accumulated in the central banks. These state-owned and state-controlled funds are not managed by the Central Bank or the Ministry of Finance. The main characteristics of SWFs can be summarized as follows (Beck and Fidora, 2008: 6; TSPAKB, 2008: 7):

- Being established by a state and being under control of the state,
- Containing important amount of foreign currency,
- Being able to tolerate high risks,
- Making international investments,
- The long-term nature of the investments made,
- Having investment policies and objectives different than foreign currency reserves.

2.2. Objectives of the SWFs

While the aims of countries to set up SWFs would differ, the most important of these aims is the utilization of acquired budget surplus. Especially the prosperous countries with oil and various natural resources aim to make profits by managing their liquidity surpluses in the best possible way. Other reasons for the establishment of these funds with the ability of self-source funding are to protect the country's economy from the volatility of revenues and prevent the negative impacts on the government expenditures or the country's economy during periods of growth and contraction (TSPAKB, 2008: 7). It is seen that countries tend to invest their exports and budget surpluses, that is to say, non-commodity sources abroad along with these diversified funds.

The goals of the increasingly vital and increasingly important part of the international financial system are economic growth and transfer of national welfare to future generations, financial stability through macroeconomic policies and economic development. These funds, which aim to provide financial stability, are able to protect the economy against internal and external shocks. Countries using SWFs in order to support economic development also make social

investments such as health and education to strengthen human capital as well as infrastructure investments in transportation, energy, communication and strategic sectors (Karagöl and Koç, 2016: 10). SWFs which are established for one purpose at the beginning, varied over time (Akbulak, 2008: 5).

2.3. Types of the SWFs

SWFs are special purpose investment funds or assets established to create various investment strategies for the control, management, and development of the state-owned assets (Turkiyevarklikfonu, 2017). SWFs are separated into commodity-based and non-commodity-based according to their sources of capital. The export revenues of oil, natural gas, and natural resources are mostly in the forefront of commodity-based SWFs (Karagöl and Koç, 2016: 9). Non-commodity-based SWFs are composed of resources such as high budget surplus, current account surplus and privatization revenues (Aykın, 2011: 3). Countries such as Saudi Arabia, Kuwait, United Arab Emirates, Qatar, Norway and Russia have the largest current account surplus rates in the world's largest oil-funded funds through high exports, while countries such as China, Hong Kong, and Singapore have funds consisted of non-commodity sources (Karagöl and Koç, 2016: 9).

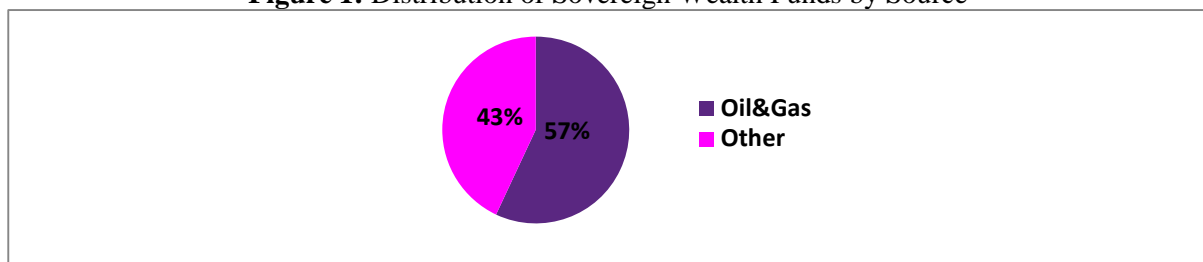
Dr. Ayberk Nuri

BERKMAN is a full-time Assistant Professor at the Department of Banking and Finance, Faculty of Economics and Administrative Sciences at Niğde Ömer Halisdemir University, Niğde, Turkey. Applied Macroeconomics & Microeconomics, International Finance, and Political Economics are within the scope of his teaching and research fields. His main areas of interest include Monetary and Fiscal Policies, Financial Liberalization, Term Structure of Interest, Corporate Governance, Agricultural Production, Current Account Deficits, and Energy Policies on which he published several articles.



When funding sources are analyzed, it is seen that 57% of SWFs are composed of oil, and natural gas revenues and 43% are of non-commodity revenues.

Figure 1: Distribution of Sovereign Wealth Funds by Source



Source: <http://www.swfinstitute.org/sovereign-wealth-fund-rankings> (08.17. 2017)

SWFs are subject to various classifications regarding their purposes, and they are categorized into two groups as “stabilization funds” and “savings funds.” The International Monetary Fund (IMF), however, has separated the SWFs in accordance with their purposes of the establishment into five groups such as stabilization funds, savings funds, reserve investment companies, development funds and pension reserve funds, respectively (Aykın, 2011: 4; IMF, 2007: 46):

i. Stabilization Funds: These are the funds that protect the budgets and economies of the prosperous countries regarding rich natural resources from the changes in commodity price (usually oil) volatility.

ii. Savings Funds: These funds aim to pass the countries' wealth over future generations. For prosperous countries with rich natural resources, savings funds transfer non-renewable resources to future generations through diversification with portfolios of international financial assets or allow them to reach long-term goals.

iii. Reserve Investment Companies: These companies aim to reduce the negative transportation costs created by reserve holdings or to monitor investment policies that provide high returns.

iv. Development Funds: These funds refer to resources for financing the prioritized socioeconomic projects such as infrastructure.

v. Retirement Reserve Funds: These funds generate resources against the unexpected payment obligations that may arise in the state budget.

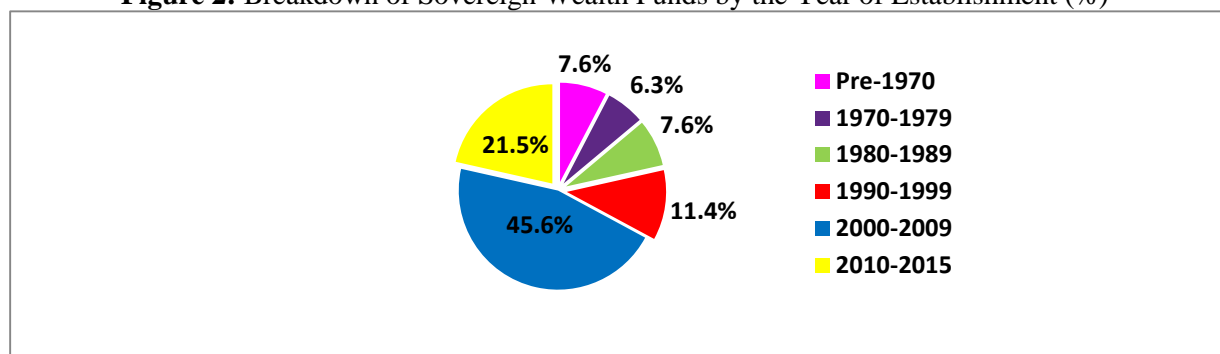
2.4. Development of the SWFs

The ongoing debate on SWFs dating back to the 1850s has increased since 2005. Founded in 1854 in Texas, the Texas Permanent School Fund was recognized as the first application of SWFs in the world. However the Kuwait Investment Fund, established in 1953, is now recognized as the first fund with a considerable size. In 1974, TEMASEK Holding was established in Singapore. The Abu Dhabi Investment Fund, which occupies the second rank with a size of 828 billion USD today, was established in 1976 (Aykın, 2011: 4).

The number and volume of SWFs, which are initially established to evaluate the income or foreign currency surplus obtained by countries with natural resources such as oil and mines through exporting them, have increased over time and reached considerable sizes. SWFs have not only increased in number and volume but have also been diversified in terms of funding sources and investment areas (Kayıran, 2016: 59-62).

It is seen that many developing countries that have not had oil revenues and current surpluses during the recent period have also established SWFs. Today's SWFs have spread to a wide geographical area from Latin American countries to African countries and they have started to be established with the aim of supporting development, evaluating international aids and developing such sectors in which they have invested (banking, finance, infrastructure, real estate and transportation) (Kayıran, 2016: 62).

Figure 2: Breakdown of Sovereign Wealth Funds by the Year of Establishment (%)



Source: <http://www.swfinstitute.org/sovereign-wealth-fund-rankings/> (08.17.2017)

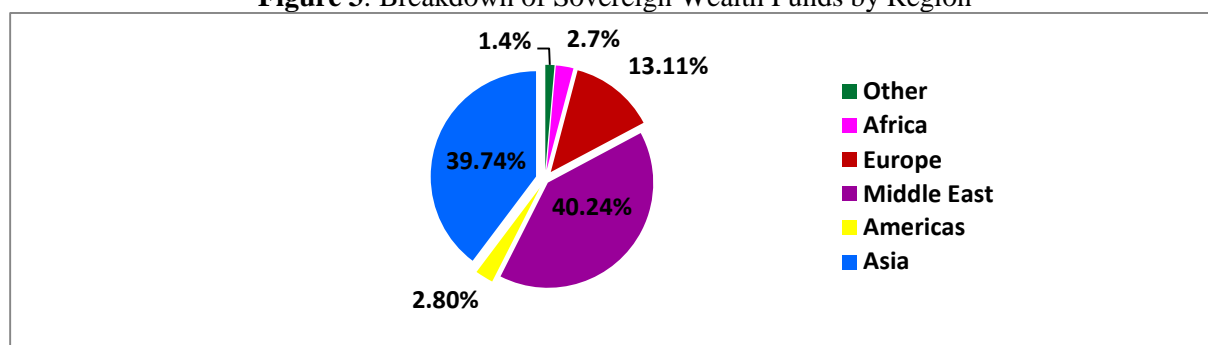
Upon analyzing the above data, it is observed that 33% of SWFs are established before the year 2000, and 67% are established after the year 2000.

3. SOVEREIGN WEALTH FUNDS THROUGHOUT THE WORLD

The importance of SWFs is increasing every day in the world, and they are increasing rapidly in number. Although dating back a long time, SWFs have grown strongly due to reasons such as oil prices increase or the rise in international trade and financial globalization, especially within the last 10-15 years (Bayar and Yıldırım, 2013: 68). Especially during the period following the 2008 global economic crisis, SWFs and their roles became very important (Karagöl and Koç, 2016: 9).

There are approximately 80 SWFs in more than 40 countries around the world. Upon considering the global distribution, it is seen that the funds are concentrated in the Middle East and Central Asia due to abundant natural resources and the Far East due to export and finance centers (Karagöl and Koç, 2016: 11). The total size of SWFs, which reached 7.4 trillion USD by March 2017, is comprised of approximately 4.2 trillion USD generated from natural resource-based funds and 3.2 trillion USD from non-commodity funds (Swfinstitutie, 2017). SWFs, which have a growth rate of 21.5% between 2010 and 2015, are expected to reach a size of 15 trillion USD with 21 new wealth management funds expected to be established by 2020 (Karagöl and Koç, 2016: 9).

Figure 3: Breakdown of Sovereign Wealth Funds by Region



Source: [http://www.swfinstitute.org/sovereign-wealth-fund-rankings/\(08.17.2017\)](http://www.swfinstitute.org/sovereign-wealth-fund-rankings/(08.17.2017))

When the distribution of the World's SWFs by region is examined as of June 2015, it is seen that 40.24% are in the Middle East, 39.74% in Asia, 13.11% in Europe, 2.8% in America, 2.7% in Africa and 1.4% in other regions. In the regional sense, 79.98% of the funds are from the Middle East and Asia (Aykın, 2011: 8).

Table 1 : The Biggest 20 Sovereign Wealth Funds in the World

ROW	COUNTRY	FUND NAME	ASSETS (USD-Bil)	INCEPTION YEAR	SOURCE OF FUNDS
1	Norway	Government Pension Fund-Global	922.11	1990	Oil
2	UAE- Abu Dhabi	Abu Dhabi Investment Authority	828	1976	Oil
3	China	China Investment Corporation	813.8	2007	Non-Commodity
4	Kuwait	Kuwait Investment Authority	524	1953	Oil
5	Saudi Arabia	SAMA Foreign Holdings	514	1952	Oil

6	China-Hong Kong	Hong Kong Monetary Authority Investment Portfolio	456.6	1993	Non-Commodity
7	China	SAFE Investment Company	441	1997	Non-Commodity
8	Singapore	Government of Singapore Investment Corporation	359	1981	Non-Commodity
9	Qatar	Qatar Investment Authority	320	2005	Oil&Gas
10	China	National Social Security Fund	295	2000	Non-Commodity
11	UAE- Dubai	Investment Corporation of Dubai	209.5	2006	Non-Commodity
12	Singapore	Temasek Holdings	197	1974	Non-Commodity
13	Saudi Arabia	Public Investment Fund	183	2008	Oil
14	UAE-Abu Dhabi	Mubadala Investment Company	125	2002	Oil
15	UAE-Abu Dhabi	Abu Dhabi Investment Council	110	2007	Oil
16	South Korea	Korea Investment Corporation	108	2005	Non-Commodity
17	Australia	Australian Future Fund	99.4	2006	Non-Commodity
18	Iran	National Development Fund of Iran	91	2011	Oil&Gas
19	Russia	National Welfare Fund	72.2	2008	Oil
20	Libya	Libyan Investment Authority	66	2006	Oil

Source : <http://www.swfinstitute.org/sovereign-wealth-fund-rankings/> (08.17.2017)

Table 1 shows that Norway, the United Arab Emirates-Abu Dhabi and China loom large among the world countries in terms of fund size.

3.1. Examples of Selected SWFs in the World

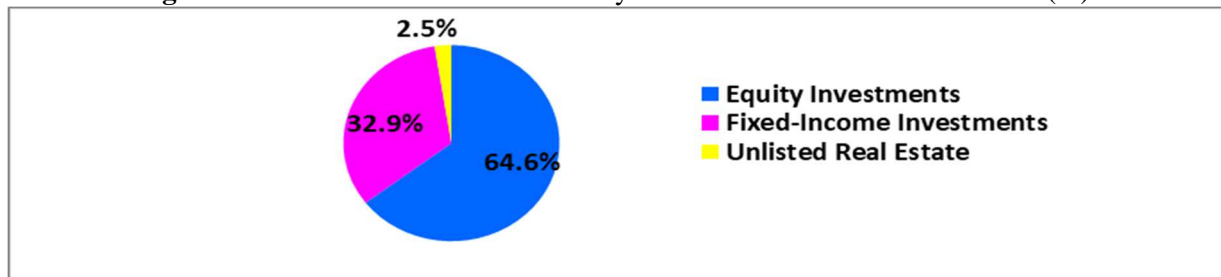
There are approximately 80 SWFs in more than 40 countries in the world. These include the Norway Government Pension Fund Global which was established with oil revenues as the world's largest SWF. The largest SWF ever established with non-commodity resources is China Investment Corporation. In this part of the study, the funds from Norway, Abu Dhabi, China, and Azerbaijan are briefly introduced.

3.1.1. Norway Government Pension Fund Global

Founded in 1990, Norway Government Pension Fund Global is one of the world's largest and most successful SWFs. The fund is being managed by the Norges Bank Investment Management (NBIM) Company of the Norwegian Central Bank on behalf of the Norwegian Ministry of Finance (Sürekli and Yalçiner, 2015: 11). The fund is being managed by more than 550 employees from 35 countries (Nbim, 2017). This fund, which was founded on the basis of oil income, has a size of 922.11 billion USD. It carries out its activities along with the transfer

of revenues to future generations, the long-term management and a stabilization fund (Karagöl and Koç, 2016: 13). 4% of oil revenues are being spent and 96% of the revenues are being invested abroad (Bloomberght, 2017). The Norway Government Pension Fund Global has invested in nearly 9,000 companies in 77 different countries in the world, with the size of the investment being 1.3% of the total size of registered companies worldwide and 2.3% of the total size of European companies (Nbim, 2017; Sürekli and Yalçiner, 2015: 11). As far as Norway Government Pension Fund's capital investments are concerned, it is seen to have shares in some of the world's leading companies such as Nestle, Royal Dutch Shell, Apple, Roche Holding, Novartis, Alphabet, Microsoft, Johnson & Johnson (Karagöl and Koç, 2016: 13). Transparency is one of the most crucial elements in the management of the fund. According to the LMT (Linaburg-Maduell Transparency) Index, Norway Government Pension Fund has the world's highest auditing score with ten full rankings (Karagöl and Koç, 2016: 14).

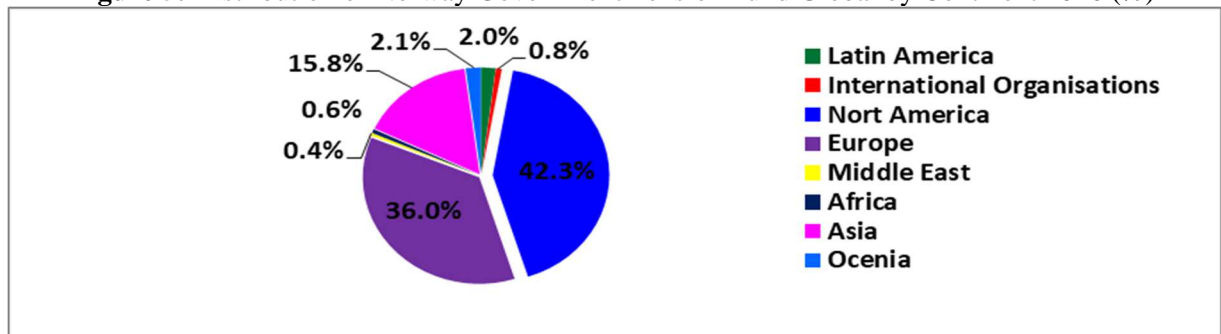
Figure 4: Areas of Investment of Norway Government Pension Fund Global (%)



Source: <https://www.nbim.no/en/investments/> (07.18.2017)

When the investment areas of the fund are analyzed as of 31st of March 2017, it is seen that 64.6% of the portfolio is utilized in stock markets, 32.9% in fixed-income investment instruments and 2.5% in real estate sector (Nbim, 2017).

Figure 5: Distribution of Norway Government Pension Fund Global by Continent 2016 (%)



Source: <https://www.nbim.no/> Norges Bank, Government Pension Fund Global Annual Report, p.27, 2016 (08.17.2017)

As of 31st of March 2016, 44.3% of the investments were in the United States, 36% in Europe, 15.8% in Asia, 2.1% in the Pacific Region, 0.6% in Africa and 0.4% in the Middle East (Nbim, 2016: 27). According to the data obtained from the Norges Bank, which manages Norway Government Pension Fund Global, the value of investments made in Turkey by the end of 2016 has reached 936 million USD. A significant portion of the fund's investments is utilized by some companies in Turkey. Even though the fund had merely a small share in Turkey as of 2001, its investments continued to increase as of 2008. The fund has invested a total of 112.6 million USD in Garanti Bank. The 20th largest investment among the fund's global investments is Pınar Süt Mamülleri Sanayii A.Ş. and the total amount of investment in the company's stocks has exceeded 10 million USD (TRTHABER, 2017).

3.1.2. Abu Dhabi Investment Authority (ADIA)

Abu Dhabi Investment Authority (ADIA) is a public entity established by the Abu Dhabi Government in March 1976 as an independent investment institution (ADIA, 2017). This fund, having a size of 828 billion USD, is based on oil revenues. Considering fund size, it is the second largest SWF in the world and the largest SWF in the Middle East. The fund is being supervised by the Abu Dhabi Government (Swfinstitute, 2017). The fund has two main objectives. These include diversifying the oil-based economy and establishing/supporting new sectors that would operate along with the creation of employment areas (Karagöl and Koç, 2016: 15). 70% of the country's budget surplus is being transferred to ADIA and the remaining 30% to Abu Dhabi Investment Council (ADIC) (Swfinstitute, 2017). ADIA has a disciplined investment process which aimed at delivering stabilized returns at specified risk parameters in the long-term (ADIA, 2016: 14). ADIA's mission is to sustain Abu Dhabi's long-term prosperity by cautiously increasing capital along with a disciplined investment process (ADIA, 2016: 1). Upon examining the investment areas of the fund, it is seen that they have exhibited more activities in both developed and developing countries.

Figure 6: Investment Area of ADIA Fund (%)

	MINIMUM	MAXIMUM
Developed Equities	32	42
Emerging Market Equities	10	20
Small Cap Equities	1	5
Government Bonds	10	20
Credit	5	10
Alternatives	5	10
Real Estate	5	10
Private Equity	2	8
Infrastructure	1	5
Cash	0	10

Source: http://www.adia.ae/En/pr/2016/pdf/ADIA_2016_Review_01_FULL.pdf,(15.06.2017)

Upon examining the global distribution of investments made by the fund, it is seen that the majority of investments are made in North America and Europe.

Figure 7: Global Distribution of ADIA Fund

	MINIMUM	MAXIMUM
North America	35	50
Europe	20	35
Emerging Markets	15	25
Developed Asia	10	20

Source: http://www.adia.ae/En/pr/2016/pdf/ADIA_2016_Review_01_FULL.pdf,(15.09.2017)

3.1.3. China Investment Corporation (CIC)

The People's Republic of China is a country with a total of four SWFs, namely, SAFE Investment Company founded in 1997, National Social Security Fund founded in 2000, China Investment Corporation and China-Africa Development Fund both founded in 2007. Among these funds in China, China Investment Corporation (CIC) is the largest SWF (Swfinstitute, 2017). CIC is the largest fund which is founded with non-commodity resources having a size

of 813.8 billion USD (Karagöl and Koç, 2016: 14). This fund, established with an investment of 200 billion USD on the 29th of September 2007, was declared to abide by the Santiago Principles in 2008 (China-Inv, 2017). CIC serves as an instrument of obtaining maximum return within the acceptable risk tolerance for the shareholder and diversifying foreign currency assets (China-Inv, 2017). The People's Republic of China has taken the example of Government of Singapore Investment Corporation for its state investment funds (TSPA KB, 2008: 12).

The management and board of directors of CIC are directly affiliated with the President of the People's Republic of China (TSPA KB, 2008: 15). More than half of 200 billion USD capital is devoted to CIC's global investments. CIC's global investment activities are being conducted by both CIC International and CIC Capital, while the fund's national investment activities by the Central Huijin (Sun, Li, Wang and Clark, 2014: 657). CIC International was established in September 2011 to conduct and manage overseas investments (China-Inv, 2017). In 2003, Central Huijin Investment Corporation was established to manage the investment activities of the Central Bank of the People's Republic of China (TSPA KB, 2008: 15). Its overseas investments and contributions to its state-owned companies made by the country's existing financial institutions along with its foreign currency-based nature and being managed directly by the State Council strengthen the position of CIC (Şimşek, 2017: 56).

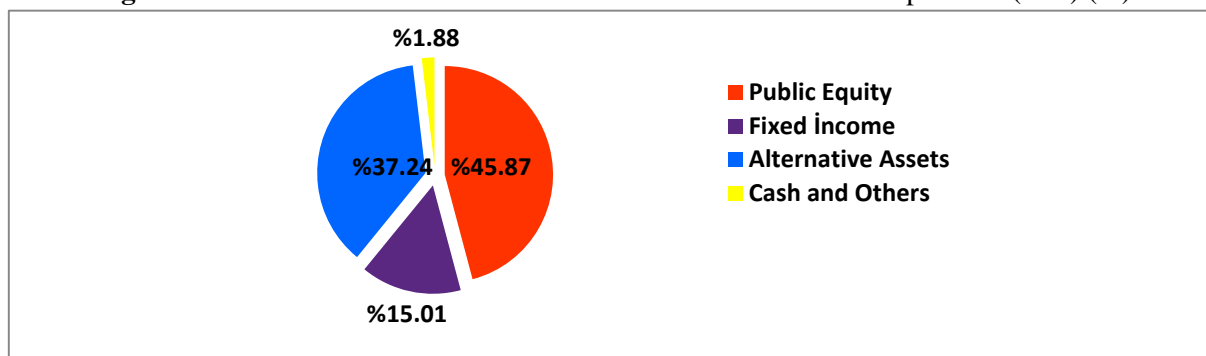
China's SWF also has investment partnerships with other funds. In 2012, Russia-China Investment Fund partnership was established with The Russian Direct Investment Fund. In 2014, the partnership of China-Mexico Fund was also effectuated (Karagöl and Koç, 2016: 14).

Tuğba KAYIKCIOĞLU

was born in Adana on 23 February 1993. She completed her primary and secondary education at Milli Mensucat Primary School in 2007 and her high school education at Adana Çağrıbey High School in 2011. Karamanoğlu Mehmetbey University, She started her undergraduate education in 2015 at Faculty of Economics and Administrative Sciences, Department of Business Administration in 2011, She completed her bachelors with honour degree. Currently she is registered to master's programme at Niğde Ömer Halisdemir University, Institute of Social Sciences, Department of Accounting and Finance.



Figure 8: Investment Portfolio Distribution of China Investment Corporation (CIC) (%)

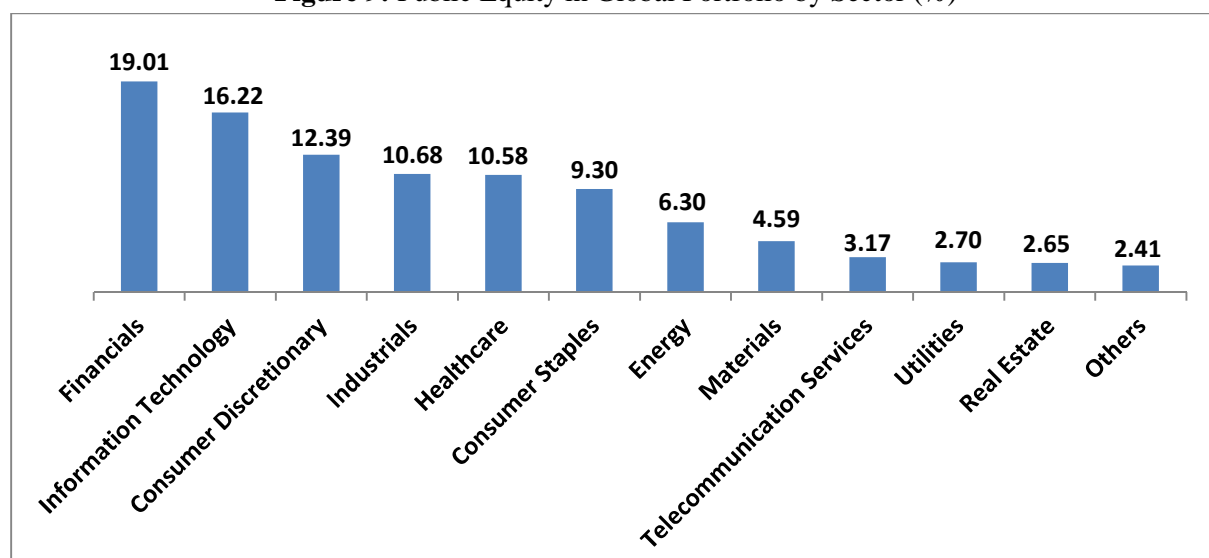


Source: <http://www.china-inv.cn/wps/portal/> (08.17.2017)

As of 31st of December 2016, 45.87% of the investments are made regarding public investments, 22.16% of the long-term investments, 15.01% of fixed-income investments, 37.24% of alternative investment instruments and 1.88% of cash and other investment

instruments. Also, it is seen that 33.89% of the investments are realized domestically, and 66.11% of the investments are realized abroad by the end of 2016.

Figure 9: Public Equity in Global Portfolio by Sector (%)



Source: <http://www.china-inv.cn/wps/portal/> (08.17.2017)

Upon analyzing the distribution of the investment areas of CIC, the finance sector is seen to take the first rank with 19.01%. The finance sector is followed by information technology, luxury goods (non-essential goods) and health services, respectively.

3.1.4. The State Oil Fund of the Republic of Azerbaijan (SOFAZ)

The source of the State Oil Fund of the Republic of Azerbaijan (SOFAZ), which was established with the Presidential decree on the 29th of December 1999, consists of revenue derived from oil and natural gas. It is a fund that was established to effectively manage revenue from natural sources such as oil and natural gas, to ensure economic development in the country and to improve the living standards of the people (Dış Ekonomik İlişkiler Kurulu [DEİK], 2013: 32). The main income sources of revenue of SOFAZ can be summarized as follows (Aras, Süleymanov, and Zeynalov, 2014: 19):

- Revenues obtained from the sale of Azerbaijan's share of oil and natural gas production,
- The price paid by the shareholders to SOFAZ and the competent state organs related to the oil and natural gas agreements,
- Payments made by the investors for the production of oil and natural gas reserves to benefit from the agreement,
- Azerbaijan's share of profits in the realization of oil and natural gas projects,
- Revenues obtained from oil and natural gas transportation through Azerbaijani territory,
- Revenues derived from assets given by shareholders to The State Oil Company of the Azerbaijan Republic (SOCAR) or to competent state institutions within the framework of oil and gas agreements,
- Revenues derived from the placement and management of the fund's assets.

The most important income sources of the fund are the revenues derived from Azeri-Çıraq-Güneşli oil reservoir and Şahdeniz natural gas reservoir.

The fund has earned 98.9 billion USD in revenues from the Azeri- Çırac-Güneşli oil reservoir since 2001. The income derived from oil and natural gas revenues is used for financing social and infrastructure projects and international energy projects in which Azerbaijan is a partner. Approximately 58 billion USD had been transferred to the state budget between 1999 and the first quarter of 2014. As of 2006, it contributed 372 million USD for Azerbaijan to pay its share in the construction of Baku-Tbilisi-Ceyhan (BTC) oil pipeline and 108 million USD for SOCAR to attend to Azeri-Çırac-Güneşli consortium. The fund that supplies other projects besides BTC within the Azerbaijan-Turkey partnership has spent 458 million USD for the Baku-Tbilisi-Kars railway project and 465 million USD for the construction of the Star oil refinery in İzmir Aliğa. A significant amount of money has been also contributed to improve the level of social welfare of the Nagorno-Karabakh immigrants as resident owners, to construct the new waterline from Oğuz and Gebele regions towards Baku, to restructure the Samur-Absheron water channel and to implement the state education program abroad for the Azerbaijani youth between 2007-2015 (Haberler, 2017). When the investments made by SOFAZ by the end of 2015 are examined, Europe is seen to be ranked first with 43.93% and Asia second with 26.58%. Africa is ranked as the last one with 0.01% (Oilfund, 2015: 23). Furthermore, 82.1% of the fund assets were in fixed-income instruments, 10.2% in the stock market, 3.1% in gold and 4.6% in the real estate sector (Oilfund, 2015: 5). SOFAZ has obtained 126 billion USD in revenue over a 17-year period (Dunyahulteni, 2017). This fund, which was established as an off-budget institution (DEİK, 2013: 32), has a size of 33.1 billion USD by the year 2017 (Swfinstitute, 2017).

4. TURKEY'S SWF (TSWF)

It is thought that it is necessary to establish a SWF in Turkey because of the reasons such as the non-existence of liquidity problems in countries with SWFs, less influence from the fluctuations in the economy and constant increase in fund size. The draft law on the establishment of SWF is approved by the Parliament on the 19th of August 2016, is issued by the Law No. 6741, and is published in the Official Gazette dated 26th of August 2016 (Kayıran, 2016: 69). The initial capital of Turkey's SWF (50 million Turkish Liras) has been covered by the Specialization Fund (Resmigazete, 2017). The fund is affiliated with the Prime Ministry and is subject to private legal provisions as a joint-stock company governed by professional management principles (Turkiyevarlikfonu, 2017). The chairman and the board of directors consisting of at least five people, as well as the general manager, are appointed by the Prime Minister. The chairman, the board of directors and the general manager are required to have at least 5-year experience in at least one of the fields such as economics, finance, law, public finance, and banking. The 3-year strategic investment plan which includes Turkey's SWF (TSWF) and the sub-funds to be established within, is to be prepared by the Board of Directors and would be enacted by the approval of the Council of Ministers (Remzigazete, 2017). Being subject to the provisions of private law with the provisions of Law No. 6741, Turkey's Wealth Fund Management Company (*Türkiye Varlık Fonu Yönetimi A.Ş.*) is capable of carrying out all kinds of money market transactions, commercial and financial activities, project development, Project-based resource creation, external project loan provision and other methods of resource allocation transactions in both national and international secondary markets. It is also eligible to buy and sell shares of domestic and foreign companies, derivative instruments, rent, and real estate certificates, specially designed foreign investment instruments; to participate in national investments and investments to be made in other countries and/or foreign companies in international areas (Resmigazete, 2017).

TSWF, while setting its operations transparently, needs to implement its governance principles based on globally accepted professional management principles. The decisions to be taken by the fund on determining investment strategies for its assets should be sustainable in the long-run. Also, it should identify and regularly report the risks that may arise about operations and fulfill its responsibilities by the founding law and relevant legislations (Turkiyevarlifonu, 2017).

TSWF and its affiliations to be established are subject to independent auditing. The annual financial statements and activities approved by the independent auditing are to be inspected by at least three central auditing specialists (experts in such fields as capital markets, finance, economics, public finance, banking, and development) assigned by the Prime Minister in compliance with independent auditing standards. The inspection report is to be submitted annually to the Council of Ministers and the reports, financial statements and activities belonging to all companies and sub-funds to be operated are to be audited annually by the Parliamentary Planning and Budget Commission (Karagöl and Koç, 2016: 19).

When the countries that have established their SWFs are considered, it is seen that these countries are basically energy-exporting countries with more savings. Also, considerable amounts of foreign currency reserves and foreign currency inflows regarding natural resource exports exist in these countries. The need for utilizing the foreign currency surplus in higher yielding areas and the eagerness for investing them abroad are stated as the grounds for the establishment of SWFs. Turkey, on the other hand, as an energy-importing country that incurs current account deficits in savings, has no foreign currency surplus. The purpose of establishing TSWF mainly involves external borrowing to provide financing the internal markets.

The recently established TSWF has started to take place in international organizations. TSWF has been accepted as the 32nd member of the International Forum of Sovereign Wealth Funds (IFSWF), which consists of 30 different funds from 28 countries (Sabah, 2017). As of February 2017, the value of the TSWF, whose target is 200 billion USD, has reached 31.3 billion Turkish Liras (Hurriyet, 2017).

4.1. Objectives and Resources of TSWF

TSWF aims to contribute to the improvement and development of the economic stability of the country and to manage publicly-owned assets more effectively and productively; to create a stronger Turkey for future generations by adding value to the existing public wealth, to borrow money from abroad and to finance the internal markets (Turkiyevarlifonu, 2017).

With TSWF to be established in Turkey, it is expected that the country would reach its long-term macroeconomic targets. Taking the draft statute regarding the establishment of TSWF into account, it is aimed to achieve an extra annual growth of 1.5% within the next decade, to accelerate the growth and deepening of the capital markets, to increase the employment with the investments to be realized, and to finance the huge projects that would contribute to the development of the country. In addition, as a result of a strong and transparent institutional infrastructure, international investors would be able to invest in the country, and the use of Islamic financing assets would become widespread. Foreign strategic sectors such as oil and natural gas, which are important for the country, can be directly invested without being bound by legal and bureaucratic restrictions (TBMM, 2016: 35). The main objectives of the Turkey's Sovereign Wealth Fund Company can be expressed as follows (Turkiyevarlifonu, 2017):

- To contribute to economic growth by providing value increase in important public assets,
- To support the development of assets eligible for participation financing,
- To maintain the diversity and depth of the capital markets,
- To attract more investors' interest in Turkey and to provide capital for new investments,
- To establish and manage TSWF and its subsidiary funds in order to develop strategically important sectors and to participate in large-scale investments.

The resources of TSWF are expressed as follows (Turkiyevarlikfonu, 2017):

- The establishments/assets which are decided to be devolved on the TSWF by the Privatization High Council within the scope of privatization program, as well as cash surplus decided to be transferred from the Privatization Fund
- The excessive revenues, resources, and assets which are decided to be transferred to TSWF by the Council of Ministers.

Although TSWF was allowed to be funded with a very low level of initial capital, it is allowed to provide TSWF with resources from either privatization revenues with the verdict of the Privatization High Council or public funds and revenues with the approval of the Council of Ministers or even unlimited borrowing without permission of Undersecretariat of Treasury (Kayıran, 2016: 80).

Some of the publicly-owned companies in the Treasury and some of the companies in the privatization program are transferred to TSWF (NTV, 2017). The following institutions and resources are transferred to TSWF and are included in its portfolio (Turkiyevarikfonu, 2017):

- 49.12% of the shares that belonged to Turkish Airlines A.O,
- 6.68% (owned by the Treasury) of the shares in the capital of Türk Telekomünikasyon A.Ş,
- The entire shares (owned by the Treasury) in the capital of T.C. Ziraat Bankası A.Ş,
- 51.11% of the shares that belonged to Türkiye Halk Bankası A.Ş,
- The entire shares (owned by the Treasury) in the capital of Türkiye Petrolleri A.O. (TPAO),
- The entire shares (owned by the Treasury) in the capital of BOTAŞ,
- The entire shares (owned by the Treasury) in the capital of PTT,
- The entire shares (owned by the Treasury) in the capital of TÜRKSAT,
- The entire shares (owned by the Treasury) in the capital of Borsa İstanbul (BIST) A.Ş,
- 49% of the shares held in the capital of the Turkish Maritime Lines Inc,
- 10% share of Kayseri Şeker Fabrikası A.Ş,
- Eti Maden (Eti General Directorate of Mining Operations),
- General Directorate of Tea Enterprises,
- 49-year license rights for lottery games played in cash,
- Turkey Jockey Club's license rights for domestic and international horse racing rights (for 49 years as of January 1, 2018),
- Some real estates that are properties of the Treasury in Antalya, Aydın, İstanbul, Isparta, İzmir, Kayseri and Muğla.

It is also decided that the TCDD İzmir Port will remain under the control of the TCDD until the transfer process is completed and that it will continue to be operated by the TCDD (Turkiyevarlikfonu, 2017).

4.2. Economic and Political Requirement for Establishing TSWF

Turkey's specialization in technology-intensive sectors such as software and defense industries, increasing its resilience against regional and global crises, having a steadily growing economy that would not be affected by economic fluctuations are necessary for Turkey to achieve its objectives. In order to have such an economy, the establishment of a SWF specific to the country looms large as an important option (Sürekli and Yalçınar, 2015: 15).

TSWF would play an important role to provide financing for important national projects such as increasing savings and investments; constructing highways, bridges, and high-speed railroads; and providing resources from the fund instead of loans for investments needed especially in the industry. By providing funding for projects that would be effective in reducing foreign dependency, domestic sectors would flourish, and new employment areas would be created with new projects. TSWF would enable Turkey to have more say in the international arena, allowing for expansion of maneuvering areas from economic, social and political aspects (Turkiyevarlikfonu, 2017).

5. CONCLUSION

The SWF model, which has become increasingly important in the world throughout recent years, is seen as an option for achieving Turkey's economic and foreign political goals.

SWFs were established by countries to convert savings and foreign exchange surpluses into foreign investments and to transfer the proceeds to future generations. Turkey's SWF (TSWF) is established with the aim of foreign borrowing to finance the internal markets.

Upon investigation of the leading SWFs in the world; it is seen that Azerbaijan, Abu Dhabi, and Norway provide resources for the fund by using oil revenues, while China utilizes non-commodity sources as the means of funding. Turkey, on the other hand, prefers resources such as privatization revenues and public revenues. Regarding funding resources, 57% of SWFs are based on oil and gas revenues, and 43% are based on non-commodity revenues.

As a result, the recently established TSWF would provide Turkey with significant opportunities for reaching its targets of the years 2023, 2053 and 2071; for carrying out its gigantic projects, and for development and improvement of the country. Furthermore, it is thought that international investors would invest in Turkey with the effective operations of TSWF and contribute to the growth of the Turkish economy along with the revenues.

REFERENCES

- [1] Gürsoy, C.T. (2007). Finansal Yönetim İlkeleri (1.Baskı). İstanbul: Doğu Üniversitesi Yayınları
- [2] Şimşek, Z. (2015). Türkiye'de Yatırım Fonlarının Gelişimi. Yüksek Lisans Tezi, Niğde Üniversitesi S.B.E. Niğde.
- [3] Aykın, H. (2017). Ulusal Refah Fonlarının Ekonomik Güvenlik Perspektifi ile Analizi.
- [4] Truman, E.M. (September 2008). Sovereign Wealth Funds: New Challenges from a Changing Landscape. Peterson Institute for International Economics, Washington D.C.
- [5] Vural, Y. (2008), "Ulusal Varlık Fonları'na İlişkin Değerlendirmeler", Çatı Dergisi, Tasarruf Mevduat Sigorta Fonu, Yıl: 6, Sayı: 27, Sayfa: 14-18, Temmuz-Ağustos-Eylül.

- [6]-[11] Akbulak, S. (2008). Ulusal Varlık Fonları (Sovereign Wealth Funds): Gelişmeler ve Düzenleme Çalışmaları. Sermaye Piyasası Kurulu Araştırma Raporu, Sermaye Piyasası Kurulu Araştırma Dairesi, Ankara.
- [7] Beck, R. and Fidora, M. (2008). The Impact of Sovereign Wealth Funds On Global Financial Markets. *European Central Bank Occasional Paper Series*, No:91. Web: <https://www.ecb.europa.eu/pub/pdf/scpops/ecbocp91.pdf>
- [8]-[9] TSPAKB (Mart, 2008). Devlet Yatırım Fonları. Türkiye Sermaye Piyasası Aracı Kuruluşları Birliği, Sermaye Piyasasında Gündem, Sayı:67, İstanbul.
- [10] Karagöl, Erdal Tanas ve Koç, Yusuf Emre (Ekim, 2016). Dünya’da ve Türkiye’de Varlık Fonu. Seta Analiz, Sayı: 169, İstanbul.
- [12]-[63]-[66]-[70]-[72]-[73]-[76]-[77]-[79] Türkiye Varlık Fonu (2017). Türkiye Varlık Fonu Web: www.turkiyevarlikfonu.com.tr
- [13]-[15]-[22]-[23]-[25]-[29]-[32]-[33]-[38]-[43]-[52]-[67] Karagöl E. T. and Koç, Y. E., 2016, Dünyada ve Türkiye’de Varlık Fonu, *SETA Yayınları: Analiz*, Sayı: 169.
- [14]-[16]-[18]-[26] Aykın, H. (2011). Ulusal Refah Fonları: Risk mi, Fırsat mı? Stratejik Düşünce Enstitüsü-SDE Analiz.
- [17] IMF (2007). Global Financial Stability Report, Web: www.imf.org/external/pubs/ft/gfsr/2007/.../chap1.pdf
- [19]-[20]-[61]-[74] Kayıran, Meltem (2016). Türkiye Varlık Fonu’nun Kuruluş Amaçları ve Yapısı Üzerine Bir Değerlendirme. *Eğitim Bilim ve Toplum Dergisi Cilt:14 Sayı:56*, Ankara.
- [21] Bayar, Y. and Yıldırım, M. (2013). Ulusal Varlık Fonlarının Regülasyonuna Yönelik Çabalar: Santiago Prensipleri, Finans Politik & Ekonomik Yorumlar 2013 Cilt: 50 Sayı: 585.
- [24]-[37]-[39]-[42]-[60] SWFI (2017). Sovereign Wealth Funds, Pensions and Institutional Investors, Web: <http://www.swfinstitute.org/sovereign-wealth-fund-rankings/>
- [27]-[32] Sürekli, A. M. ve Yalçın, K. (2015). Ekonominin Çeşitlendirilmesinin Bir Aracı Olarak Ulusal Refah Fonu Modelinin Türkiye Ekonomisi Açısından Uygulanabilirliği. *Gazi Üniversitesi İİBF Dergisi, Cilt:17, Sayı:3*, Ankara.
- [28]-[31]-[34]-[35] NBIM (2017). Government Pension Fund Global The Fund, Norges Bank Investment Management, Web: <https://www.nbim.no/en/the-fund>
- [30] Bloomberg HT (2016). Petrol Fonu Norveç Ekonomisini Koruyor, Web: <http://www.bloomberght.com/haberler/haber/1847498-petrol-fonu-norvec-ekonomisini-koruyor>
- [36] TRTHABER (2017). Norveç Varlık Fonu’ndan 1 Milyar Dolara Yakın Yatırım, Web: <http://www.trthaber.com/haber/ekonomi/norvec-varlik-fonundan-1-milyar-dolara-yakin-yatirim-301961.html>
- [40] ADIA (2016). Abu Dhabi Investment Authority 2016 Review A Legacy in Motion, Web: http://www.adia.ae/En/pr/2016/pdf/ADIA_2016_Review_01_FULL.pdf
- [41] ADIA (2017). Abu Dhabi Investment Authority, Web: <http://www.adia.ae/En/About/About.aspx>
- [44]-[45]-[49] China-Inv (2017). China Investment Corporation, Web: <http://www.china-inv.cn/wps/portal/>
- [48] Sun, X., Li, J., Wang, Y. ve Clark, W. (2014). China’s Sovereign Wealth Fund Investments In Overseas Energy: The Energy Security Perspective. An Institute of Policy and Management, Energy Policy, Sayı: 65, China.
- [51] Şimşek, O. (2017). Çin Yatırım Şirketi (CIC) Özelinde Finansal Küreselleşmede Devlet Sermayesi: Ulusal Varlık Fonları. *Fiscoeconomia*, Vol.1(1), 46-64.
- [53] DEİK (Nisan, 2013). Azerbaycan Ülke Bülteni, Dış Ekonomik İlişkiler Kurulu, Web: www.deik.org.tr/uploads/azerbaycan-nisan-2013.pdf

- [54] Aras, O.N., Süleymanov, E. and Zeynalov, A. (2014). Azerbaycan'ın Enerji Kaynakları Gelirlerinin Ülke Ekonomisine Etkisi. *Çankırı Karatekin Üniversitesi Uluslararası Avrasya Strateji Dergisi* 2(2), 001-028.
- [55] Haberler (2014). Azerbaycan'ın Petrol Fonu'nda Yaklaşık 36 Milyar Dolar Birikti, Web: <https://www.haberler.com/azerbaycan-in-petrol-fonu-nda-yaklasik-36-milyar-5887065-haberi>
- [56] Oilfund (2015). The State Oil Fund of The Republic of Azerbaijan Annual Report, Web: http://www.Oilfund.az/uploads/Annual_Report_2015_ENG.pdf
- [58] Dünya Bülteni (2017). 11 Soruda Tüm Yönleriyle Türkiye Varlık Fonu, Web: www.dunya.com/ekonomi/11-soruda-tum-yonleriyle-turkiye-varlik-fonu-haberi-349431.
- [62]-[64]-[65] Resmi Gazete (2016). Türkiye Varlık Fonu Yönetimi Anonim Şirketinin Kurulması ile Bazı Kanunlarda Değişiklik Yapılmasına Dair Kanun, Web: <http://www.resmigazete.gov.tr/eskiler/2016/08/20160826-1.htm>
- [68] Sabah (2017). Varlık Fonu'na Uluslararası Görev Web: <http://www.sabah.com.tr/ekonomi/2017/05/17/varlik-fonuna-uluslararasi-gorev>
- [69] Hürriyet (2017). Değeri Şimdiden 31 Milyarı Aştı, Web: <http://www.hurriyet.com.tr/degeri-simdiden-31-milyari-asti-40357548>.
- [71] TBMM (2016). Kanun Tasarısı. Web: <http://www2.tbmm.gov.tr/d26/1/1-0750.pdf>
- [75] NTV (2017). Varlık Fonu'na Devredilen Şirketler, Web: <http://www.ntv.com.tr/galeri/ekonomi/varlik-fonuna-devredilen-sirketler,qPeYG7endkWbk4dmq6fAXA>

THE ACCESSION OF BULGARIA TO THE EURO AREA: PROSPECTS, PROBLEMS AND RECENT DEVELOPMENTS

Vanya A. Ivanova¹²⁸

Abstract: *Ten years after Bulgaria's accession to the European Union, the next step of its integration into the EU and the next serious challenge for the country is the accession to the Eurozone. Over the past decade, the Economic and Monetary Union (EMU) has undergone profound changes and the accumulated unresolved problems within it, related to the differences in the levels of economic development of the member states, have placed that union to the most serious test since its creation. These problems are reflected in the process of enlargement of the Euro area and the political consensus on the admission of the countries of Central and Eastern Europe (CEE) to it. The paper aims to outline the readiness of Bulgaria to join the Eurozone and the main advantages and problems associated with this accession. On the basis of assessment of the fulfilment of the convergence criteria, conclusions are drawn on the state of preparedness of the country to enter the ERM II and the prospects for such accession are analysed in the context of the ongoing debate on the development of the EMU.*

Key words: *Eurozone, Euro adoption, nominal and real convergence, currency board*

INTRODUCTION

Ten years after joining the EU, the next serious challenge for Bulgaria and the completion of the process of its integration into the EU is the accession into the Eurozone. That accession was a strategic goal for Bulgaria prior to the EU membership. With the EU Accession Treaty Bulgaria assumed the formal obligation to join the Euro area. The fulfilment of this obligation goes through the (sustainable) fulfilment of the membership criteria (Maastricht convergence criteria).

1. COMPLIANCE WITH THE MAASTRICHT CONVERGENCE CRITERIA

The data for Bulgaria on the fulfilment of the Maastricht criteria during the period 2014 – 2016, presented in the last Convergence report [1] of the European Central Bank (ECB), are as follows:

Table 1: Nominal convergence criteria, Bulgaria

Convergence criteria		2016 ECB Convergence Report			
		Reference Value	BG 2014	BG 2015	BG 2016
Price stability	HICP inflation rate	1,7% (2014 Convergence Report) 0,7% (2016 Convergence Report)	-1,6%	-1,1%	-1,0%
Government	Country in excessive deficit	No	No	No	No

¹²⁸ University of National and World Economy, 1700 Sofia, Bulgaria, 1700 Sofia

budgetary position	General government surplus (+)/ deficit (-)(as a percentage of GDP)	±3%	-5,4%	-2,1%	-2,0%
	General government gross debt (as a percentage of GDP)	60%	27%	26,7%	28,1%
Exchange rate stability	Exchange rate vis-à-vis euro (average annual percentage change)	Max. ±15%	0,0%	0,0%	0,0%
	Currency participating in ERM II	Min. 2 years	No	No	No
Long-term interest rate	Long-term interest rate	6,2% (2014 Convergence Report) 4% (2016 Convergence Report)	3,3%	2,5%	2,5%

Source: ECB Convergence Report 2016

Regarding the price stability criterion, over the last reference period (May 2015 - April 2016), Bulgaria recorded negative 12-month average rate of HICP inflation (-1,0%), i.e. well below the reference value of 0,7%. As regards the fiscal criteria, during the last years Bulgaria was among the countries with the lowest government debt as a percentage of the GDP in the EU. Bulgaria's general government deficit (-2,0%) and debt-to-GDP ratio (below 30%) in 2016 complied with the Maastricht criteria. The government deficit

exceeded the reference value of ±3% in 2014; however, the excess deficit was assessed to be both exceptional and temporary by the European Commission (EC). The Bulgarian Lev is not part of ERM II (the exchange rate mechanism, which is the first formal step towards the Euro area), but since the launch of the euro in 1999, it has been pegged to the euro¹²⁹. Regarding the interest rate convergence criterion, during the last reference period the long-term interest rates in Bulgaria averaged 2,5%, that is below the 4.0% reference value. As evidenced by the data presented, Bulgaria is compliant with the criteria for nominal convergence (besides the criterion for participation in ERM II). Although not being formalized as the Maastricht criteria, the leading criteria for the entry of Bulgaria into the Eurozone are those related to the real convergence. Despite the considerable efforts made in recent years to correct its excessive macroeconomic imbalances and progress towards long-term stability and sustained growth, Bulgaria is lagging behind the most developed EU economies. The convergence of incomes with the EU average is slow and the living standard in the country is less than half of the EU average¹³⁰. According to the ECB and EC [1] [2], achieving an environment conducive to

Vanya A. Ivanova, PhD,
Chief Assistant Professor at
the University of National
and World Economy, Sofia,
Bulgaria, Department of
Finance,



*Scientific interests: Banking,
Asset Securitization, Structured Finance,
Financial Regulation.*

¹²⁹ At a fixed rate of 1 EUR = 1.95583 BGN within the currency board arrangement. Before that, the Bulgarian Lev was pegged to the Deutsche mark on July 1, 1997, when the country introduced a currency board with the task of overcoming the 1996-1997 acute banking crisis coupled with hyperinflation.

¹³⁰ In terms of the proximity of the living standards towards the EU average, most countries that have joined the Euro zone in recent years have done this with a ratio of GDP per capita to the average for Europe of about 70% and that ratio for Bulgaria is about 48%-49% at present. As shown by the empirical results presented in [5], the CEE countries (including Bulgaria) have converged in absolute terms towards more developed EU countries in 1997–2014, though the post-transition growth model, based on a large inflow of foreign capital (mainly in the

sustainable convergence in Bulgaria requires stability-oriented economic policies and wide-ranging structural reforms to enhance the institutional and business environment; there are risks to the long-term fiscal sustainability (as a result of the expected increase in age related expenditure on health and long-term care) and also some non-compliance of the Bulgarian Law with the requirements for central bank independence, monetary financing prohibition, and legal integration into the Euro system.

2. THE EURO ADOPTION – EXPECTED MACROECONOMIC AND FINANCIAL EFFECTS FOR BULGARIA

The debate of whether (and when) Bulgaria should start talks to join the Eurozone is associated with arguments in both directions. Several (direct and indirect) benefits for the Bulgarian economy could be expected from the euro adoption: reduction of transaction and administrative costs for the economic agents, increased foreign direct investment and foreign trade, improvement of transparency and comparability of the prices, decrease in capital costs [3][4]. Another advantage of the euro adoption is the elimination of the exchange rate risk; in Bulgaria, that benefit would be relatively small, in view of the fixed exchange rate Lev - Euro under the currency board regime. One important indirect effect from the euro adoption could be the lower interest rates (given its relatively high levels compared to those in the Eurozone), although this doesn't mean an automatic, quick and sharp fall of the interest rates in Bulgaria. For each country in the Eurozone, investors require different interest rates reflecting different levels of risk and state of the economies and those differences have intensified since the global financial crisis and the sovereign debt and banking crises in the Euro area. That means that in order to achieve lower interest rates, Bulgaria need to have more converged economy before the euro adoption, i.e. it can realize more positive effects of the Euro area membership if it joins that area when it is ready for it to a maximum and not before. The euro adoption implies also access to all EU financial assistance mechanisms and to liquidity support for banks by the ECB. The participation at the Single Supervisory Mechanism could also have a positive effect against the backdrop of the crisis caused by the bankruptcy of one of the largest bank in Bulgaria (Corporate Commercial Bank) in 2014.

The potential costs and risks for Bulgaria, as a result of the adoption of the Euro, are related to: the one-off costs associated with the euro changeover and the adaptation of the accounting and banking software, a reduction in the revenues of the banks generated by foreign exchange transactions, certain increase in the price level as a result of the rounding when calculating the prices in euro immediately after the euro adoption. A disadvantage of joining a common currency zone, stated by the economic theory, is the loss of independent monetary policy and hence - the decrease of the economic policy instruments that can be used to control economic fluctuations through measures tailored to the specific dynamics of the national economy. In the case of Bulgaria, that argument is practically irrelevant, given the currency board regime. After euro adoption, the Governor of the BNB will have just one of the many voting rights in determining the monetary policy of the ECB. Determined according to the conditions in the Euro area as a whole and not in each member state individually, that policy implies some costs with a contingent character related to a possible temporary discrepancy between it and the state

form of FDI) has reached its limits; “the growth and convergence will now be driven mainly by factors affecting structural competitiveness, ..., institutional environment and policies, targeted at diminishing the influence of demographic developments on the labour market outcomes”.

of the economy of some member(s) (in the presence of asymmetric shocks affecting some member(s) of a monetary union [3]¹³¹.

In summary, Bulgaria's accession to the Euro area could have divergent potential effects and the resulting net effect is difficult to assess. One of the central points of debate in the course of the preparation of Bulgaria for the Eurozone accession is the future of the currency board regime. The exchange rate stability criterion requires the national currency to be stable against the euro, "without severe tensions". The currency board provides such stability. Regardless of the official position on this issue, that the currency board will be preserved until the euro adoption, expressed during the negotiations for the EU accession, proposals are being made occasionally for its abolition. Despite some risks the board imposes, with its predictability and automatism and given the impossibility for the government to pressure the BNB to monetize its debts, it has become a tool of stability and fiscal discipline. Abandoning such regime is a risky operation as it could undermine the stability accumulated during its operation and could lead to speculative attacks against the Lev that would prevent fulfilling the Maastricht criteria. At the same time, the long-term stay in that regime is increasingly associated with negative effects (related to the lack of active monetary policy and flexible exchange rate as stabilising macroeconomic instruments) with the resulting economic and social costs. In this context, the euro adoption would provide an opportunity for a smooth exit from the currency board regime and its replacement.

3. THE ACCESSION OF BULGARIA TO THE EUROZONE – EXPECTATIONS, PREPARATION AND NECESSARY REFORMS

In 2017 the Bulgarian government launched a campaign to enter the ERM II (the Eurozone "waiting room") and by the end of this year it should be clear how successful it is. The euro adoption has been recognized by several Bulgarian governments as one of the top priorities of the national policy¹³². The recent developments on the preparations for joining the ERM II revived the debate on the most appropriate time for that accession and the expected effects from it. Unlike the previous governments, the current one is opting for a slightly different campaign and is targeting political lobbying and convincing the partners that the country „still have a long way to go, but joining the ERM would be a good assessment of the efforts the Bulgarian society is making”, in the words of the Finance Minister V. Goranov [6]. Bulgaria receives principle support for its efforts on the road to the euro but it is still far from that target. “Bulgaria is doing quite well in terms of nominal membership criteria. But also there are questions on sustainability of this nominal convergence”, said V. Dombrovskis [6], EC Vice-President and European Commissioner for the Euro and Social Dialogue, on his visit to Bulgaria in June 2017, and outlined the need for more reforms¹³³. The problem areas are two - the relatively low degree of real convergence of the economy with the average European level and the existence of

¹³¹ Joining the Euro area implies also costs related to the participation in the European Stability Mechanism (ESM) (and in the Single Resolution Fund and the European Deposit Guarantee Scheme, when built within the EU). In terms of these costs, certain concern arises from the capital deposit of the country in the ESM, as it is possible, under a pessimistic scenario, for Bulgaria (the poorest country in the EU) to become a net donor of funds for that mechanism, given the gravity of the crisis in Greece and some other member states.

¹³² Back to 2007, official intentions were stated to start the process to join the Eurozone but the application was repeatedly delayed. At 2009, new, albeit incoherent preparatory steps were taken, incl. sharp fiscal consolidation at the expense of freezing of social and other public expenditures that intensified the effects of the global crisis.

¹³³ Recognizing that Bulgarian authorities have taken measures in response to recommendations on the pension sector in 2016, he pointed at significant imbalances in the economy, challenges in the financial sector, insurance, healthcare and public procurement and the need for improvement in the less developed rural areas.

structural imbalances in it¹³⁴. The government's intention is for Bulgaria to apply formally when it has the assurance that it will be supported. But to start the process, Bulgaria has to do a lot and will not go as easily into the ERM II, as many hope. The ideas of the EC for deepening the EMU, presented in the 2017 Reflection Paper [10], aimed at solving some of the main problems of the common European currency, will seriously change the way the Euro area operates; even if not fully accepted, they will seriously raise the bar to the new candidates and will draw the attention to the reforms in that area instead of expanding it. In addition to the ideas as that for creating a common Eurozone budget that have been discussed for years, the EC also proposes the introduction of standards for real economic and social convergence. Two years ago, the leaders of five major European institutions have proposed introducing mandatory standards in this respect in a report on Euro area reforms [11]. The aim is for countries in the Euro area to bring closer not only the macroeconomic indicators but to have close levels of development in areas as tax policy or measures to combat unemployment. Such approximation of standards should, as far as possible, match the economic performance of the member states. But it also means that countries that are not close to the new, higher convergence criteria would hardly be accepted, at least in the near future. At March 2017, the EC presented a White Paper [12], which set out several possible scenarios for the future of the EU, one of them being a multi-speed Europe. In his annual speech to the European Parliament in September 2017, the EC President Jean-Claude Juncker developed slightly different vision of consolidating the EU. He recalled that “If we want the euro to unite rather than divide our continent, then it should be more than the currency of a select group of countries. The euro is meant to be the single currency of the European Union as a whole” [13]¹³⁵. These statements signal that the EC is changing its approach to opening the Euro area from negative to positive which could encourage politicians and public opinion¹³⁶ in non-Euro area countries to think about joining. For Bulgaria this could mean that there is a chance to overcome the political (and institutional) constraints that might prevent it from joining the Eurozone. But despite the perspective outlined by the President Juncker, obstacles to "peripheral countries" still exist. While some European officials appear receptive to the entry of Bulgaria into the Eurozone, others have opposed the concept of joining the Eurozone by maximum of EU countries, as recalled the precedent with the Greek crisis¹³⁷. For the countries with the lower living standard, such as Bulgaria, that plan seems attractive although a quick entry into the Eurozone cannot be expected. Regarding the entry into the ERM

¹³⁴Bulgaria was selected for an in-depth review in the Alert Mechanism Report 2016. According to its conclusions, the country is experiencing excessive macroeconomic imbalances, due to fragilities in the financial sector and high corporate indebtedness. In 2017, Bulgaria was left in the group of countries with excessive macroeconomic imbalances, the main reason being the issues related to “external and internal vulnerabilities” [7]. Regarding the state of the Bulgarian financial system, in 2016 the BNB conducted an asset quality review and stress tests of the banking system and the results indicated “strong capital position and resilience to potential shocks” [8]; the asset review and stress tests of the pension funds and the insurance sector performed in 2016-2017 indicate that the insurance sector and the additional pension insurance in Bulgaria are stable [9].

¹³⁵ Although the EC is not the decisive factor for which country to be invited to the ERM II (the decision is going to be taken by the member states and the ECB), it can provide substantial help, including through the announced creation of a Euro-accession instrument, that will offer “technical and even financial assistance” to the countries wishing to adopt the euro (the official proposal with regard of that instrument will be announced in December 2017). One of the risks of a premature Euro zone accession of Bulgaria is related to the unfinished institutional reforms in the country and this instrument could be quite useful for the completion of those reforms.

¹³⁶ In terms of the public attitudes on the euro adoption in Bulgaria, the results of a national-representative survey conducted in September 2017 by Alpha Research (ordered by the EC Representation in Bulgaria) show that the opinion on the euro adoption is polarized currently: 34% of Bulgarians agree with the euro adoption, 45% do not approve it, and 21% of the respondents have no opinion [14]. A possible explanation is the concern that joining the Eurozone will lead to higher prices in the country.

¹³⁷ But even if that idea is accepted, there are EU member states that still refrain from joining the Eurozone. Some CEE countries, for example, do not want to give up the opportunities associated with preserving their own currency.

II, it would have a positive impact making Bulgaria more recognizable among investors and improving its international image. The deeper the monetary union becomes and the more risk the member states share in it, the less likely they will be to admit insufficiently prepared countries. Convergence of Bulgaria to the economic and social standards of the Eurozone still remains a distant goal and it is a long process that will depend more on the national efforts and institutions, and less on what is happening in Paris, Berlin or Brussels.

CONCLUSION

Bulgaria joined the EU in 2007 and while the preparedness of the country to adopt the euro has improved compared to previous years it still cannot be assessed as sufficient – the country is compliant with the nominal criteria to join the Eurozone, but it's lagging behind in terms of the real economic convergence. The Bulgarian government has launched a campaign for entry into the ERM II but only political lobbying is unlikely to be enough. Joining the Euro zone is an achievable goal but against the background of the post-crisis realities and the situation in the EU, the negotiation process for setting of a target date for joining the ERM II will, most probably, be extended. Bulgaria needs to make serious progress on a wide range of topics related to the real convergence and the work on these topics is important and useful to the country even outside the direct context of the Euro zone membership.

REFERENCES

- [1] *European Central Bank (2016), Convergence Report 2016, Frankfurt, <https://www.ecb.europa.eu/pub/pdf/conrep/cr201606.en.pdf>.*
- [2] *European Commission (2016), Convergence Report 2016, Institutional Paper 026/June 2016, Brussels, https://ec.europa.eu/info/publications/economy-finance/convergence-report2016_en.*
- [3] *Rybiński, K. (2007), The euro adoption – assessing benefits and costs, Address at the panel discussion at the American Chamber of Commerce, January 17.*
- [4] *Ganev, G. (2009), Costs and Benefits of Euro Adoption in Bulgaria, Working Paper / FINES 5.3, DIW Berlin, German Institute for Economic Research.*
- [5] *Grela, M., A. Majchrowska, T. Michałek, J. Mućk, A. Stążka-Gawrysiak, G. Tchorek, M. Wagner (2017), Is Central and Eastern Europe converging towards the EU-15?, NBP Working Paper № 264, Warsaw.*
- [6] *Evroactiv (2017), Bulgaria seeks access to the euro waiting room, <https://www.euractiv.com/section/economy-jobs/news/bulgaria-seeks-access-to-the-euro-waiting-room/>*
- [7] *European Commission (2017), Alert Mechanism Report 2017, Brussels, https://ec.europa.eu/info/publications/2017-european-semester-alert-mechanism-report_en*
- [8] *Bulgarian National Bank (2016), Press Release, Sofia, August 13, http://www.bnb.bg/PressOffice/POPpressReleases/POPDate/PR_20160813_EN*
- [9] *Komisiya za finansov nadzor (2017), Zastrahovatelniyat sector i dopalnitelnoto pensionno osiguryavane v Bulgaria sa stabilni, pokazvat pregledat na aktivite na pensionnitate fondove, pregledat na balansa na zastrahovatelite i prezastrahovatelite i stress testovete na zastrahovatelniya sector, Sofia, <http://www.fsc.bg/bg/novini/zastrahovatelniyat-sektor-i-dopalnitelnoto-pensionno-osiguryavane-v-balgariya-sa-stabilni-pokazvat-pregleda-na-aktivite-na-pensionnitate-fondove-pregleda-na-balansa-na-zastrahovatelite-i-prezastrahovatelite-i-stres-testovete-na-zastrahovatelite-i-preastr-8370.html>*

- [10] *European Commission (2017), Reflection Paper on the Deepening of the Economic and Monetary Union, Brussels, https://ec.europa.eu/commission/.../reflection-paper-emu_en.pdf*
- [11] *Juncker, J. C., D. Tusk, J. Dijsselbloem, M. Draghi, M. Schulz (2015), Completing Europe's Economic and Monetary Union, European Commission, Brussels, https://ec.europa.eu/commission/publications/five-presidents-report-completing-europes-economic-and-monetary-union_en*
- [12] *European Commission (2017), White Paper on the Future of Europe. Reflections and scenarios for the EU27 by 2025, Brussels, https://ec.europa.eu/commission/white-paper-future-europe_en*
- [13] *European Commission (2017), President Jean-Claude Juncker's State of the Union Address 2017, Brussels, September 13, http://europa.eu/rapid/press-release_SPEECH-17-3165_en.htm.*
- [14] *Todorova, T. (2017), "Alfa Risarch": Balgarite sa sred nay-golemite evrooptimisti, Sofia, <http://dnes.dir.bg/news/prouchvane-evropeyski-parlament-alfa-risarch-evropeyski-sauz-26599983>*

FINANCING OF INNOVATION ACTIVITIES IN SMALL AND MEDIUM ENTERPRISES IN SLOVAK REPUBLIC

Monika Jančovičová¹³⁸
Kristína Kováčiková¹³⁹

Abstract: *A key factor of the competitiveness and success of the company is its strategic orientation. However, this is usually the weakness of many small and medium-sized enterprises. It is not enough just to reduce costs and optimize processes. Nowadays for competitive advantage, it is necessary to be the creator of business trends and not only monitor and follow up the competition, have own innovative potential and quickly make it real. Therefore, innovation is recently very frequent word and it is a prerequisite that the company is entering the market with new products that will satisfy not only current but also future expectations and needs. Innovation must integrate processes, particularly sales and marketing, development, production, business resources and their organizations. There is one basic problem when the company tries to use innovative opportunities, to start a systematic innovation process – a lack of funds. This is often the reason why the innovation process will never start or is not successful. There are many ways how to get funds to realize the innovation process. Aim of paper is map out situation of small and medium-sized enterprises in Slovak republic focusing on financing innovation activities by government and European union's sources.*

Key Words: *innovations, public funds, small and medium enterprise*

1. THEORETICAL DEFINITION OF INNOVATION

Innovation comes from the latin word “innovare” meaning renewed, make new or modify (Souders 1987, p.2). Innovation is associated with radical changes, even with incremental – changes that manifested in products, processes or services (Tidd-Bessant – Pavitt, 2007, p.12). It is closely associated with inventiveness, creativity, application of which can be made the establishment and enforcement of new innovative solutions. Innovation is more than just an idea; it is implementation, mentioned idea or new ideas into practice. Creativity is the ability to create new ideas, while innovation is a process that begins with an idea and after various stages of development resulted in their implementation, taking an innovation to market.

Innovation can be understood as purposeful, dynamic development process, which result is a positive change aimed at improving reproductive process and more fully meet the needs of consumers (Čimo, 2009). The criterion of success of innovation is its commercial success and success in the market.

The Oslo Manual defined innovation as “the introduction of new or significantly improved product (goods or service), process, marketing method or a new organizational method in business.” Innovation is based on the results of the new technological developments, the new combination of existing technologies. Innovations can be developed by enterprise or in

¹³⁸University of Economics in Bratislava, Faculty of Business Management, Department of Business Economy, Slovakia

¹³⁹ University of Economics in Bratislava, Faculty of Business Management, Department of Business Economy; Slovakia

cooperation with other companies. The minimum requirement for innovation is that product, process; marketing or organizational method must be seen new or significantly improved for the company.

Green Paper of European Commission about innovation defines innovation as (Green Paper on Innovation 1995, p.4):

- renewal and expansion of the range of products and services and related markets,
- creation of new methods of production, supply and distribution,
- the introduction of changes in management, work organization, changes in labor conditions and changes in labor skills.

Innovative theories were influenced by the work of J. A. Schumpeter, who was first to introduce and define the term “innovation” in economic theory. He classified 5 fundamental changes that will be reflected developments (Schumpeter 1987, p. 197):

1. The placing completely new product, which is not known by consumer or new product quality.
2. Introduction of a new technology, entirely new processes, production method that to the industry still unknown. The basis of the new production methods may not be a new scientific discovery; new production method may also consist in a new way of commercial use.
3. The use of completely new materials, acquiring a completely new source of raw materials.
4. Make a new organization, as a monopoly position or decay of monopoly.
5. The opening entirely new markets.

1.1. BASIC CLASSIFICATION OF INNOVATION

Basic classification of innovation is defined by the OECD, in Oslo Manual. The main division is on technical innovation and non-technical innovation. Technical innovations are subdivided into product and technology consisting from the introduction of new products and technologies and significant technical improvements in manufactured products and technologies. Technical innovation includes a set of scientific, technical, organizational, financial and commercial activities. Non-technological innovations are classed on organizational, managerial and social innovation.

Manual distinguishes four types of innovation:

- *Product innovation* is an indication of completely new or significantly improved product or service with respect to its characteristics or expected use. This is a refinement of technical specifications, components, materials. In the service sector it comes to adding new functions or characteristics to existing services or introduction of a new service,
- *Process innovation* is the implementation of new or significantly improved production or delivery methods. This is a significant change in technology, equipment or software. As well as represent new or significantly improved methods for the creation and security services,
- *Marketing innovation* is the implementation of new marketing method involving significant changes in product design or packaging, in product placement in advertising or price,

- *Organizational innovation* is the implementation of a new organizational method in business practices. Innovation also includes workplace organization or external relations of the organization.

1.2. SOURCES OF INNOVATIONS

Systematic investigation of the changes that provide business opportunities can be divided into the areas of internal and external stimulus. P. Drucker divided sources of innovation opportunities into the following groups (Drucker, 1993):

Internal sources:

- *Unexpected events* – unexpected success and unexpected failure, unexpected event.
- *Contradictions* – change based on conflict is a mismatch or discrepancy between what exists and what should exist or between what exists and what all consider for existing phenomenon.
- *The needs of the production process* – a source of innovation, which improves the already existing manufacturing process and replaces the weak link.
- *Sectorial and market structures* – signals of changes of industry and market structures such as the rapid growth of the sector, doubling the market, combining technology previously considered to be separate and clearly separated, rapid changes in the methods of business activities

External sources:

- *Demographic factors* – changes are known with sufficient advance and have a significant impact on what they will buy, who is going to buy and in what quantities,
- *Changes in world view* – in the most cases the displacement an optimistic view on this issue to look pessimistic. It means that until a general view of the problem changed, significant innovation opportunities are offered.
- *New knowledge* – innovations based on new knowledge are the best known innovation.

2 INNOVATION ACTIVITY IN SMALL AND MEDIUM SIZED ENTERPRISE IN SLOVAK REPUBLIC DURING THE PERIOD 2012-2014

Enterprises with innovation activity are those that introduced new or significantly improved products to the market or introduced a new or significantly improved process within the enterprise (Statistical Office in Slovak Republic). Further abandoned or on-going innovation activities are also included to this group of enterprises. There were 29,2 % (in industry and selected services it was 31,8 %). Ability to innovate was higher in the industrial sector (32,5 %) than in the service sector (31,1 %). The figure 1 shows the share of enterprises with innovation activity in total number of enterprises in industry and selected services.

Share of enterprises with innovation activity in industry and selected services in 2012-2014

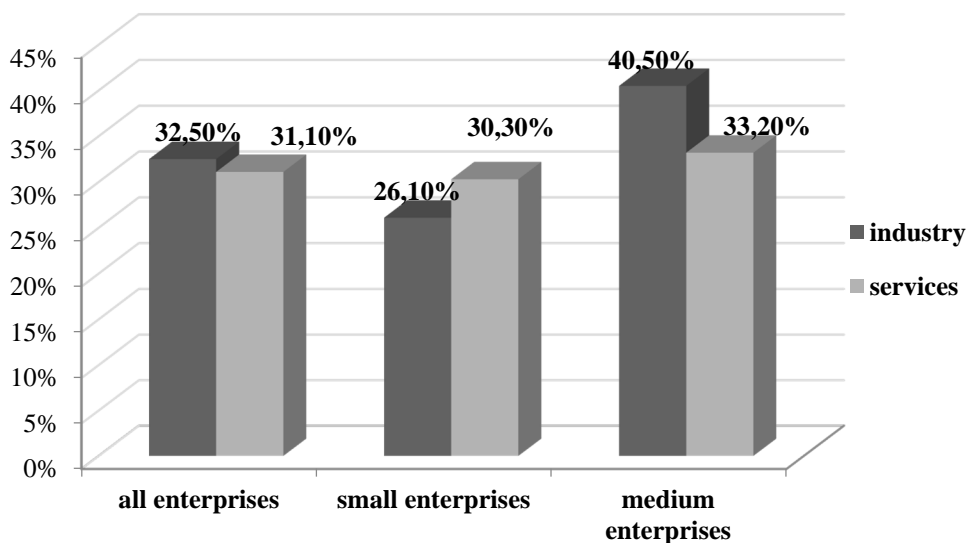


Figure 1: Share of enterprises with innovation activity in industry

Determining share (90,3 %) of enterprises with technological innovation was constituted from successful innovators that introduced or implemented product or process innovation or both type of innovations. Only on-going or abandoned innovation activity were reported by 9,7 % of enterprises. Enterprises with technological innovation accounted for 63,7 % from all innovation active enterprises. Share of enterprises with only non-technological innovation was 36,3 %.

Kind of innovation activity	Share in total number of enterprises in %			
	total	industry	construction	services
All kinds of innovation activity	29,2	32,5	14,5	31,10
All kinds of innovation activity	17,9	22,5	4,6	18,0
Successful tech. innovations	16,1	20,2	4,0	16,40
Product innovation only	4,7	6,7	0,9	4,1
Process innovation only	5,1	6,1	1,7	5,4
process innovations Product and	6,3	7,4	1,4	6,9
On – going and/or abandoned innovation activities only	1,7	2,3	0,5	1,6
Non-technological innovation	11,3	10,0	9,9	13,1
Enterprises without innovation activity	70,8	67,5	85,5	68,9

Table 1: Structure of enterprises by kind of innovation activity

Successful innovators are divided into three groups according to the type of innovation they carried out product only innovators, process only innovators or both product and process innovators. Share of enterprises that introduced product innovation new to the market (not only to the enterprises) represents 60,1 % in the total number of enterprises with product innovation in industry and services. Companies which introduced process innovation that is new not only for enterprise but also for the market represent 15,2 % of enterprises with innovation activity in industry and services.

In the period 2012 – 2014 in the Slovak Republic, 70,80 % of enterprises were non-innovative. More than 70 % of non-innovative enterprises in industry and selected services had no reason to innovate, and only less than 20 % have considered innovation. The most important reason not to innovate was low demand for innovation, which reported 20,6 % of non-innovative enterprises.

3 FINANCING INNOVATION ACTIVITIES

The financial needs of innovative enterprises vary according to their upfront feasibility and product development costs and the length of their market development and entry process. There are several early, critical milestones in this development process for which sufficient financing and technical assistance is crucial. The amount of financing and other support needed is often sufficiently large to exhaust immediately available resources such as founders' own funds and funds from family, friends and "fools" (United Nations Economic Commission for Europe, 2009, p.2). The paper is directed to possibilities of financing innovation activities from external sources especially from public resources. The next table shows total number of enterprises in Slovak Republic with technological innovation that received public funding including also industry and services.

Sizeclass (by number of employees)	Number of enterprises with technological innovation that received public funding				
	<i>From the 7th Framework Programme or from Horizon 2020 Programme</i>	<i>From the European Union</i>	<i>From central government</i>	<i>From local or regional authorities</i>	<i>Total</i>
<i>Between 10 and 49</i>	17	74	43	19	109
<i>Between 50 and 249</i>	15	63	37	7	76
<i>250 or more</i>	8	21	11	2	28
<i>TOTAL</i>	<i>41</i>	<i>159</i>	<i>91</i>	<i>27</i>	<i>213</i>

Table 2: Enterprises that received public funding

Next two tables show number of enterprises with technological innovation that received public funding separately for industry and separately for services.

Sizeclass (by number of employees)	Number of enterprises with technological innovation that received public funding				
	<i>From the 7th Framework Programme or from Horizon 2020 Programme</i>	<i>From the European Union</i>	<i>From central government</i>	<i>From local or regional authorities</i>	<i>Total</i>
<i>Between 10 and 49</i>	14	31	20	5	54
<i>Between 50 and 249</i>	10	42	31	3	51
<i>250 or more</i>	6	14	9	1	19
<i>TOTAL</i>	<i>31</i>	<i>87</i>	<i>60</i>	<i>9</i>	<i>124</i>

Table 3: Enterprises in industry that received public funding

Sizeclass (by number of employees)	Number of enterprises with technological innovation that received public funding				
	<i>From the 7th Framework Programme or from Horizon 2020 Programme</i>	<i>From the European Union</i>	<i>From central government</i>	<i>From local or regional authorities</i>	<i>Total</i>
<i>Between 10 and 49</i>	3	36	15	7	45
<i>Between 50 and 249</i>	5	9	6	4	13
<i>250 or more</i>	1	5	2	1	7
TOTAL	9	50	23	12	65

Table 4: Enterprises in services that received public funding

As it is seen in results of statistic research, the most of small and medium enterprises do not use direct public funding. The reason why this form of financing of innovation activities is not too popular and using could be difficult process to get the funds. In the process there are many acts which are time-consuming and personnel-intensive.

An important tool for stimulating innovation process can be also indirect support of public funds. Indirect support is implemented through a reduction in prescribing rates of customs, tax and other rates, charges and fees, which are part of the income of these budgets and so on. Important is fact that, for example, reduced tax rates do not automatically means reduction in the budgetary income, because lower percent rate can be compensated by the absolute growth in taxable activities.

CONCLUSION

Innovation has become a prerequisite for progress enterprises. Their production and placing on the market, it is necessary sufficient funds, which currently has only a few enterprises. Lack of these resources becomes a drag their innovation activity, weakens businesses to market and reduces their competitiveness. The problem is the unwillingness businesses to invest in creating new or improving already existing products and services, because it is a high risk activity with uncertain result. Lack of financial resources is expressed as in private, which can be its own corporate resources, venture capital, business resources angels or the use of leasing as well as in public funds – sources of state budget, insufficient use of EU funds and so on. The paper tries to evaluate spending of public funds for the period 2012 – 2014 by small and medium-sized enterprises and results show that Slovak small and medium enterprises are at the beginning in financing their innovation activities and they use for financing more often own resources or external funds especially bank loan, leasing, factoring or venture capital rather than direct public funds. Problem of low interesting of public sources by small and medium-sized enterprises is probably because of bureaucracy, administrative burden and poor cooperation among small and medium-sized enterprises and state organizations.

ACKNOWLEDGEMENT

This contribution is the result of the project VEGA (1/0857/16) “Zvyšovanie konkurencieschopnosti malých a stredných podnikov prostredníctvom zavádzania inovácií v globálnom hospodárskom prostredí” in extent 50 % and project VEGA (1/0662/15) „Ekonomické – sociálne nástroje ako faktor tvorby pracovných miest v podnikoch“, in extent 50%.

REFERENCES

- [1] Čimo, J. et al. 2009. Inovácie marketingových činností. Bratislava: EKONÓM. 250 p. ISBN 978-80-225-2814-6.
- [2] Drucker, P. 1985. Innovation and Entrepreneurship. New York: Harper&Row. 253 p. ISBN 0-88730-618-7
- [3] European Commission. 1995. Green paper on Innovation. Luxembourg: Office for Official Publications of the European Communities. 108 p. ISBN 92-827-6084-7.
- [4] OECD. Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data, 3rd Edition, The Measurement of Scientific and Technological Activities. Paris: OECD Publishing. 166 p. ISBN 978-92-6401-308-3
- [5] Schumpeter, J. 1987. Theorie der wirtschaftlichen Entwicklung. Berlin: Duncker und Humboldt. 480 p. ISBN 978-3-428-11746-8
- [6] Souder, W. E. 1987. Managing New Product Innovations. New York: Lexington Books. 251 p. ISBN 978-0-669-10809-5.
- [7] Statistical Office of Slovak Republic
- [8] Tidd, J. a al.: Řízení inovací. Zavádění technologických, tržních a organizačních změn. Brno: Computer Press. 549 p. ISBN 978-80-251-1466-7

ISSUES OF FAMILY BUSINESSES IN SLOVAKIA

Ladislav Mura¹⁴⁰

Martin Pafčo¹⁴¹

Lucia Rafajová¹⁴²

Abstract: *Running family businesses has a long tradition worldwide. Family businesses are those types of small and medium-sized enterprises, which suitably supplement the business activity of big companies. Many successful companies started as small and medium-sized businesses. The importance of family businesses is multiple, as we consider their high level of flexibility, personal approach towards customers and business partners, providing work for family members, transfer of knowledge to the next generation etc. The development of family businesses in Slovakia started after the economic and political changes a quarter of century ago, as it was impossible in the era of planned economy. Family businesses in Slovakia are still in a stage of development; some of the businesses have established themselves successfully, some are developing, and part of them have disappeared from the market. The aim of this paper is to map the current situation of family businesses in Slovakia. The partial goal is to gain information from SWOT analysis about the strengths, weaknesses, threats and opportunities of business. The questionnaire research should reveal the barriers that business face during their everyday activity. Our research was conducted on a sample of 220 family businesses from all self-governing regions of Slovakia in the time interval of 2016-2017. We have found that the biggest obstacle the Slovak businesses face is the bureaucracy, generational exchange and the transfer of knowledge.*

Key words: *family business, domestic family business, entrepreneurship, Slovak family SMEs*

1. INTRODUCTION

The transformation of the economic system has brought the emergence of new business entities. State organizations, state enterprises and cooperatives had been gradually replaced by private economic entities. We can talk about new entities or entities established after the disappearance of larger organizational units. A completely new environment with the elements of market mechanism appeared, that business entities had to adapt to. Slovakia entered the era of market-oriented economy. The basic pillar of the market-oriented economy is the company representing the small and medium-sized business sector.

The importance to examine this sector is connected to its macroeconomic status and microeconomic effects. Even it would appear at a first sight that large enterprises are the catalysts of the national economy, the opposite can be proved. The highest percentage of the GDP, the highest rate of employment and further macroeconomic indicators are shown by small and medium-sized enterprises. This sector requires a special attention of professionals.

¹⁴⁰ Faculty of Economics and Business, Pan-European University in Bratislava, Tematínska 10, 851 05 Bratislava, Slovakia

¹⁴¹ Faculty of Economics and Business, Pan-European University in Bratislava, Tematínska 10, 851 05 Bratislava, Slovakia

¹⁴² Faculty of Economics and Business, Pan-European University in Bratislava, Tematínska 10, 851 05 Bratislava, Slovakia

The collapse of large enterprises created a place for the establishment of small and medium-sized businesses, which have gradually replaced the activity of their predecessors. Many owners received their business property back, which was transformed to state ownership earlier with the process of nationalization and collectivization. This was a prerequisite for the establishment and development of modern family businesses in Slovakia. Although, family businesses belong to the subgroup of micro or small enterprises, they still have different features. According to the study approved by the European Parliament, 85% of the business in the EU is a family business. They provide about 60% of employment facilities. Family businesses proved to be more effective than businesses with non-family character. The importance they have in the national economy is undoubtable.

Prof. Ladislav Mura is an associate professor and the Head of International Entrepreneurship Department at the Faculty of Economics and Business, Pan-European University in Bratislava, Slovakia. He is a supervisor for master and doctoral students as well as an author of a number of national and international journal articles. His research interests include: small and medium enterprises, family business, business innovation, impact of internationalisation on business activities, human resource management.



This paper is trying to evaluate the current situation of family businesses in Slovakia, based on a primary research.

2. LITERATURE REVIEW

Competitive advantage is gained by businesses, which are able to identify and fill the gap on the market with their products and services. The competitive environment is constantly forcing the businesses to improve the quality of their products and services, which will have an affect on the company and the customer as well.

The business activity is realized in a certain space and time, while different processes, elements and influences have impact on the business activity. Determinants of the business environment involve areas, which have direct and indirect impact on the business environment. The development of business activity and businesses depends on the quality of the business environment in which they realize their activity.

The business environment is an important factor of the business development, and therefore the state plays an important role as provider of the legislative background. [2] mentions, that evaluation of the business sector is an essential task and important due to the business development. The authors emphasized, that the biggest barriers to business development are unsatisfactory payment discipline and the administrative barriers. Competitiveness of business entities depends on the business environment, especially the quality of it. The quality of the business environment can be quantified by different approaches. The most important for businesses is the existence of barriers and obstacles they have to face every day. Barriers have negative impact on the business activity and act as an obstacle to development. We talk about the state intervention, when different tools are used by the state to regulate the business sector, as well as to implementation of policy to fulfill the interests of the state. Detailed analysis of business development barriers was conducted by [9], who identified further barriers of

business development e.g. frequent legislative changes, high contribution payments, flat tax etc. Identifying risks to small and medium-sized enterprises has also been addressed by [4].

Family businesses, as well as small and medium-sized enterprises of non-family business type can be competitive according to [8], if they are provided by adequate conditions and support of the state. The financial sector [11], business partners and the national culture [15] also have external impact on the business environment. The national business environment is also shaped on macro level, the level of the EU [12].

Family businesses have a specific position in each of the national economies based on the principles of the market economy. A family business has specific needs, because as an organizational unit should meet the business interests the family has in mind. Balancing the work and family life is a challenging task. Family businesses are characterized by specific features, as family members are employed in the company. They have to develop both business and family relations. Considering the macroeconomic aspect, these businesses are the most important catalysts of the business sector, due to their high innovation capacity and flexibility [7]. A unique character can be identified in business relations of these businesses, where traditional business relationship with business partners has also a friendly character. All of the mentioned features of family businesses determine them to deserve the interest of professionals, politicians and the general public to support their activity.

Current businesses of a family character have been present on the Slovak market since the change of the economic system. During the era of planned economy private entrepreneurship was impossible. The family businesses in Slovakia have a long history, because following the Second World War these types of businesses were typical representatives of the business sector. Their personal approach and interest in meeting the customer need was really strong. Today, such a strong bond cannot be identified. Family businesses provide different atmosphere and different approach towards their customers and business partners to meet their needs and interest compared to competitors on the market. The basis for successful family business is a viable business plan, which the companies would like to realize on the market.

Among others [16] has also been interested in the evaluation of small and medium-sized enterprises and family businesses. On the example of Bulgarian businesses identified the differences; found family businesses more flexible not only in relation to customers, but they proved to be flexible towards the market conditions as well. The Slovak landscape is characterized by agricultural and mountainous areas, therefore business entrepreneurship in the agri-food sector is very important for our economy. The importance of businesses in the agri-sector is identified in providing agricultural commodities and food for the population [1]. Family businesses have a high ratio of representation in the agri-food sector, mainly in mill and bakery sub-sectors. Family businesses have a significant presence in primary production, mainly by self-employed farmers. Their importance is also significant in employment of the rural population [5], even in those areas, where larger investors cannot be expected to invest.

The perspectives of family businesses were also considered by [6]. There is still a gap on the market for innovative family businesses or start-ups [13], which can generate profit for the business owner and provide employment as well. The assessment of the activity of Central European family businesses was also addressed by [3]. According to his findings, there are less businesses of this type in Central European region than in the developed western economies. The issue of family entrepreneurship was also addressed by [13], who pointed to the problem of development of small and medium-sized business segment.

In the following part of our study we will focus on the results of our empiric research and formulate recommendations for the future.

3. OBJECTIVES, MATERIAL AND METHODS

The main objective of this scientific paper is to map the current situation of family business sector in Slovakia. The partial objective of this study is to highlight the strengths, weaknesses, opportunities and threats family businesses face. Another partial objective is to uncover the most important barriers family business face in Slovakia.

The chosen research method was a questionnaire survey to gain primary data. To acquire primary data, we have addressed a total of 350 entrepreneurs from the SME sector, where it was possible to identify the family business character of the enterprise on the basis of macro data in the database of Slovak enterprises. The research was conducted on a sample of 220 family businesses from different self-governing regions of Slovakia. The research was conducted in the time interval of 2016-2017.

Another method we applied was the SWOT analysis. We were interested in to reveal the strengths, weaknesses, opportunities and threats family businesses face. Further methods we applied were synthesis and analysis. Beside primary data, we also analysed secondary data of Small Business Agency. We used foreign and partially domestic scientific literature, publications recorded in scientific databases to gain relevant and up-to-date information in the research field of family businesses.

Mr. Martin Pafčo is a PhD. student at the Department of International Entrepreneurship at the Faculty of Economics and Business, Pan-European University in Bratislava, Slovakia. His research interests include family business, development management, facility management.

4. RESULTS AND DISCUSSION

The empirical part of this contribution deals with the presentation of the results achieved by the authors during realization of the research project aimed at the research of family entrepreneurship in Slovakia. It is important to emphasize in the introductory paragraph, that family businesses form a part of the SME sector, but unlike the uniform classification of small and medium-sized businesses they are difficult to define clearly. The classification of business units is presented in Table 1.

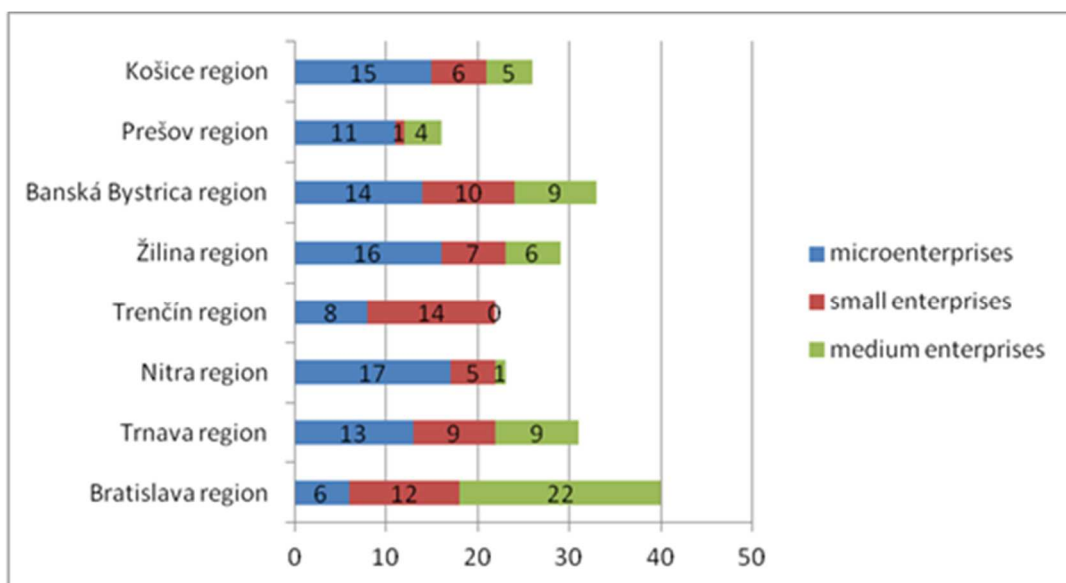
Type of the business	Number of employees	Turnover (mil. €)	Assets (mil. €)
Micro enterprises	0 - 9	≤ 2	≤ 2
Small enterprises	10 - 49	≤ 10	≤ 10
Medium enterprises	50 - 249	≤ 50	≤ 43

Table 1: Classification of small and medium-sized enterprises according to EU Commission no. 2003/361/EC

As it is shown in Table 1, we can distinguish three types of businesses in the SME sector (micro enterprises, small and medium-sized enterprises). This classification is defined in the Commission Recommendation 2003/361/EC, which has been in force in the European Union

since 1 January 2005. Unfortunately, in case of family businesses a definition like this can not be found neither at the level of the EU nor national level. The Slovak law system did not specify the quantitative parameters for family businesses. Although, professionals and the public are both familiar with the activity of family businesses, there is no clear definition for this activity. There are characteristic features of family businesses to differentiate them from other types of companies. This situation makes the research in the field of family businesses even more difficult, and also makes difficult the comparison of entrepreneurial success or the economic data of these businesses.

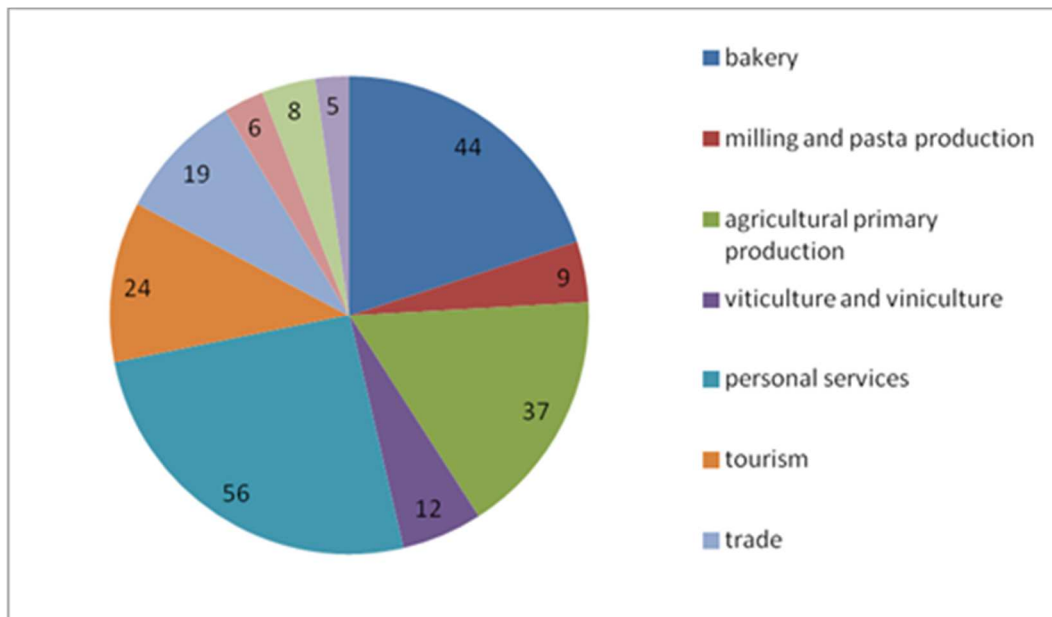
A field survey was applied to conduct our research. 350 businesses were addressed from the SME sector, where features of family businesses could be identified based on macro data from the database of Slovak enterprises. 62,85% of the businesses joined the research, which represents 220 family businesses. The businesses involved in the survey represented the eight self-governing regions of Slovakia. Identifying variables are presented in a form of a graph.



Graph 1 Dispersal of family businesses involved in the research

Graph 1 presents the dispersal of family businesses by the region where they reside and the size of the business. Most of the family micro enterprises are from Nitra, Žilina and Košice region, while less representation can be identified from Bratislava, Trenčín and Prešov region. Majority of the small family businesses were from Trenčín, Bratislava and Banská Bystrica region, while the least representation of these types of businesses can be recognized in Prešov, Nitra and Košice region. The medium-sized family businesses are mainly represented in Bratislava region; significantly lower is the ratio of these types of businesses in Trnava and Banská Bystrica regions. Although it is not a statistically representative sample, an in-depth analysis will show, that the size of family businesses is copying the local economic and geographic conditions of the region. Where representation of larger companies is high, the organic growth for family enterprises is also vital. Where the appropriate geographical conditions for development of business in service sector are met, representation of micro businesses of family type is higher.

We were also interested in the business sector the family businesses conduct their activity. The situation is illustrated in Graph 2.



Graph 2 Sectors family businesses operate in

We were interested in the fact, whether there is a correlation between the size of the business and the sector they operate in. The statistical sample can prove the existence of this correlation. Micro enterprises of family type are mainly represented in the following sectors: bakery and other sectors providing personal service e.g. hairdressers and beauty saloons, shoe repair, sewing and repair of clothing, car repair and language schools. The third sector is the agricultural primary production. According to the respondents, this sector finds it difficult to ensure the continuity of the business, as the young generation shows no interest in doing business activity in this sector of the economy. The main reason is the low financial return and demanding character of the work. The fourth in a rank is tourism. Although viticulture and viniculture are considered to be broader agricultural activities, there is no problem to solve the generation change in the sector. The last “green” sector is represented by milling and pasta production. Family businesses are represented sporadically in the heavy industry; mainly the field of engineering and the electrotechnical industry.

Ms. Lucia Rafajová is a PhD. student at the Department of International Entrepreneurship at the Faculty of Economics and Business, Pan-European University in Bratislava, Slovakia. Her research interests include family business, small and medium enterprises and generational exchange.

The next part of our research focuses on the barriers family businesses face and deal with. The barriers to entrepreneurship are those negative factors, that do not allow the business to develop or not in that measure that it can fully exploit its production or other potentials. Table 2 introduces the barriers in a synthesized form that business face in everyday practice. The barriers in the business sector can be divided into three main areas: administrative-legal barriers to business development, interaction of business and family matters and the problem of younger generation taking over the business activity to ensure the continuity of the business. While the first area of barriers (external barriers) are affecting the business from the macroenvironment of the enterprise, the further two areas (internal barriers) affecting the business activity are found in the internal environment of the business. External barriers are difficult to influence directly, so the businesses have to accept them. In case of internal barriers, it is up to the

business owner or the manager of the business to organize the activities and the management of the company to ensure a smooth business operation.

Factor	External barriers	Internal barriers
Administrative burden	The establishment and record of businesses in Slovakia is unnecessarily complicated.	
Tax burden	Complex and high tax burden, as well as high social security and health contributions.	
Legislation	Unstable environment with constantly and dynamically changing legal norms and regulations.	
State regulations	Some business activities are required to meet regulatory conditions and some sectors are not liberalized.	
Availability to financial resources	The availability of financial resources for start-ups and young entrepreneurs is limited.	
Generational exchange		The current generation of business owners is facing the problem of generational exchange. There is no targeted education/training of the young generation who would take over the business and continue the business activity.
Work-life balance		There is no agreement in decisions within a family.
Internal organization of work		There is no willingness between the owner of business and managers to agree on certain issues.

Table 2 Obstacles and barriers to development of Slovak family businesses

Table 2 shows, that there are still many external barriers in Slovakia complicating the existence and development of family entrepreneurship. Indicators shown in the table were the most important for entrepreneurs who participated in the research. Although the business environment has improved over the past few years, it can be considered to be a small change. Return to different tax rates, increase of administrative burden in different fields of entrepreneurship, complicated system of social security contributions, poor support of young entrepreneurs and start-ups are still the most serious obstacles to deal with. The most serious internal problem of the family businesses, especially those, which were established after the political and economic change of 1989, is the generational exchange to ensure the continuity of the business activity. The problem of generation exchange is serious, because only a low percentage of family businesses in Slovakia have paid attention on education/training of the

young generation to develop natural interest in the business activity and take over the company to ensure the continuity of the business. The second internal barrier of Slovak family business sector is to maintain a healthy work-life balance. It is a challenging task on emotional, psychical and organizational level of different activities.

CONCLUSION

In the Slovak economy based on market principles, small and medium-sized enterprises play an essential role. A particular group in this business segment is the family business, which can be characterized by several features to be differentiated from other businesses. Family businesses play an important role in the development of the market economy, providing workplaces, generate large share of the GDP, innovate and implement innovations. They are the catalysts of the business sector. This study provides an evaluation of the current situation in the sector of family businesses on the basis of our primary research conducted in the time interval of 2016-2017. The survey sample is made up of 220 business units of family business type. In conclusion, we present the most important findings and recommendations for business practice:

- most of the family businesses operate in areas, where they complement the activities of larger businesses; in areas where their existence is determined by geographical conditions,
- typical sectors, where family businesses are represented are the sectors of the agro-food industry,
- family micro businesses are mainly represented in the personal service sector,
- the most important external barriers are the administrative burden, tax burden, the constantly changing legislation and the availability of financial sources for start-ups and young entrepreneurs,
- the most distinctive internal barrier in the family business is the generational change.

Acknowledgement

This paper is a partial output of the research project – Internationalization of Activities of Family Businesses – Theoretical Background – Practical Implications, supported by the Grant Agency of the Academic Alliance (GAAA).

REFERENCES

- [1] Adamišín, P., Kotulič, R. (2013). Evaluation of the agrarian businesses results according to their legal form. *Agricultural Economics-Zemедelska Ekonomika*, 59 (9), pp. 396-402
- [2] Andrejovska, A., Banociova, A. (2014). Payment discipline in business environment. *Procedia Economics and Finance*, 15, pp. 1217-1224
- [3] Dalewski, Z. (2015). Family business: Dynastic power in central Europe in the earlier middle ages. *Viator-Medieval and Renaissance Studies*, 46 (1), pp. 43-59
- [4] Havierniková, K. (2015). The sources's risk identification of small and medium sized enterprises in the process of the cluster's cooperation from the view of female entrepreneurs. *Znalosti pro trzni praxi 2015: zeny - podnikatelky v minulosti a soucasnosti*, pp. 190-198
- [5] Hudáková, M. (2011). Staffing of small and medium-sized enterprises - regional aspect. *Proceedings from the 9th International conference economic policy in the European union member countries*, pp. 140-146

- [6] Chrismann, J.J., Chua, J. H., Litz, R. (2003). A unified systems perspective of family firm performance: an extension and integration. *Journal of Business Venturing*, 18 (4), pp. 467-472
- [7] Jasinskas, E., Majauskiene, D. (2016). Influence of the Innovation Barrier Management on the Competitive Ability of a Hotel, *Transformations in Business & Economics*, 15 (2B, 38B), pp. 596-614
- [8] Korcsmáros, ED., Csiba Zs. (2011). The effect of economic slump to the competitiveness of SME sector (by the right of research in Madnet plc.). *Aktualne pohľady na konkurencieschopnosť a podnikanie - nove vyzvy*, pp. 236-242.
- [9] Small Business Agency. (2016). *Správa o stave malého a stredného podnikania v Slovenskej republike v roku 2015*, 166 p.
- [10] Sobeková Májková, M. (2011) The analysis of barriers and factors of small and medium-size enterprises financing in the Slovak Republic. *Ekonomicky casopis*, 59 (10), pp. 1033-1049
- [11] Sobeková Májková, M., Solik, J., Sipko, J. (2015) Problems with financing of SMEs as one of the business risks in the conditions of Slovakia. *Finance and performance of firms in science, education and practice*, pp. 1374-1389
- [12] Spoz, A. (2014). Significance of the EU Funds in Investments of Small and Medium-Sized Enterprises. *Oeconomia Copernicana*, 5(4), pp. 61-74
- [13] Strazovska, L. (2015). Family business in the Slovak Republic. *Globalization and its socio-economic consequences PTS I AND II*, pp. 716-722, 2015
- [14] Štarchoň, P., Lizbetinova, L., Weberova, D. (2016). Clustering in Relation to Brand Perception: An Example Based on Czech Consumers. *Vision 2020: Innovation management, development sustainability, and competitive economic growth, 2016, vols I – VII*, pp. 2271-+
- [15] Šúbertova, E., Meszarosova, Z. (2015). Comparison of perception of external influences on family businesses in the Slovak Republic and in selected european country. *Finance and performance of firms in science, education, and practice*, pp. 1511-1523
- [16] Yordanova, D.I. (2016). Differences between Bulgarian family and non-family businesses: A multivariate logit approach. *International Review of Management and Marketing*, 6 (4), pp. 779-789

COMPARATIVE COUNTRY STUDIES. CASE OF V4 COUNTRIES

Pawel Dobrzanski¹⁴³

Abstract: *After 1990 V4 countries have made significant improvement in terms of economic growth and international competitiveness. Transition from centrally planned to market economy through shock therapy in Poland and other slowest methods used in other Visegrad countries have started new period in V4 history. Integration with European Union intensified the economic development.*

This paper focuses on the competitiveness aspect of V4 countries. Author investigates which of these countries is the most competitive according to Global Competitiveness Index, emphasizing the strengths and weaknesses of the examined economies. Main research methods are comparative analysis and historical case studies used to present role of competitiveness in studied countries. The analysis shows a clear gap between V4 countries. Czech Republic is being classified as innovation-driven economy, as opposed to the Poland, Slovak Republic and Hungary which are classified under transition from stage 2 (efficiency driven economics) to stage 3 (innovation-driven economies). Moreover author will try to verify hypothesis measuring correlation between competitiveness and economic growth (GDP). Based on literature review and data analysis suggestions for policy makers are provided.

Key words: *Comparative country studies, Economic growth, Competitiveness*

6. INTRODUCTION

Poland, Czech Republic, Hungary and Slovakia from historical, geopolitical and cultural point of view are very similar. Since 1990 The Visegrad Group countries (V4) managed to transform from centrally planned to market economies. All countries implemented package of reforms proposed by the International Monetary Fund and the World Bank. Poland applied shock therapy [1], while Hungary, the Czech Republic and Slovakia went through graduate structural changes [2]. The privatization of the state sector has totally changed the structure of the productive sector. Trade liberalization has changed the geographical orientation of trade. V4 countries have turned to the European Community. Accession of Central European countries to the European Union in 2004 intensified economic development. Liberalization, privatization and stabilization created fundamentals for V4 countries to become competitive European economies.

V4 group countries in last years noted significant economic development. Their competitiveness was improving from year to year. After years of accelerating growth V4 countries seems to be slowing down and may get stuck in middle income group. Gap between western and eastern Europe does not seems to decrease. Further analysis will focus on competitiveness of V4 group countries. Author will investigate which one of those countries is the most competitive. Moreover, Author will focus on innovation aspect of competitiveness, which nowadays seems to be one of main engines of economic growth.

¹⁴³ Wroclaw University of Economics, Poland

7. INTERNATIONAL COMPETITIVENESS

Improving county competitiveness is nowadays one of the main goals of the state. Identification of factors affecting the competitiveness of the economy helps in understanding the determinants of socio-economic development for one country and development delays for others. International competitiveness is considered from different perspectives, including, inter alia, analyzing the determinants of competitiveness and rankings. Among the most important for the development of the theory of international competitiveness are: D. Ricardo, M. Porter, K. Hughes, P. Krugman, J. Sachs, G. Stone, L. Tysson, H. Siebert, C. Oughton, W. Whittman and J. Fagerberg.

Definitions of international competitiveness can be distinguished into two basic groups. The first one refers to the place of the country in the world economy and the results achieved in foreign trade. Competitiveness is the ability to maintain and even increase market share. In the second one, the general or episodic performance of the national economy is much more strongly emphasized. The first group of definitions discussed is rooted in exchange theory, while the other is derived from the theory of growth or economic development.

Economic competitiveness is the result of various causes. During years the role of the individual factors of economic growth has changed. Therefore, classic economics stressed the importance of other factors to multiply the wealth of nations than it is done in the modern economy, especially the most recent [3]. Currently, the most competitive countries considered to be those that achieve high level of economic growth, which translates into a growing prosperity and standard of living of its citizens. Competitiveness is dependent on both economic and social factors.

Many authors are emphasizing importance of innovation level of economy in increasing economic performance of the country. According to M.E. Porter wealth of nations is formed rather than inherited. It does not grow out of the natural wealth of the country, its labor force, its interest rates, or the value of its currency, as maintained by classical economics. Nation's competitiveness depends on the ability of its industry to innovate and to improve its development. As the basis of competition increasingly becomes the creation and absorption of knowledge, the specificity of the countries concerned increases [4]. In similar context, J. Fagerberg defines competitiveness as the ability to exploit technological change in a world of changing technology. [5].

Increasing globalization, information revolution and the rapid technological progress are considered to be the most important conditions for creating a new competitive landscape. As result of increasing importance of innovation state began to conduct intensive innovation policy. Innovation and technology development are the outcome of a complex set of interactions among enterprises, universities and government research institutes. Correct understanding of the national innovation system can help to identify leverage points for improving innovative performance and overall competitiveness [6].

8. PERFORMANCE OF V4 ECONOMIES AFTER TRANSITION

Published yearly by World Economic Forum *The Global Competitiveness Report* (GCR) is one of the most popular competitive reports. The report measures competitiveness as the set of institutions, policies, and factors that determine the level of productivity of a country. The level of productivity sets the level of prosperity that can be reached by an economy. GCR ranks

countries based on Global Competitiveness Index (GCI), which has been developed by Sala-i-Martin and Artadi. GCI combines macro and micro economic indicators of competitiveness into one single index [7].

In the ranking of 2016-2015 Poland, Czech Republic, Slovak Republic and Hungary have obtained good results and were ranked on 36th, 31th, 65th and 69th place (see Table 1,3,5,7). Three of these countries (Poland, Czech Republic and Slovak Republic) in 2012-2017 presented positive trends in international competitiveness. Countries received respectively Poland - 4.6, Czech Republic - 4.7, Slovak Republic - 4.3, and Hungary 4.2 out of 7 achievable points. Poland has increased its position to 36th place in the ranking in 2017-2016, while in 2013-2012 Poland was in 41 position.

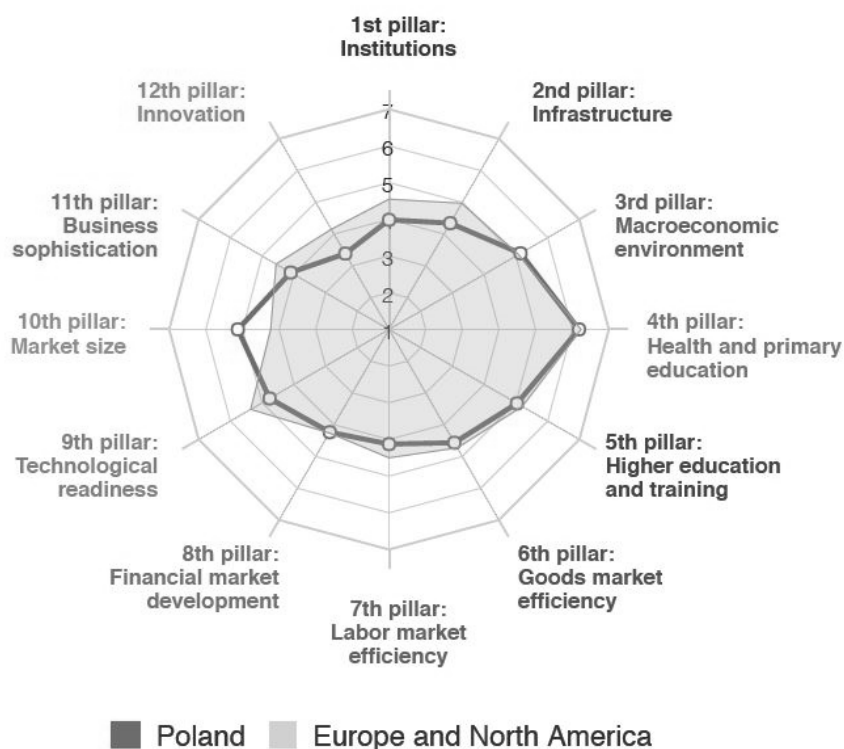


Figure 7 Poland - assessment of the economy in the Global Competitiveness Index 2016/2017
Source : authors' own study based on K. Schwab, 2017, GlobalCompetitivenessReport 2017-2016, p.298, http://www3.weforum.org/docs/GCR2016-2017/05FullReport/TheGlobalCompetitivenessReport2016-2017_FINAL.pdf >[Accessed 20 November 2017].

Table 1 Scores for Poland in Global Competitiveness Index

Global Competitiveness Index	2017-2016	
Poland	Rank/138	Score(1-7)
Global Competitiveness Index	36	4,6
Subindex A: Basic requirements	45	4,9
1st pillar: Institutions	65	4
2nd pillar: Infrastructure	53	4,3
3rd pillar: Macroeconomic environment	45	5,1
4th pillar: Health and primary education	38	6,2
Subindex B: Efficiency enhancers	34	4,6
5th pillar: Higher education and training	37	5
6th pillar: Goods market efficiency	47	4,6
7th pillar: Labor market efficiency	79	4,1

8th pillar: Financial market development	46	4,8
9th pillar: Technological readiness	46	4,8
10th pillar: Market size	21	5,1
Subindex C: Innovation and sophistication factors	55	3,7
11th pillar: Business sophistication	54	4,1
12th pillar: Innovation	60	3,4

Source : authors' own study based on K. Schwab, 2017, GlobalCompetitivenessReport 2017-2016, p.298, http://www3.weforum.org/docs/GCR2016-2017/05FullReport/TheGlobalCompetitivenessReport2016-2017_FINAL.pdf >[Accessed 20 November 2017].

Poland received the highest scores for health and primary education (6,2),market size (5,1) and macroeconomic environment (5,1) while the weakest results of Poland were recorded with innovation (3,4), institutions (4,0) and labor market efficiency (4,1).

Table 2 Indicators from IMF and previous scores from GCI

Poland	International Monetary Fund: World Economic Outlook Database (2015)				2016-2015	2015-2014	2014-2013	2013-2012	Trend
	Popul ation	GDP (US\$ billions)	GDP per capita (US\$)	GDP (PPP) % world GDP	Rank/ 140	Rank/ 144	Rank/ 148	Rank/ 144	
Score	38	474,9	12495,3	0,89	41	43	42	41	Posi tive

Source : authors' own study based on K. Schwab, 2017, GlobalCompetitivenessReport 2017-2016, p.298, http://www3.weforum.org/docs/GCR2016-2017/05FullReport/TheGlobalCompetitivenessReport2016-2017_FINAL.pdf >[Accessed 20 November 2017].

Poland is the biggest country from examined countries with population around 38 mln people. GDP per capita in 2015 obtain 12 495 USD. Its worth to underline that Poland belongs to a group of countries that are located between 2nd and 3rd stage of development.

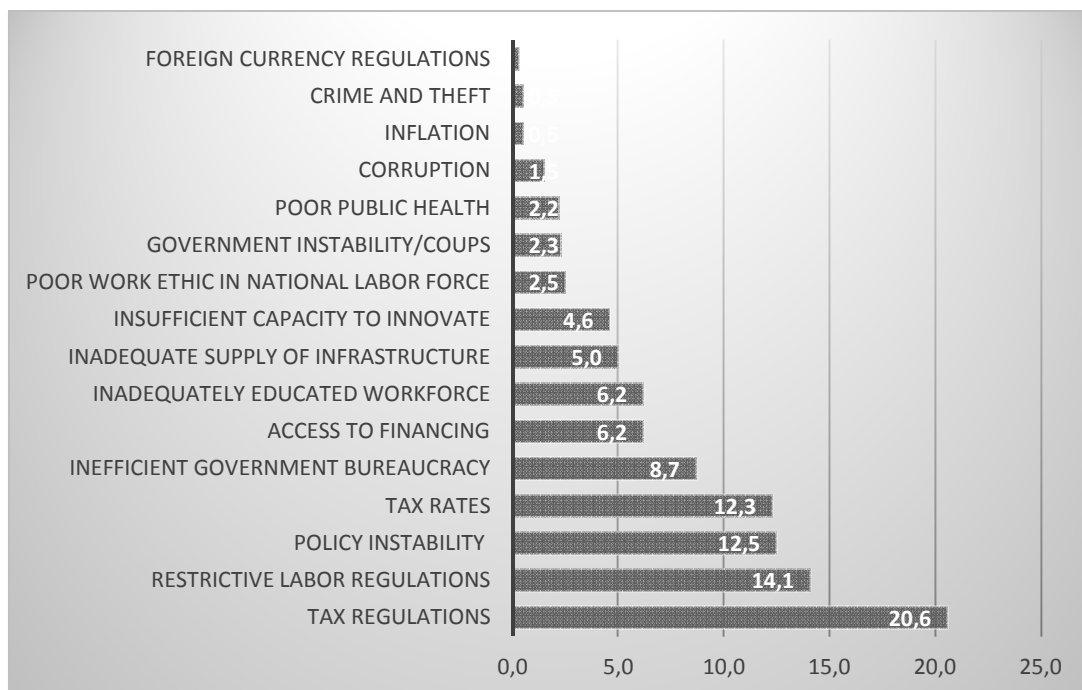


Figure 8 The most problematic factors for doing business – Poland

Source : authors' own study based on K. Schwab, 2017, GlobalCompetitivenessReport 2017-2016, p.289, http://www3.weforum.org/docs/GCR2016-2017/05FullReport/TheGlobalCompetitivenessReport2016-2017_FINAL.pdf >[Accessed 20 November 2017].

According to GCR, weaknesses of the Polish system are tax regulations, restrictive labor regulations, policy instability and tax rates – see Figure 2.

Czech Republic has increased its position to 31th place in the ranking in 2017-2016, while in 2013-2012 Czech Republic was in 39 position.

Table 3 Scores for Czech Republic in Global Competitiveness Index

Global Competitiveness Index	2017-2016	
Czech Republic	Rank/138	Score(1-7)
Global Competitiveness Index	31	4,7
Subindex A: Basic requirements	31	5,3
1st pillar: Institutions	54	4,2
2nd pillar: Infrastructure	43	4,7
3rd pillar: Macroeconomic environment	19	5,9
4th pillar: Health and primary education	25	6,3
Subindex B: Efficiency enhancers	27	4,8
5th pillar: Higher education and training	27	5,2
6th pillar: Goods market efficiency	36	4,7
7th pillar: Labor market efficiency	44	4,5
8th pillar: Financial market development	27	4,7
9th pillar: Technological readiness	29	5,5
10th pillar: Market size	46	4,4
Subindex C: Innovation and sophistication factors	35	4,1
11th pillar: Business sophistication	32	4,5
12th pillar: Innovation	37	3,8

Source : authors' own study based on K. Schwab, 2017, GlobalCompetitivenessReport 2017-2016, p.160, http://www3.weforum.org/docs/GCR2016-2017/05FullReport/TheGlobalCompetitivenessReport2016-2017_FINAL.pdf >[Accessed 20 November 2017].

Czech Republic received the highest scores for health and primary education (6,3), macroeconomic environment (5,9) and technological readiness (5,5), while the weakest results of the Czech Republic were recorded with innovation (3,8), institutions (4,2) and market size (4,4).

Pawel Dobrzański, Ph.D., is an Assistant Professor at the Wrocław University of Economics (Faculty of Economic Science, Department of Mathematical Economics). He is also a Secretary of CEDIMES Poland (Centre for Studies in International Development and Economic and Social Movements) and a Deputy Editor-in-Chief of the Journal of Business and Economic Horizons. Over the past years, Professor Pawel Dobrzanski has carried out many research projects on international competitiveness, efficiency of economic system, growth theories and government policy. His research have been presented in many international conferences (inter alia in USA, Canada, France, Italy, Russia, Ukraine, Austria) and published in numerous journals in the Polish, English and Russian languages. He received the CEDIMES Institute's award for the best Ph.D. dissertation in 2015.



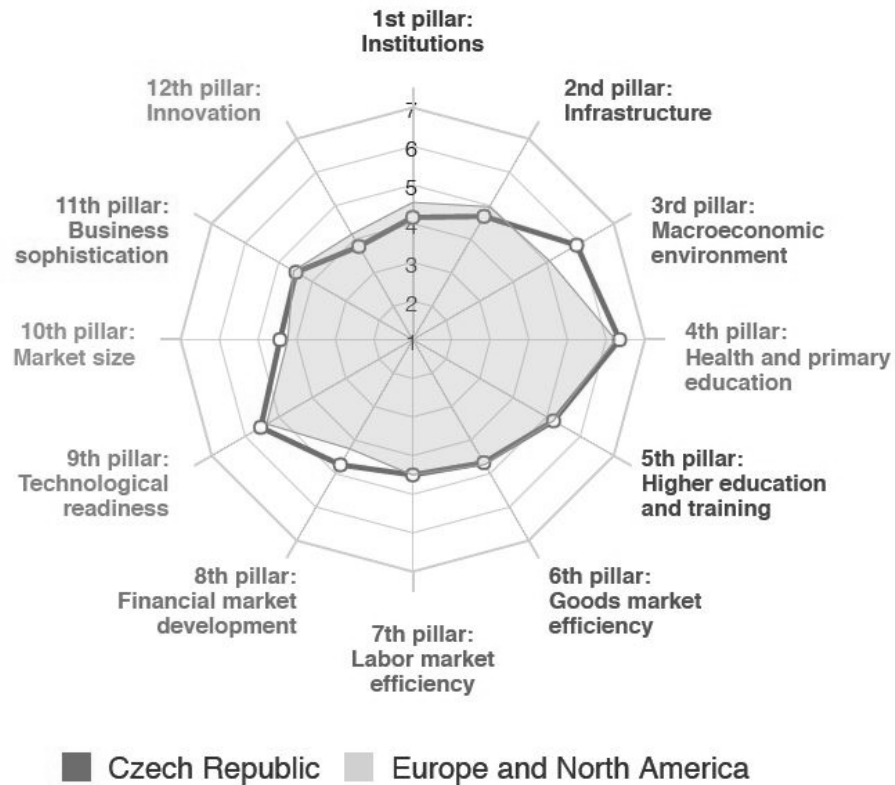


Figure 9 Czech Republic - assessment of the economy in the Global Competitiveness Index 2016/2017
 Source : authors' own study based on K. Schwab, 2017, GlobalCompetitivenessReport 2017-2016, p.160,
http://www3.weforum.org/docs/GCR2016-2017/05FullReport/TheGlobalCompetitivenessReport2016-2017_FINAL.pdf >[Accessed 20 November 2017].

Table 4 Indicators from IMF and previous scores from GCI

Czech Republic	International Monetary Fund: World Economic Outlook Database (2015)				2016-2015	2015-2014	2014-2013	2013-2012	
Key indicators/Rank in GCI	Population	GDP (US\$ billions)	GDP per capita (US\$)	GDP (PPP) % world GDP	Rank/140	Rank/144	Rank/148	Rank/144	Trend
Score	10,5	181,9	17256,9	0,29	31	37	46	39	Positive

Source : authors' own study based on K. Schwab, 2017, GlobalCompetitivenessReport 2017-2016, p.160,
http://www3.weforum.org/docs/GCR2016-2017/05FullReport/TheGlobalCompetitivenessReport2016-2017_FINAL.pdf >[Accessed 20 November 2017].

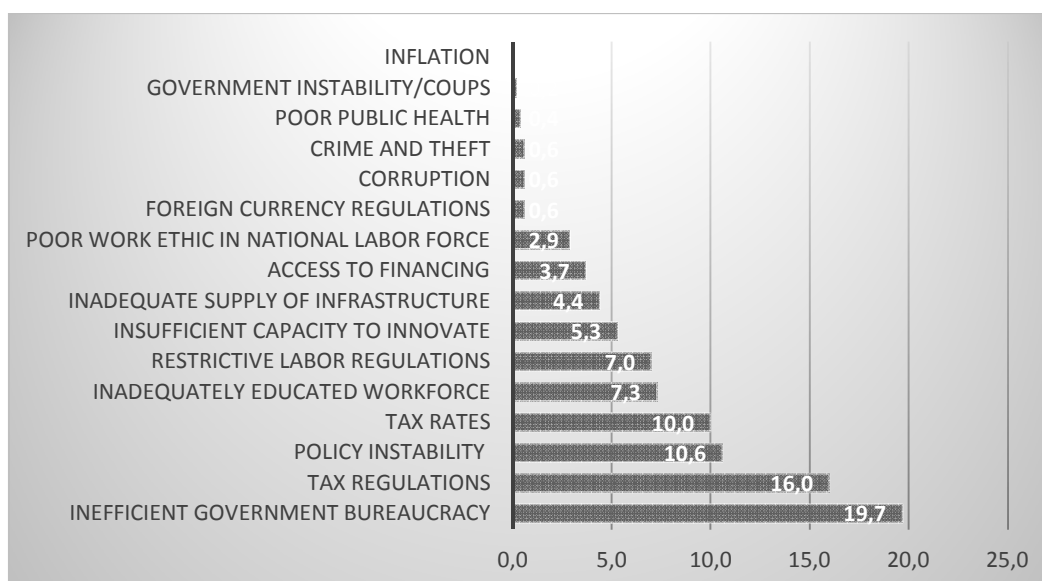


Figure 10 The most problematic factors for doing business – Czech Republic

Source : authors' own study based on K. Schwab, 2017, GlobalCompetitivenessReport 2017-2016, p.160, http://www3.weforum.org/docs/GCR2016-2017/05FullReport/TheGlobalCompetitivenessReport2016-2017_FINAL.pdf >[Accessed 20 November 2017].

According to GCR, weaknesses of the Czech Republic system are inefficient government bureaucracy, policy instability and tax rates – see Figure 4.

Slovak Republic has increased its position to 651th place in the ranking in 2017-2016, while in 2013-2012 Slovak Republic was in 71 position.

Table 5 Scores for Slovak Republic in Global Competitiveness Index

Global Competitiveness Index	2017-2016	
Slovak Republic	Rank/138	Score(1-7)
Global Competitiveness Index	65	4,3
Subindex A: Basic requirements	54	4,7
1st pillar: Institutions	102	3,5
2nd pillar: Infrastructure	61	4,2
3rd pillar: Macroeconomic environment	37	5,3
4th pillar: Health and primary education	55	6
Subindex B: Efficiency enhancers	47	4,4
5th pillar: Higher education and training	61	4,5
6th pillar: Goods market efficiency	53	4,5
7th pillar: Labor market efficiency	93	4
8th pillar: Financial market development	33	4,6
9th pillar: Technological readiness	44	4,8
10th pillar: Market size	61	4
Subindex C: Innovation and sophistication factors	57	3,7
11th pillar: Business sophistication	55	4,1
12th pillar: Innovation	68	3,3

Source : authors' own study based on K. Schwab, 2017, GlobalCompetitivenessReport 2017-2016, p.320, http://www3.weforum.org/docs/GCR2016-2017/05FullReport/TheGlobalCompetitivenessReport2016-2017_FINAL.pdf >[Accessed 20 November 2017].

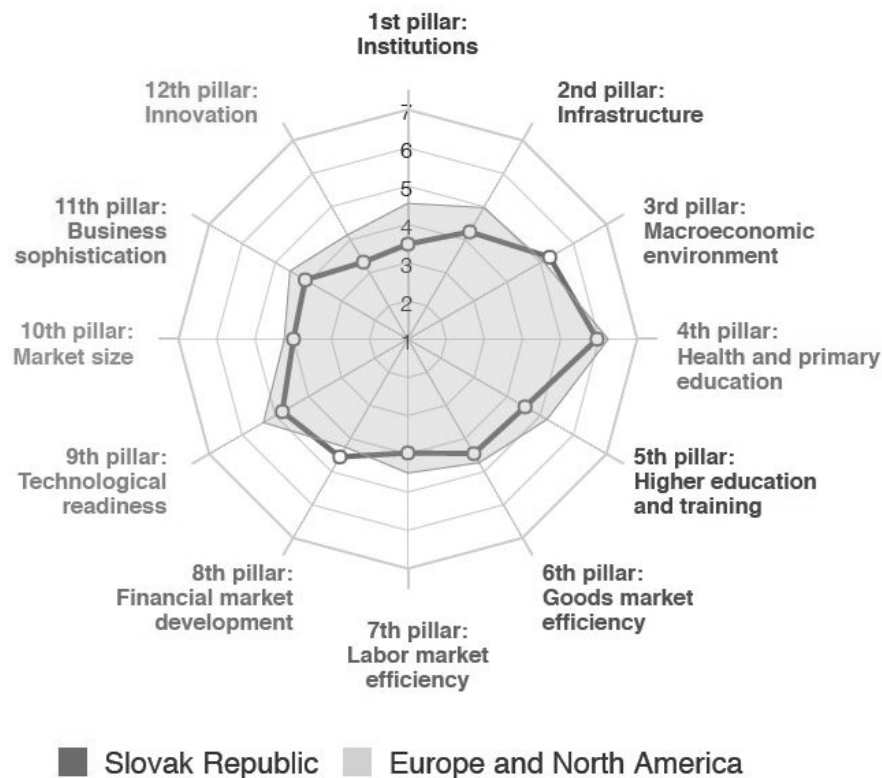


Figure 11 Slovak Republic - assessment of the economy in the Global Competitiveness Index 2016/2017
 Source: authors' own study based on K. Schwab, 2016, p. 320, [online] Available at:<
http://www3.weforum.org/docs/GCR2016-2017/05FullReport/TheGlobalCompetitivenessReport2016-2017_FINAL.pdf>[Accessed 20 November 2017].

Slovak Republic received the highest scores for health and primary education (6,0), macroeconomic environment (5,3) and Technological readiness (4,8) while the weakest results of Poland were recorded with innovation (3,3), institutios (3,5) and labor market efficiency (4,0).

Table 6 Indicators from IMF and previous scores from GCI

Slovak Republic	International Monetary Fund: World Economic Outlook Database (2015)				2016-2015	2015-2014	2014-2013	2013-2012	
Key indicators/Rank in GCI	Population	GDP (US\$ billions)	GDP per capita (US\$)	GDP (PPP) % world GDP	Rank/140	Rank/144	Rank/148	Rank/144	Trend
Score	5,4	86,6	15991,7	0,14	67	75	78	71	Positive

Source: authors' own study based on K. Schwab, 2017, GlobalCompetitivenessReport 2017-2016, p.320, http://www3.weforum.org/docs/GCR2016-2017/05FullReport/TheGlobalCompetitivenessReport2016-2017_FINAL.pdf>[Accessed 20 November 2017].

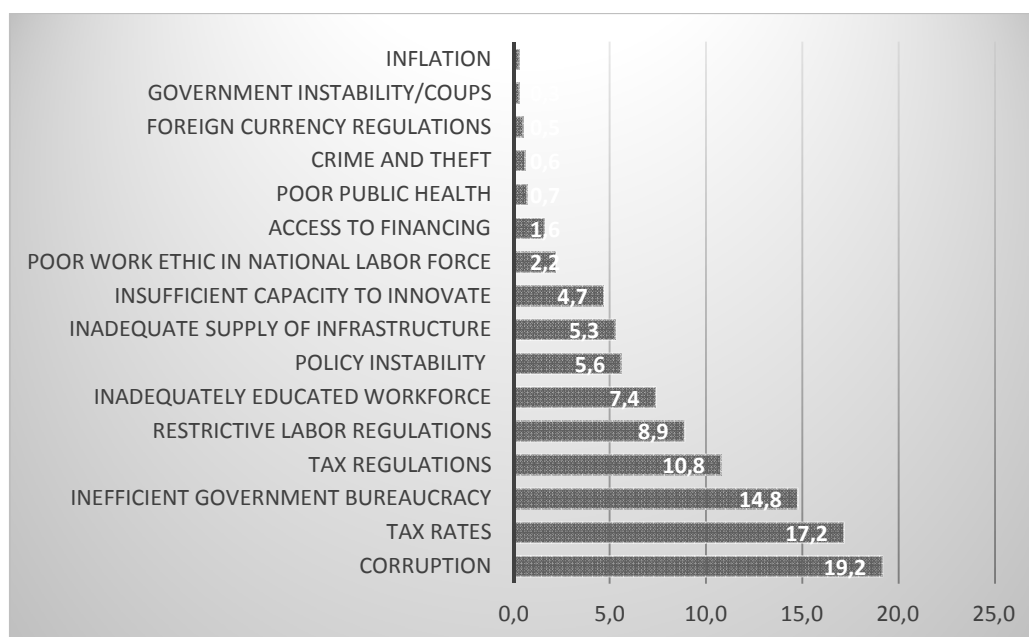


Figure 12 The most problematic factors for doing business – Slovak Republic

Source: authors' own study based on K. Schwab, 2016, p. 320, [online] Available at: <http://www3.weforum.org/docs/GCR2016-2017/05FullReport/TheGlobalCompetitivenessReport2016-2017_FINAL.pdf> [Accessed 20 November 2017].

According to GCR, weaknesses of the Slovak Republic system are corruption, tax rates, inefficient government bureaucracy and tax rates – see Figure 6.

Hungary has dropped its position to 69th place in the ranking in 2017-2016, while in 2013-2012 Hungary was in 60 position.

Table 7 Scores for Slovak Republic in Global Competitiveness Index

Global Competitiveness Index	2017-2016	
Hungary	Rank/138	Score(1-7)
Global Competitiveness Index	69	4,2
Subindex A: Basic requirements	69	4,6
1st pillar: Institutions	114	3,3
2nd pillar: Infrastructure	62	4,2
3rd pillar: Macroeconomic environment	47	5,1
4th pillar: Health and primary education	78	5,6
Subindex B: Efficiency enhancers	56	4,3
5th pillar: Higher education and training	72	4,4
6th pillar: Goods market efficiency	59	4,4
7th pillar: Labor market efficiency	80	4,1
8th pillar: Financial market development	70	4
9th pillar: Technological readiness	54	4,5
10th pillar: Market size	53	4,3
Subindex C: Innovation and sophistication factors	97	3,4
11th pillar: Business sophistication	113	3,5
12th pillar: Innovation	80	3,2

Source : authors' own study based on K. Schwab, 2017, GlobalCompetitivenessReport 2017-2016, p.320, http://www3.weforum.org/docs/GCR2016-2017/05FullReport/TheGlobalCompetitivenessReport2016-2017_FINAL.pdf > [Accessed 20 November 2017].

Hungary received the highest scores for health and primary education (5,6), macroeconomic environment (5,1) and technological readiness (4,5) while the weakest results Hungary were recorded with innovation (3,2), institutions (3,3) and labor market efficiency (4,1).

Table 8 Indicators from IMF and previous scores from GCI

Hungary	International Monetary Fund: World Economic Outlook Database (2015)				2016-2015	2015-2014	2014-2013	2013-2012	
Key indicators/Rank in GCI	Population	GDP (US\$ billions)	GDP per capita (US\$)	GDP (PPP) % world GDP	Rank/140	Rank/144	Rank/148	Rank/144	Trend
Score	38	474,9	12495,3	0,89	63	60	63	60	Negative

Source : authors' own study based on K. Schwab, 2017, GlobalCompetitivenessReport 2017-2016, p.198, http://www3.weforum.org/docs/GCR2016-2017/05FullReport/TheGlobalCompetitivenessReport2016-2017_FINAL.pdf >[Accessed 20 November 2017].

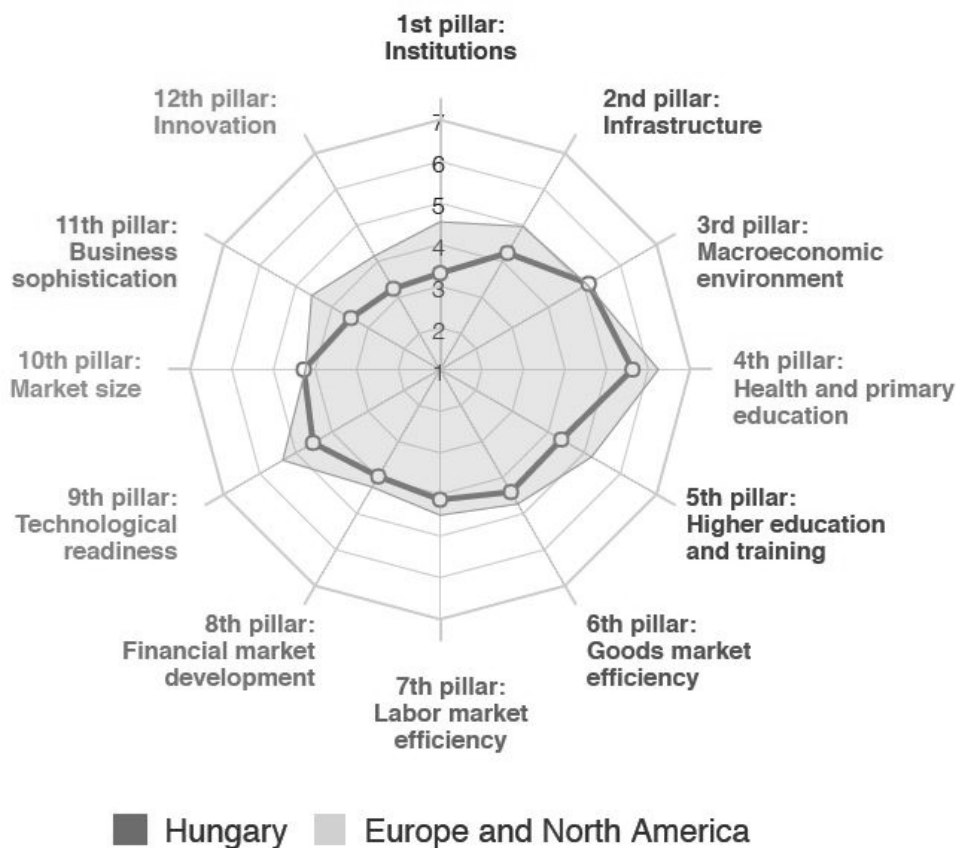


Figure 13 Hungary - assessment of the economy in the Global Competitiveness Index 2016/2017
 Source: authors' own study based on K. Schwab, 2016, p. 198 , [online] Available at:< http://www3.weforum.org/docs/GCR2016-2017/05FullReport/TheGlobalCompetitivenessReport2016-2017_FINAL.pdf >[Accessed 20 November 2017].

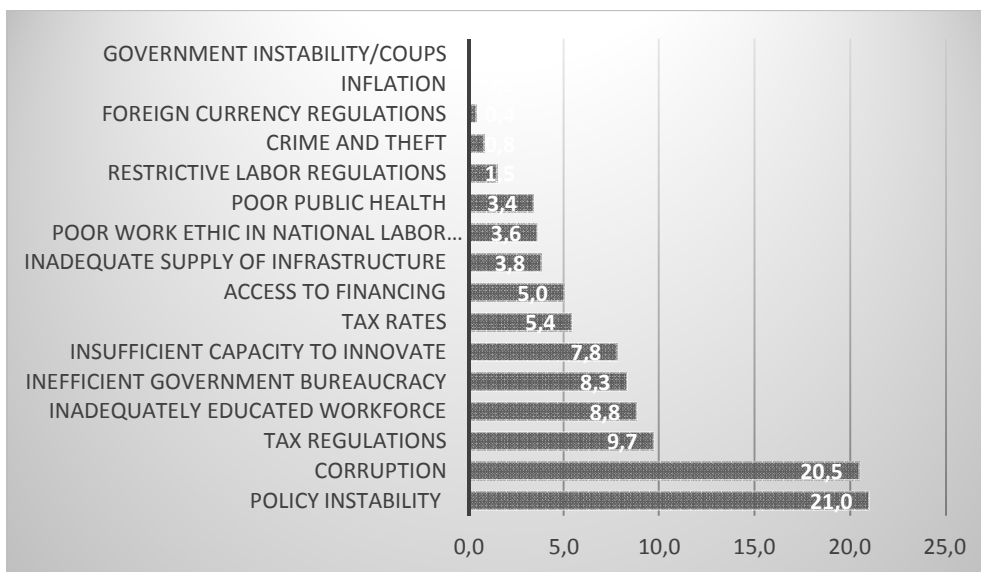


Figure 14 The most problematic factors for doing business – Hungary

Source: authors' own study based on K. Schwab, 2016, p. 198, [online] Available at:<
http://www3.weforum.org/docs/GCR2016-2017/05FullReport/TheGlobalCompetitivenessReport2016-2017_FINAL.pdf >[Accessed 20 November 2017].

According to GCR, major weaknesses of the Hungarian system are policy instability, corruption, tax regulations and inadequately educated workforce – see Figure 8.

9. INNOVATION AS A KEY FACTOR FOR ECONOMIC GROWTH IN V4 GROUP

All V4 countries received in Global Competitiveness Report the worst scores for Innovation. It is worth to check this factor in more details. The European Innovation Scoreboard provides a comparative analysis of innovation performance for EU countries, other European countries, and regional neighbors. It assesses relative strengths and weaknesses of national innovation. It helps Member States assess areas in which they need to concentrate their efforts in order to boost their innovation performance. The performance of EU national innovation systems is measured by the Summary Innovation Index. V4 group countries are in the third group of Moderate Innovators includes Member States where performance is between 50% and 90% of the EU average. [8]

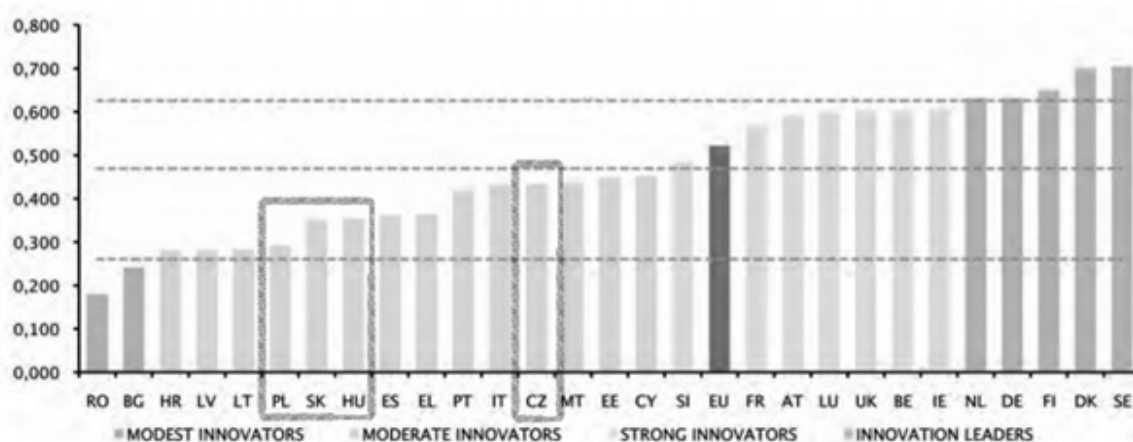


Figure 15 Innovation performance in European Innovation Scoreboard

Source: authors' own study based on European Innovation Scoreboard, [online] Available at:<
http://ec.europa.eu/growth/industry/innovation/facts-figures/scoreboards_en.>[Accessed 14 November]

All four Visegrad Group countries are classified as Moderate Innovators. For Poland over time, performance has increased by 2.0% relative to that of the EU in 2010. Relative strengths for Polish innovation system are in Employment impacts, Firm investments, and Innovation-friendly environment. Relative weaknesses are in Innovators, Linkages, and Attractive research systems. The Czech Republic's performance has declined by 3.5% relative to that of the EU in 2010. Relative strengths of the Czech innovation system are in Firm investments, Employment impacts, and Sales impacts. Relative weaknesses are in Intellectual assets, Linkages, and Innovators. Slovakia has noted the biggest increase in performance by 8.0% relative to that of the EU in 2010. Relative strengths of Slovakian innovation system are Employment impacts, Sales impacts, and Human resources. Relative weaknesses are in Innovators, Intellectual assets, and Attractive research systems. Hungarian innovative performance has declined by 3.5% relative to that of the EU in 2010. Main innovation system strengths are Employment impacts, Sales impacts, and Innovation-friendly environment. Relative weaknesses are in Innovators, Finance and support, and Intellectual assets.

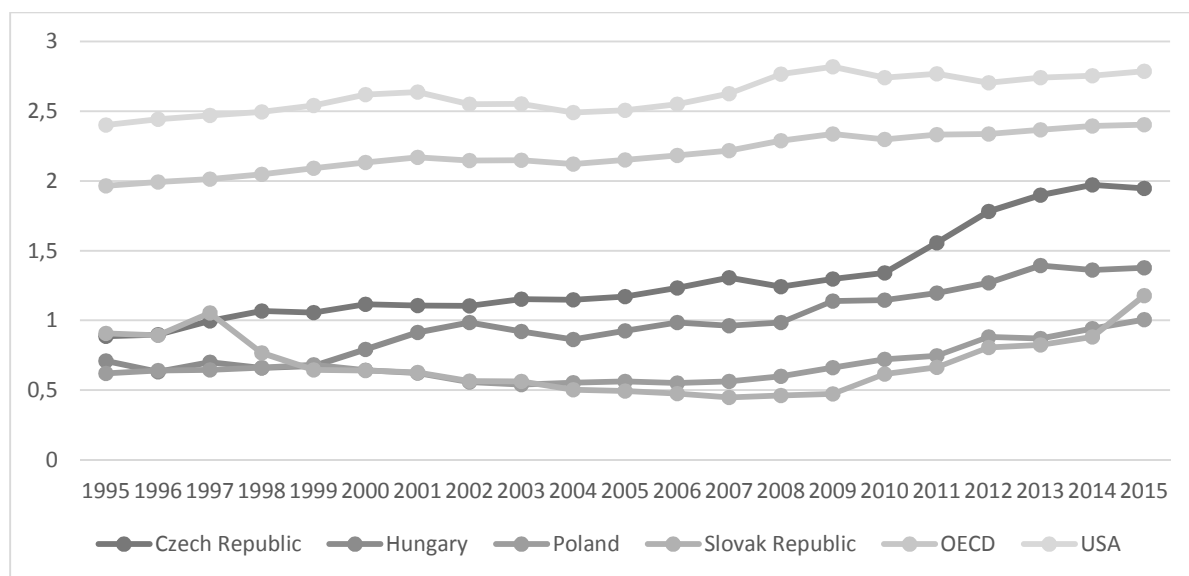


Figure 16 Gross domestic spending on R&D in V4 countries

Source : authors' own study based on OECD data, [online] Available at: < <http://stats.oecd.org/#> > [Accessed 14 November]

Gross domestic spending on R&D are relatively small. According to European Union 2020 Strategy they should be on 3% GDP level. In all V4 countries they are below 2% of GDP. The highest spending are in Czech Republic 1.96% GDP, next is Hungary 1.37% GDP, Slovak Republic 1.17% GDP and Poland with only 1% GDP. Spending on R&D are increasing each year, but comparing to world leader USA they are still very small.

Table 9 International Patent System

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Czech Republic	75.51	75.48	93.42	115.31	110.02	127.21	135.82	145.93	156.03	181.32	172.63	179.46	203.6	207.13
Hungary	117.39	119.8	111.35	165.63	140.38	178.53	152.94	176.93	184.87	163.4	171.88	166.83	157.69	145.39
Poland	59.63	63.32	63.07	73.94	66.93	69.39	74.88	81.33	93.07	105.49	127.21	156.82	156.64	160.35
Slovak Republic	52.8	65.84	50.43	131.42	58.26	61.79	68.28	58.19	60.15	69	81.69	68.05	74.04	83.83
USA	1020.35	1014.54	1040.09	1129.95	1296.85	1354.85	1451.88	1410.36	1297.12	1400.37	1413.54	1507.39	1583.46	1597.96

Source : authors' own study based on International Patent System, [online] Available at: < <http://www.wipo.int/pct/en/> > [Accessed 14 November 2017].

In terms of number of patents to International Patent System Poland is leader with more than 7 thousands patents in 2015. When this indicator will be calculated for 1 mln citizens, then Poland has the second score. Czech Republic in 2014 has 215 patents for million citizens, Poland 160, Hungary 140 and Slovakia 83. Comparing to world leader USA it is still few times less.

10. CONCLUSION

The aim of this article was analysis of competitiveness aspect of V4 countries. The analysis shows a clear gap between V4 countries. In 2017 Global Competitiveness Report Czech Republic is being classified as innovation-driven economy, as opposed to the Poland, Slovak Republic and Hungary which are classified under transition from stage 2 (efficiency driven economics) to stage 3 (innovation-driven economies). All V4 countries received in Global Competitiveness Report the worst scores for Innovation.

When it comes to European innovation index all four countries are classified as Moderate Innovators. Main strengths of V4 innovation systems are Employment impacts, Sales impacts, and Innovation-friendly environment. Main problem are Innovators – low number of SMEs product/process innovations. Moreover spending on innovation are still too small – less than 2% GDP. This is causing small number of patent application.

Over last years, V4 group countries have made significant improvement in terms of economic growth. Transition from centrally planned to market economy and integration with European Union intensified the economic development. However, the progress in catching up with developed countries is nowadays slowing down. Key problem is low level of innovativeness. Investing into Innovation should be key area of the state activity.

REFERENCES

- [1] Balcerowicz, L. (1995). *Socialism, Capitalism, Transformation*. Central European University Press
- [2] Roaf J., Atoyan R., Joshi B., Krogulski K., (2014) *25 Years of Transition Post Communist Europe and the IMF*, Regional Economic Issues Special Report, International Monetary Fund, Washington.
- [3] Wozniak M.G. (2004). *Wzrost gospodarczy. Podstawy teoretyczne [Economic growth. Theoretical basis]*, Wydawnictwo Akademii Ekonomicznej w Krakowie, Kraków.
- [4] Porter, M. E. (1990), *The Competitive Advantage of Nations*, Harvard Business Review 68, no. 2, pp. 73–93.
- [5] Fagerberg J. (1988), *International Competitiveness*, The Economic Journal No. 391, pp. 370-371.
- [6] Freeman, C. (1995), *The National System of Innovation in Historical Perspective*, Cambridge Journal of Economics, No. 19, pp. 5–24
- [7] Sala-i-Martin, X., and Artadi, E. V. (2004). *The Global Competitiveness Index*, The Global Competitiveness Report 2004-2005. Hampshire: Palgrave Macmillan.
- [8] Cornell University, INSEAD, and WIPO (2017): *The Global Innovation Index 2017: Innovation Feeding the World*, Ithaca, Fontainebleau, and Geneva.
- [9] European Commission (2017), *European Innovation Scoreboard 2017* [online] available at: <http://ec.europa.eu/DocsRoom/documents/24829> (accessed 20th of November 2017)

THE IMPACT OF FOREX RATES ON THE STOCK EXCHANGE INDEXES' RETURNS IN SOUTH-EAST EUROPE

Gancho Ganchev¹⁴⁴

Elena Stavrova¹⁴⁵

Vladimir Tsenkov¹⁴⁶

Abstract : *The information efficiency of emerging capital markets is one of the most interesting topics, related to the empirical testing of the efficient market hypothesis. The capital markets of South-Eastern Europe are very good example of geographically close markets at different stages of development and under diverse monetary regimes - currency boards in Bulgaria and Bosnia and Herzegovina, quasi fixed exchange rate in Croatia, Eurozone ECB policy in Greece and Slovenia, absence of national currency in Montenegro and different variants of floating exchange rates rules in Turkey, Serbia, Romania and Macedonia. In the same time it is evident that if we recalculate the national stock exchange returns into a single currency, namely the euro, the results of comparative national return analysis will be different, compared to the case national currencies based investigation.*

The study of the relationship between the financial markets of the Balkan region is the result of the increasing integration and the process of globalization of the financial flows in growth regions. This interconnection also has the opposite direction - for the transmission of shocks in a crisis situation in the context of different degrees of development and a correspondingly different level of correlation between them.

So our paper is based on the comparative analysis of returns of the stock exchanges of Turkey, Greece, Romania, Bulgaria, Slovenia, Serbia, Montenegro, Croatia, Macedonia, Bosnia and Herzegovina and Banja-Luka in national currencies and in euro.

The results confirm the existence of significant impact of the exchange rates on returns and reconfirm the presence of infringements concerning efficient markets hypothesis. We tried also to see whether there is some confirmation of the law of the one price in terms of the some convergence between individual countries price of risk in single currency.

The econometric modeling of the globalization processes on the capital markets in the Balkan region aims to draw attention to a region with dynamic development which currently lacks such research and seeks the emergence of generally accepted principles and norms relevant to financial markets in general.

Key words: *monetary regimes, exchange rates, efficient market hypothesis, returns of the stock exchanges*

¹⁴⁴ SWU "N. Rilski" – Blagoevgrad, Bulgaria

¹⁴⁵ SWU "N. Rilski" – Blagoevgrad, Bulgaria

¹⁴⁶ SWU "N. Rilski" – Blagoevgrad, Bulgaria

Introduction

The boom and balloons of capital flows to the new Member States and other countries in the Balkans have received considerable attention in the form of foreign direct investment and bank flows to the region and countries. There is little analytical material in which critical and circumstantial assessment of these capital flows is important for the region. Although the new Member States are in the focus of attention, the Western Balkans remain unaffected by these processes and the information about them is unsystematic, difficult to estimate and chaotic.

The information efficiency of emerging capital markets is one of the most interesting topics, related to the empirical testing of the efficient market hypothesis. The capital markets of South-Eastern Europe are very good example of geographically close markets at different stages of development and under diverse monetary regimes- currency boards in Bulgaria and Bosnia and Herzegovina, quasi fixed exchange rate in Croatia, Eurozone ECB policy in Greece and Slovenia, absence of national currency in Montenegro and different variants of floating exchange rates rules in Turkey, Serbia, Romania and Macedonia. In the same time it is evident that if we recalculate the national stock exchange returns into a single currency, namely the euro, the results of comparative national return analysis will be different, compared to the case national currencies based investigation.

So our paper is based on the comparative analysis of returns of the stock exchanges of Turkey, Greece, Romania, Bulgaria, Slovenia, Serbia, Montenegro, Croatia, Macedonia, Bosnia and Herzegovina and Banja-Luka in national currencies and in euro. The results confirm the existence of significant impact of the exchange rates on returns and reconfirm the presence of infringements concerning efficient markets hypothesis. We tried also to see whether there is some confirmation of the law of the one price in terms of the some convergence between individual countries price of risk in single currency.

Literature overview

A. Stoitsova-Stoykova, Vl Tsenkov. (2017)¹⁴⁷ examine the market efficiency, information asymmetry and the linkages between financial market dynamics and public expectations of the stock markets of South East Europe (SEE). Therefore, this study aims to answer the question of whether there is a difference between the stock market performance of the developed and emerging SEE stock exchanges. This paper employs GARCH models and uses the daily and monthly returns of eleven stock market indices of South East Europe (SEE) - Bulgaria, Banja Luka, Sarajevo, Croatia, Greece, Serbia, Slovenia, Turkey, Romania, Montenegro and Macedonia over the period from January 2005 to November 2015. The results reveal that SEE capital markets except Montenegro are not efficient in the context of the efficient market hypothesis (EMH). Moreover, the consumer sentiment information and inflation expectations affect the financial market dynamics of SEE stock indices. The analysis shows that there is no linkage between industrial expectations and the dynamics of the SEE capital markets. Test results potentially present that the consumer and inflation expectations have predictive power for the performance of SEE capital markets.

¹⁴⁷ A. Stoitsova-Stoykova, Tsenkov. Vl. (2017). The impact of the global financial crisis on the market efficiency of capital markets of South East Europe. <https://www.academia.edu/33801085/>.

*K. Guesmi and D. K. Nguyen (2013)*¹⁴⁸ developed a conditional ICAPM in the presence of exchange rate risk to identify factors that may influence the degree of financial integration for four major markets in Southeast Europe. The findings are then used to study the dynamics of financial integration. Our empirical analysis is conducted on the basis of a nonlinear framework which relies on the multivariate DCC-GARCH model. By allowing the prices of risk and the level of market integration to vary through time, we show that the degree of trade openness and local stock market development are the most important determinants of regional financial integration. Moreover, the degree of market integration admits frequent changes over the study period and its dynamic patterns differ greatly across the markets under consideration. While the integration of the Czech market with the regional market tends to rise in recent years, Greek market experiences a decline in its degree of integration. No specific pattern has been observed for Romania and Poland, but both markets remain poorly integrated with the regional market.

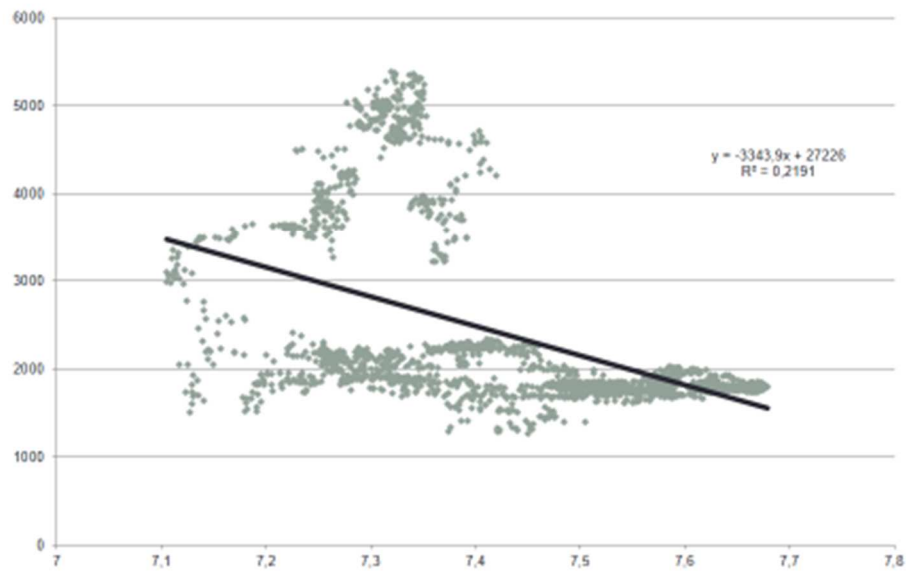
*Qing He, I. Korhonen, Z. Qian. (2017)*¹⁴⁹. They have shown a nonlinear long-run relationships between the onshore and offshore RMB exchange rates and expected inflation who is caused by China's capital control policies and currency market regulations. Policymakers should be aware that traditional analyses fail to capture this nonlinearity and, if the problem is ignored, could lead to inappropriate conclusions about the transmission of monetary policy shocks to inflation expectations. Based on the identified long-run relationship, they calculate the impulse responses of inflation expectations to a disturbance to the long-run relationship. It shows that disequilibrium in the currency market can affect the price stability target of the central bank. Discretionary monetary policy might fail to fight deflation and recession when the currency market is in disequilibrium, however. This is because the impact of a moderate-size equilibrium error in the currency market on inflation expectations is much larger than the impact of a typical surprise credit supply or money shock. Therefore, measures have to be taken to maintain currency market equilibrium if the central bank wants its policy instrument to manage inflation expectations effectively.



¹⁴⁸ Guesmi and D. K. Nguyen (2013). Time-varying regional integration of stock markets in Southeast Europe. *Applied Economics* 46(11) February 2014. DOI: 10.1080/00036846.2013.870656=

¹⁴⁹ Qing He, I. Korhonen, Z. Qian. (2017). Monetary policy transmission with two exchange rates and a single currency: The Chinese experience. *BOFIT Discussion Papers* 14/2017.

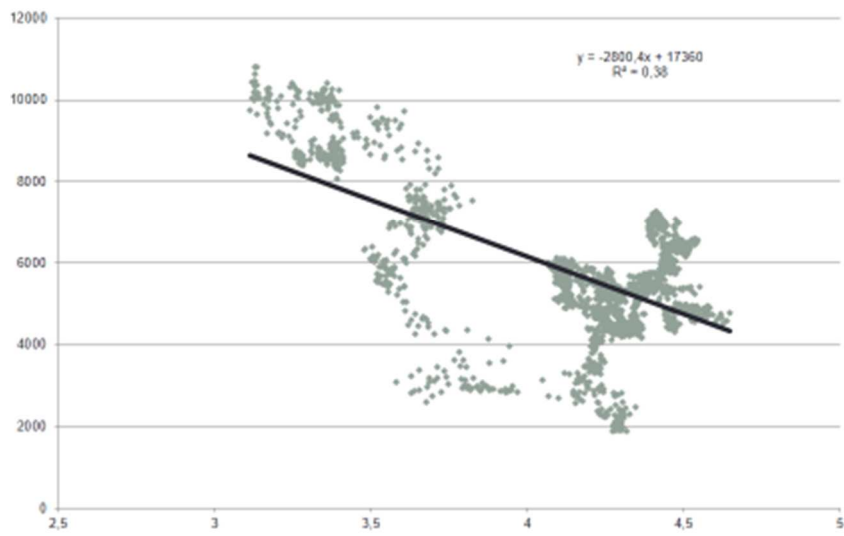
Croatia



Romania

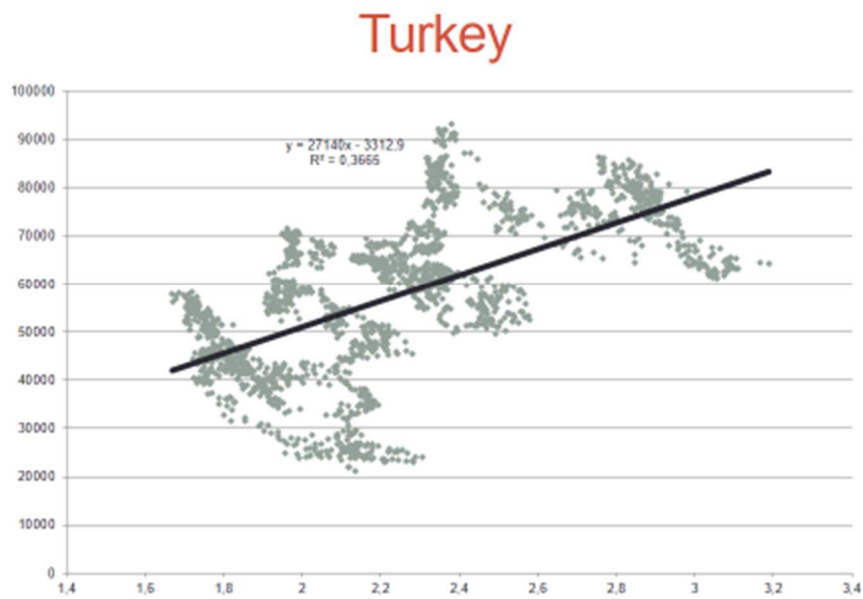


Romania



Turkey





Bulgaria 'Case

The exchange rate against the euro is fixed according the acting currency board rule, so the parameters in terms of domestic currency and euro are the same.

No direct impact on the part of the exchange rate.

Market Volatility

Country/indicator	Croatia	Romania	Turkey
S.D.N.C.	1041	1763	15935
S.D.E,	145	597	5824
Average N.C.	2419	5799	57560
Average Euro	326	1449	
C.V.N.C.	0,43	0,3	0,28
C.V.E.	0,44	0,42	0,23

Results from Granger Causality tests

- As a results showing there are a positive results only for Romania and Turkey,
- In the case of Romania Stock Exchange index seems to granger cause exchange rate,
- In the case of Turkey the exchange rate seems to cause the Stock exchange index.

CONCLUSIONS

1. The stock exchange indexes have different dynamics in domestic and foreign currency;
2. The exchange rate can increase, decrease and leave the financial markets volatility unchanged;
3. The causality can work from the exchange rate to the capital market and vice versa;
4. The question about the equalization of the price of risk remains to be answered;
5. And finally, the exchange rate rule seems to have important impact on capital markets.

COST-SENSITIVE LEARNING FROM IMBALANCED RETAIL CREDIT DATASET

Stjepan Oreski¹⁵⁰
Goran Oreski¹⁵¹

Abstract: *Cost-sensitive imbalanced data exist in many challenging real-world classification problems, where the misclassification of minority class instances is usually several times more expensive than those of the majority class. Using standard classification techniques and evaluation measures produces biased results in favor of the majority class. One of the domains that is sensitive to this type of bias is banking, especially credit risk assessment. In the present study, a new classification technique based on genetic algorithm and neural network, optimized for the cost-sensitive measure and applied to retail credit risk assessment, is created. The relative cost of misclassification, which properly accounts for different misclassification costs, is used as the primary evaluation measure. The test of the new algorithm is performed on German retail credit dataset. An empirical comparison demonstrates the potential of the new technique in terms of misclassification costs.*

Key words: *genetic algorithm; classification; neural network; credit risk assessment; imbalanced datasets; misclassification cost.*

INTRODUCTION

Imbalanced datasets are common in many real-world domains, including finance, medicine, telecommunications, ecology, and biology. Such datasets can be considered as one of the major issues of the data mining process. A dataset is imbalanced if the classification categories are not approximately equally represented [1], [2]. It should be noted that the minority class is usually of the highest interest because, when misclassified, it represents the largest cost [3]. Accordingly, class imbalanced datasets are very often related to cost-sensitive learning. Therefore, accurate classification of minority class instances is very important.

Most of the published literature indicates that standard classification algorithms on imbalanced datasets suffer a significant loss of performance. It is inherent to the mentioned algorithms to often be biased in favor of the majority class, otherwise known as the "negative" class. There is a higher classification error rate for minority class instances, known as the "positive" class.

One of the domains that is sensitive to this type of issues is banking, especially credit risk assessment, because in many banks models of artificial intelligence take the role of decision-makers in the process of loan approval. Thereby, a poor credit risk assessment model, which does not take into account differential error misclassification costs, could lead to sub-optimal capital allocation [4]. In order to construct cost-sensitive models, the objective of this study is exploring the impact of resampling techniques in combination with the feature selection technique to the classification results measured by the relative cost of misclassification. As a classifier, on which the impact of resampling techniques will be explored, the hybrid genetic algorithm with neural networks (HGA-NN), which performs feature selection and classification

¹⁵⁰ Bank of Karlovac, I.G.Kovacicica 1, Karlovac, 47000, Croatia

¹⁵¹ GO Studio, Unska 54, Uštica 41324, Croatia

simultaneously, will be used [5]. Because of the pronounced asymmetry of the misclassification costs and their contribution to the financial performance of the financial institution, in the analysis of the classifier performance, the emphasis is on the analysis of the misclassification cost. With respect to the analysis, the algorithm optimized for the relative cost of misclassification will be proposed.

The study is organized as follows. Section 2 describes, in more detail, the problem of class imbalance in credit risk assessment. Section 3 describes the new technique for attributes selection and classification. Section 4 presents the results of the experiments, the performance evaluation and their comparison. Section 5 presents this study's conclusions.

THE PROBLEM DESCRIPTION

Data with class imbalance often occur in the field of classification. The main characteristic of this classification problem type is that one class's examples significantly surpass the number of instances of other classes [3], [6].

Datasets that have a highly imbalanced class distribution represent a fundamental challenge in machine learning, not only in terms of construction of the model but also in terms of ways to measure the quality of constructed models. There are many different measures of model evaluation used in class imbalance conditions, each with its own bias. There are also different strategies of cross-validation. Selected evaluation measures and cross-validation strategy must be consistent with the problem to be analyzed [7], and their characteristics should be well known. Although there are different technique proposals to solve problems of class imbalance, it can be observed from the literature review that a good technique has to consider: (1) collected data, (2) the classification method and (3) the performance measure.

Stjepan Oreški

Professional manager, software developer, lecturer and scientist with interest in areas such as banking, artificial intelligence, software development, design and maintenance of information systems. He gained banking experience in jobs covering all phases of software development, database administration, departmental management and entire sector management. He co-authored several scientific papers, three of which were published in the most prestigious world-wide journals for the field of artificial intelligence (ESWA, ASOC). The Web of Science Award winner for Highly Cited Paper 2015, awarded to the top 100 most relevant papers of the area. Reviewer in several scientific journals from the same area, three of which are ranked among the top 10 in the world.



Because of the great diversity of the existing techniques and algorithms, as well as the diversity of application domains, it is difficult to simply classify all approaches for reducing problems related to cost-sensitive classification on imbalanced data. From the literature review [8],[9], it can be concluded that there is a relatively great interest in the study of this problem, but in the area of the credit risk assessment this subject is not adequately researched. The need exists, because instances of bad loans are less frequently in real data and the costs of misclassifying bad and good clients are very different. As well, in previous research efforts, we did not find studies that research feature selection and resampling techniques in combination with misclassification costs. Therefore, the research presented below seeks to cover a perceived gap by exploring the impact of resampling techniques, combined with the feature selection technique, on the classification results, primarily based on the misclassification cost. The study

creates a new technique optimized for the relative cost of misclassification in the domain of retail credit risk assessment. Thereby, small differences in model power can lead to significant economic impact for the users. Hence, research in this area assumes greater significance because a poor credit risk model could lead to sub-optimal capital allocation.

MODEL DEVELOPMENT

The class imbalance and different misclassification costs represent significant challenges for classification and have significant impact on some of the performance measures.

3.1 Performance measures

The results of classification and validation can be shown in a confusion matrix (CM), which is a useful tool for analyzing how well a classifier can recognize tuples of different classes [10]. A confusion matrix for two classes is shown in Table 1.

		Predicted result		Recognition rate
		Default	Non-default	
Real	Default	true positives (TP)	false negatives (FN) (Type I error)	Sensitivity (Recall)
	Non-default	false positives (FP) (Type II error)	true negatives (TN)	Specificity
		Precision		Accuracy (%)

Table 1. Confusion matrix for a two-class problem.

In order to compare different models, we can compute diverse measures from the confusion matrix:

$$\text{Accuracy (\%)} = (\text{TP} + \text{TN}) / (\text{TP} + \text{FP} + \text{TN} + \text{FN}) * 100. \quad (1)$$

Predictive accuracy might not be appropriate when the data are imbalanced and/or the costs of different errors vary markedly [1]. When the specified conditions are met, the Area Under the ROC Curve (AUC) can be used as a measure of model quality. It combines the FPR and the TPR ratios into one single measure. The ratios TPR (or sensitivity, or recall) and FPR (or 1-specificity) are calculated according to the following equations:

$$\text{Sensitivity or recall: TPR} = \text{TP} / (\text{TP} + \text{FN}), \quad (2)$$

$$1 - \text{specificity: FPR} = \text{FP} / (\text{FP} + \text{TN}). \quad (3)$$

In addition to AUC, F-measure is often used:

$$\text{F-measure} = (2 * \text{precision} * \text{recall}) / (\text{precision} + \text{recall}), \quad (4)$$

where the equation for the precision calculation is:

$$\text{precision} = \text{TP} / (\text{TP} + \text{FP}). \quad (5)$$

There is a weighted measure of precision and recall:

$$F_{-\beta} = ((1 + \beta^2) * \text{precision} * \text{recall}) / (\beta^2 * \text{precision} + \text{recall}), \quad (6)$$

where β corresponds to the relative importance of recall versus precision.

In this study, the emphasis is on the misclassification cost. The total relative cost of misclassification (RC) will be calculated according to the following equation [11]:

$$RC = \alpha (P_I C_I) + (1 - \alpha) (P_{II} C_{II}), \quad (7)$$

where α is the probability of being a ‘bad’ client, P_I is the probability of a type I error, C_I is the relative cost of the type I error, P_{II} is the probability of the type II error, and C_{II} is the relative cost of the type II error. The RC of each model is computed for seven cost ratios, while the best model for each ratio is the model with the lowest RC value. While the accuracy, as a conventional performance measure, ignores the inherent costs of type I and type II errors to profits, RC, on the other hand, takes into account costs of type I and type II errors, and provides a more suitable risk-based performance measure. Accordingly, RC takes better into account objectives of the lending company.

3.2 The extended HGA-NN algorithm

After a careful evaluation lot of experimental results, some practical implementations and checking the findings in the literature, we designed the technique optimized for the cost-sensitive measure. Figure 1 shows the extended HGA-NN technique which optimizes the performance in relation to the classification quality measures inherent to class and cost imbalance. Our preliminary experiments and Marqués et al. [12] indicate that search space reduction should be applied on the original dataset and that only after search space reduction can we use some of the resampling techniques like: (i) Random oversampling (ROS) of the minority class, (ii) Synthetic Minority Oversampling TEchnique (SMOTE) [13], or (iii) Random undersampling (RUS) of the majority class.

Goran Oreški was born on October 19, 1987 in Bosanska Dubica, Bosnia and Herzegovina. He completed elementary and high school in Karlovac and enrolled in the Faculty of Organization and Informatics in 2005. During his studies, he studied at Karl-Frances University of Graz, Austria within the international exchange student program. He graduated in 2010. Upon completing a faculty education in 2010, he founded private company GO Studio d.o.o. for computer programming. In the same year he started to work in Karlovačka banka d.d. as a developer. At the end of 2013, he joined his company GO Studio d.o.o. where he still works today. During work in the bank, he was involved in research related to credit risk prediction based on artificial intelligence. The project was a starting point of his interest for further involvement in the field of scientific research. For the same purpose, he enrolled on postgraduate study in Information Science at the Faculty of Organization and Informatics at the end of 2013 and received a PhD degree in 2016. As a result of the research he published several papers, two of which in *Expert Systems with Application*, the world-renowned magazine for artificial intelligence. In 2014 at the 25. CECIIS scientific conference he received the Best Paper Award.



```

Input: originalDataset
        expertFeatureSubset // if exists
Output: modelPerformance

// Search space reduction
reducedFeatureSet.add(expertFeatureSubset)
featureSelector = {GA-NN, InformationGain, GainRatio, Gini, Correlation,
                  ForwardSelection}

// GA-NN based feature selection and parameter optimization
bestPerformance = performGANN(originalDataset)
reducedFeatureSet.add(bestPerformance.featureSubset())
bestParameters = bestPerformance.getParameters()
featureMax = bestPerformance.featureSubset().size

// Feature selection for all featureSelector except GA-NN
for (int i = 1; i < featureSelector.length; i++) {
    reducedFeatureSet.add(featureSelector[i].select(originalDataset,
                                                  featureMax))}

samplingTechnique = {ROS, RUS, SMOTE}
for (int i = 0; i < samplingTechnique.length; i++) {
    // Resampling
    balancedDataset = reSampling(samplingTechnique[i], originalDataset,
                                reducedFeatureSet)

    // Reduced feature subset refinement
    do {
        population = createInitialPopulation(balancedDataset,
                                           reducedFeatureSet)
        performances = performanceCalculation(balancedDataset,
                                           population, bestParameters)
        bestPerformance = performances.getBest()
        while (NOT convergenceCriterion) {
            population = generateNewGeneration(population, performances)
            performances = performanceCalculation(balancedDataset,
                                                population, bestParameters)
            if (bestPerformance.compare(performances.getBest())) {
                bestPerformance = performances.getBest()
            }
        }
    } // end while
    if (generationsWithoutImproval <= 2) {
        // Add designated solution to initial solutions
        reducedFeatureSet.add(bestPerformance.featureSubset())
    }

    // Incremental stage control
    } while (generationsWithoutImproval <= 2)
} // end for

// Final model validation
filteredOriginalData = filter(originalDataset,
                             bestPerformance.featureSubset())
modelPerformance = modelValidation(filteredOriginalData,
                                  bestPerformance.getModel())

return modelPerformance

```

Figure 1. Pseudo-code of the extended HGA-NN technique.

Accordingly, resampling with the mentioned resampling techniques was performed after search space reduction and before the reduced feature subset refinement. Thus, the classification algorithm, which calculates the goodness of individuals in a population, uses a balanced dataset. This provides an environment that minimizes the weaknesses of most algorithms for classification, i.e., their bias to the majority class, while providing favorable conditions for fast feature selection algorithms.

By applying the mentioned resampling techniques, the initial objective, i.e., equal treatment of different classes in the model construction, is reached. To assess how the model will perform when it classifies new instances, final model performance validation is performed on the representative sample for the population, i.e., on the original dataset.

The algorithm shown in Figure 1 is constructed using the parameters shown in Table 2. Parameters are shown for the HGA, as well as some parameters for NN, i.e., for HGA-NN components. The parameters are not changed throughout the experiment for the HGA-NN and extended HGA-NN techniques.

Parameter	Set up
Population initialization	
population size	50
initial probability for a feature to be switched on	0.6
maximum number of features	16
minimum number of features	6
Reproduction	
Fitness measure	accuracy
Fitness function	neural network
the type of neural network	multilayer feed-forward network
network algorithm	back-propagation
activation function	sigmoid
the number of hidden layers	1
the size of the hidden layer	(number of features + number of classes) / 2 + 1
training cycles	50
learning rate	0.29
momentum	0.43
selection scheme	tournament
tournament size	0.05
dynamic selection pressure	Yes
keep best individual	Yes
mutation probability	0.1
crossover probability	0.9
crossover type	uniform
Condition for completion	
maximal fitness	Infinity
maximum number of generations	10
use early stopping	No

Table 2. Summary of parameters for the HGA-NN and extended HGA-NN used for a German dataset.

By keeping the same parameters for the HGA-NN and extended HGA-NN, the differences between the experimental results will be affected by the additional techniques that mitigate the impact of class imbalance and different misclassification costs on classification results; thus, their contribution to the results will be easy to quantify.

4. EMPIRICAL ANALYSIS

In this section, the objective is to analyze the classification results of the new technique in the domain of retail credit risk assessment. Classification performances are measured by the various measures of performance, focusing on the relative misclassification costs.

4.1. Description of the experimental dataset

The German credit dataset comprises 700 instances of creditworthy applicants and 300 instances of bad credit applicants. The imbalance ratio is 7:3. It contains 30 regular features of the integer data type and 2 (id, label) special features and can be viewed at <http://ocw.mit.edu/courses/sloan-school-of-management/15-062-data-mining-spring-2003/download-course-materials/>. All of the features with descriptive statistics are shown in [5].

4.2. Results and discussion

From the results shown in Tables 3 and 4, it can be observed that the model with the highest accuracy is obtained with the HGA-NN technique; however, for this model, lower (worse) values of other performance measures are reported. Looking at the individual extended techniques, we can see that HGA-NN ROS gives the best results for all other performance measures, except for accuracy.

Technique	Accuracy	AUC	F-vrij.	F- β	TP	FN	FP	TN
HGA-NN	78.6^a	0.7148	0.6008	0.5606	161	139	75	625
HGA-NN RUS	69.5	0.7317	0.6183	0.7269	247	53	252	448
HGA-NN ROS	69.6	0.7495^a	0.6355^a	0.7641^a	265	35	269	431
HGA-NN SMOTE	69.6	0.7419	0.6284	0.7480	257	43	261	439

^aThe best result for each measure.

Table 3. Results of techniques on the German dataset.

Technique	Cost ratio (C _I :C _{II})						
	1:1	2:1	3:1	4:1	5:1	8:1	10:1
HGA-NN	0.2140^a	0.3530	0.4919	0.6309	0.7699	1.1869	1.4649
HGA-NN RUS	0.3050	0.3580	0.4110	0.4640	0.5171	0.6761	0.7821
HGA-NN ROS	0.3040	0.3390^a	0.3740^a	0.4091^a	0.4441^a	0.5491^a	0.6191^a
HGA-NN SMOTE	0.3040	0.3470	0.3900	0.4330	0.4760	0.6050	0.6909

^aThe best result for each cost ratio.

Table 4. Relative misclassification costs (RC) comparison on the German dataset.

Figure 2 shows the comparison of the relative misclassification cost of the HGA-NN technique and the extended HGA-NN technique for all constructed models. From the diagram, it is clear that the HGA-NN achieves the highest prediction accuracy. However, it is evident that this

technique achieves the lowest relative cost only for the cost ratio of 1:1. The diagram also shows that the most accurate model becomes marginally good, from a cost perspective, with the cost ratio of 2:1, and that, for all cost ratios above 2:1, models constructed with the extended HGA-NN technique give better results.

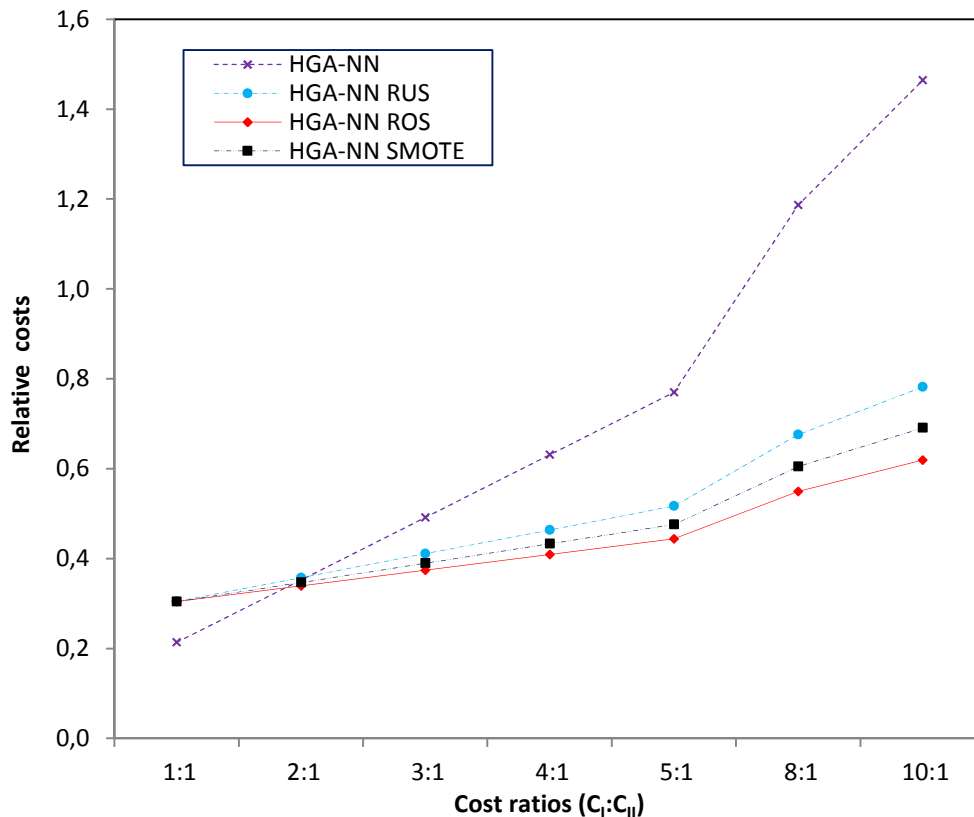


Figure 2. Comparison of relative costs of misclassification for the German dataset.

From Table 4, as well as from Figure 2, it is clear that the resampling techniques, combined with the feature selection technique, contribute positively to the results in reducing the cost of misclassification. This contribution is more significant when the relative cost ratio is higher. The results support the idea that embedding the additional class-balancing technique in the HGA-NN technique will reduce the average misclassification costs. Therefore, taken together, the HGA-NN ROS technique gives the best results.

CONCLUSIONS

This paper explored the impact of resampling techniques combined with the feature selection technique on the classification results in the domain of retail credit risk assessment. The results show that, with respect to average misclassification costs, the HGA-NN ROS technique achieves better results than other techniques for the cost ratio 2:1 and above. As small differences in model power can lead to significant economic impact for the user, the results demonstrate the potential of the new technique for dealing with credit risk cost-sensitive imbalanced data in terms of misclassification costs.

Possible limitations of the study come from the fact that we conducted research on one dataset. This is the consequence of its focus to retail credit risk assessment. In this area, there is a very limited number of publicly available high dimensional datasets.

REFERENCES

- [1] N. V. Chawla, "Data Mining for Imbalanced Datasets: An Overview," *Data Min. Knowl. Discov. Handb.*, pp. 853–867, 2005.
- [2] S. Naganjaneyulu and M. R. Kuppa, "A novel framework for class imbalance learning using intelligent under-sampling," *Prog. Artif. Intell.*, vol. 2, no. 1, pp. 73–84, 2013.
- [3] V. López, A. Fernández, S. García, V. Palade, and F. Herrera, "An insight into classification with imbalanced data: Empirical results and current trends on using data intrinsic characteristics," *Inf. Sci. (Ny)*, vol. 250, pp. 113–141, 2013.
- [4] V. Agarwal and R. Taffler, "Comparing the performance of market-based and accounting-based bankruptcy prediction models," *J. Bank. Financ.*, vol. 32, no. 8, pp. 1541–1551, 2008.
- [5] S. Oreski and G. Oreski, "Genetic algorithm-based heuristic for feature selection in credit risk assessment," *Expert Syst. Appl.*, vol. 41, no. 4 PART 2, 2014.
- [6] A. Estabrooks, T. Jo, and N. Japkowicz, "A multiple resampling method for learning from imbalanced data sets," *Comput. Intell.*, vol. 20, no. 1, pp. 18–36, 2004.
- [7] T. Raeder, G. Forman, and N. V. Chawla, "Learning from Imbalanced Data: Evaluation Matters," *Intell. Syst. Ref. Libr.*, vol. 23, pp. 315–331, 2012.
- [8] S. H. Khan, M. Hayat, M. Bennamoun, F. Sohel, R. Togneri, and C. V Mar, "Cost-Sensitive Learning of Deep Feature Representations from Imbalanced Data," *IEEE Trans. neural networks Learn. Syst.*, 2017.
- [9] A. Braytee, W. Liu, and P. Kennedy, "A cost-sensitive learning strategy for feature extraction from imbalanced data," in *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, 2016.
- [10] Han J. and Kamber M., *Data Mining: Concepts and Techniques*, Second Edi. 500 Sansome Street, Suite 400, San Francisco, CA 94111: Morgan Kaufmann Publishers, 2006.
- [11] S. Oreski, D. Oreski, and G. Oreski, "Hybrid system with genetic algorithm and artificial neural networks and its application to retail credit risk assessment," *Expert Syst. Appl.*, vol. 39, no. 16, pp. 12605–12617, 2012.
- [12] A. I. Marqués, V. García, and J. S. Sánchez, "Two-level classifier ensembles for credit risk assessment," *Expert Syst. Appl.*, vol. 39, no. 12, pp. 10916–10922, 2012.
- [13] N. V Chawla, K. W. Bowyer, L. O. Hall, and P. W. Kegelmeyer, "SMOTE : Synthetic Minority Over-sampling TEchnique," vol. 16, pp. 321–357, 2002.
- [14] M. A. Mazurowski, P. A. Habas, J. M. Zurada, J. Y. Lo, J. A. Baker, and G. D. Tourassi, "Training neural network classifiers for medical decision making: The effects of imbalanced datasets on classification performance," *Neural Networks*, vol. 21, no. 2–3, pp. 427–436, 2008.

OPTIONS - FINANCIAL DERIVATIVES FOR MANAGING INTEREST RATE RISK

Snezhana Dichevska¹⁵²
Vera Karadjova¹⁵³

Abstract: *Financial derivatives are financial instruments that cause major changes in financial markets. They appeared in order to protect the transactors from a certain form of market risk, but also with the intention of making profit.*

Financial derivatives are standardized contracts and their value depends on the price of the subject of the contract.

Financial derivatives are actually contracts between the parties agree on that, in forming the price of the subject of trading, the participants in the transaction commit to act in a certain way in the future,, taking into consideration the anticipated relation of supply and demand.

Thereby, the participants in their investment decisions incorporate the expected difference between the movements of the prices on the current market and their expectations for the term price and, using the difference between the two prices, make a profit or a loss.

In the second half of the twentieth century there was an increased presence of financial derivatives in the financial markets. As a result of the accelerated pace of trade, primarily of the international trade, the need for managing risks on the financial markets is emphasized. Once the dangers are identified, the risk should be quantified and should be established limits and procedures for its control and monitoring.

One of the instruments used to reduce the risk on the financial market are options.

The option is a financial instrument - contract, which allows the purchase or sale of various financial instruments at a predetermined price, which is called an execution price until a certain future time. The option is considered as executed when its time has expired, or when in predicted timeframe its purchase or sale has been made.

Interest rate options are used for protection against interest rate risk, i.e. the negative effects of changes in interest rates. These options are contracts that, on the basis of payment of a premium to the seller, gives the right to the buyer, but not the obligation, to give or to take a certain amount on loan in the course of a certain period and at a predetermined price.

In Republic of Macedonia, trading with financial derivatives almost does not exist.

The goal of the paper is to give a theoretical elaboration of the use of options as one of the instruments that can be used for managing interest rate risk, but also the additional option risk arising from the use of this instrument. Besides theoretical elaboration, the paper also has an intention to elaborate the preconditions for implementation of this financial derivative, and opportunities for its using on the financial market in Republic of Macedonia.

Key words: *Financial derivatives, financial market, options, interest rate risk*

1. INTRODUCTION

A financial derivative is a financial instrument whose value is derived from the value of another financial instrument. Namely, it is necessary to exist another instrument or

¹⁵² Faculty for Tourism and Hospitality-Ohrid, Kej Makedonija 95, Macedonia

¹⁵³ Faculty for Tourism and Hospitality-Ohrid, Kej Makedonija 95, Macedonia

agreement upon which the derivative instrument will be established and based, as an additional agreement on the basic one.

In order to reduce the risk in financial operations and transactions in national and international financial markets, the introduction of financial derivatives is considered to be the most valuable aid to financial managers of financial institutions and corporations to manage risk more successfully.

There are several reasons for introducing and creating financial derivatives in the financial market. However, the most significant are: [1]

- increasing the instability and uncertainty of the financial markets that are caused by the abandonment of the system of fixed exchange rates,
- increasing competition at the international level,
- increasing inflation rate and the interest rates
- technical and technological development on a global level;
- increasing knowledge and education in the field of financial market operations;
- the existence of speculative tendencies in the financial market in order to achieve as much profit as possible.

The use of financial derivatives reduces the costs of financial transactions, the choice of financial instruments is expanding, increases the commodity of participants in financial markets, the opportunities for making a profit increase.

The financial derivatives can be traded on the organized market, i.e. on the stock exchange and on over the counter market. Depending on how the securities market is developed, trade with financial derivatives can be developed either within the existing stock exchanges - in a special place and in a specially determined time, or on special stock exchanges - term stock exchanges.

Options are contracts that allow people to buy or sell various financial instruments at a predetermined price, which is called the cost of execution until a certain future time. One option may be considered executed when its time has expired, or when a purchase or sale of a financial instrument is made within the estimated time.

The option gives the buyer a one-sided option, if the movements of the prices are favorable, the buyer will realize the option and make a profit. If price movements are not favorable to the buyer of the option, he may limit the damage if he allows the option to remain unrealized and make a loss only for the paid premium of the seller. Due to this feature, the options of buyers provide insurance against unfavorable price movements; the premium represents the price of this insurance.

2. MANAGING INTEREST RATE RISK

Interest rate risk is the risk of unfavourable future movements in interest rates and therefore a change in the value of assets bearing interest income. Interest rate risk is an exposure to the income and the economic value of the bank's capital as a result of changes in interest rates. Interest rate risk should be managed where fluctuations in interest rate impact on the organisation's profitability. In an organisation where the core operations are something other than financial services, such financial risk should be appropriately managed, so that the focus of the organisation is on providing the core goods or services without exposing the business to financial risks.

An adverse movement in interest rate risk may potentially: [2]

- increase borrowing costs for borrowers;
- reduce returns for investors;
- reduce profitability of financial services providers such as banks; and
- reduce the net present value (NPV) of organisations due to the effect of changes in the discount rate (interest rate) on the value of financial instruments, hedges and the return on projects.

In order to be able to manage the interest rate risk, it is necessary to determine the sources of interest rate risk. The National Bank of the Republic of Macedonia defines the risk of changing interest rates in the banking activities as a risk of loss arising from unfavourable changes in interest rates, which affect the positions in the banking portfolio activities.

The National Bank of the Republic of Macedonia lists several sources of interest risk, as follows:[3]

- risk of interest rate changes in the portfolio of banking activities (risk of loss arising from unfavourable changes in interest rates, which affect the positions in the bank's portfolio of banking activities);
- risk of maturity non-compliance of interest-sensitive active and passive positions (risk of differences in maturity for items with fixed interest rate, i.e. the time of the next change in interest rates for variable interest rate items of active and passive items);
- the risk of the yield curve (risk of unpredictable changes in the yield curve that may negative affect the profitability and the bank's own funds);
- risk of differences in the amount of the reference interest rates on instruments with similar characteristics, in relation to the maturity or time of the next

Snezhana Dichevska

Born on 05.04.1967 in Struga, Republic of Macedonia

Working position:

- ✓ *University "St. Kliment Ohridski"- Bitola, Faculty of tourism and hospitality – Ohrid, Associate Professor*
- ✓ *Faculty of tourism and hospitality – Ohrid, Vice Dean*



Academic title:

- ✓ *PhD in Economics, Institute of Economics - Skopje, University "St. Cyril and Methodius" - Skopje, 2010, theme: "Corporate Bank Management with special attention on Corporate Bank Management in Republic of Macedonia"*

Field of research:

- *Macro economy – through researching in Banking, Finance and Financial Markets and Institutions*
- *Micro economy – through researching in Corporate Finance Management and Management Process in a whole*

Selected Projects:

- ✓ *IPA CROSS BORDER PROGRAMME, Water Protection Thematic Park Actions WATER.NET, 2. Enhancement of the environmental resources and cultural heritage of programme area, 2.1. Promote and protect the environmental resources of the area, Edessa – Ohrid – Thessaloniki, (2015 – 2016)*
- ✓ *Socio-economic impacts of tourism in the Municipality of Ohrid for the period 2004 - 2014, Project No: Decision No. 02-222/3-9 dated on 15.05.2015, Faculty of tourism and hospitality – Ohrid, 2015*
- ✓ *ASPAT International Seminar (Cultural diversity in hospitality industry; American culture in tourism), Embassy of the United State of America; Howard Community College, USA; Davidson County Community College, USA; Faculty of Tourism and Hospitality – Ohrid (April 2012)*

Training for trainers in the field of rural tourism, Faculty of Tourism and Hospitality – Ohrid; Local Development Agency – Struga; State of Israel; MASHAV – Israel's Agency for International Development Cooperation; CINADCO – Centre for International Agricultural
Participated in many domestic and international symposiums, conferences and congresses, presenting her scientific papers. She has published over 40 scientific papers.

- change of the interest rates (risk of non-compliance at the time of adjustment of the interest rates on which the bank pays for different instruments with similar maturity) ;
- risk arising from options that are incorporated in interest-sensitive positions (risk of influence that options may have in the instruments included in certain instruments over their cash flows).

3. OPTIONS AS A INSTRUMENT FOR MANAGING INTEREST RATE RISK

Option contracts offer an opportunity to deal with some of the risks arising from trading with securities, including interest rate risk. Interest rates option gives the right to the security holder (1) to put the instruments available to another investor at a predetermined price, before the option expires; or (2) to accept (call) a delivery of securities from another investor, at a predetermined price, before the expiration date of the option. The entire transaction is accompanied by a commission (*option premium*) which the buyer must pay for the privilege that was able to sell (put) or to buy (call) securities from the seller of the option. That's the privilege offered by options contracts.

The option provides a one-sided opportunity (to be realized or not to be realized if the price movement is inconvenient). In the latter case, the option owner loses only the premium paid to buy the option. [4]

When developing a strategy for using options for risk management, one can start from the two main ways of using them:[5]

- 1) Protection of the securities portfolio by using the sales (put) options for protection against the fall in the prices of securities (interest rate increase); however, according to the option contract, there is no obligation to sell the securities, so that the owner can profit from keeping the securities if the interest rates fall and the prices of securities rise.

Vera Karadjova

Born on 01.01.1971 in Ohrid, Republic of Macedonia

Working position:

- ✓ University "St. Kliment Ohridski"- Bitola, Faculty of tourism and hospitality – Ohrid, **Associate Professor**



Academic title:

- ✓ PhD in Economics, Faculty of Economics - Skopje, University "St.Cyril and Methodius" - Skopje, 2010, theme: "Risk Management in Non - Banking Financial Institutions"

Field of research:

- ✓ Macro economy – through researching in Monetary economy, Banking and Finance, and Apply Economy wider
- ✓ Micro economy – through detailed study of Planning and Enterprises Business Policy, Risk Management, as well as the whole Management Process wider

Selected Projects:

- ✓ Empowering Municipal Councils, Swiss Development and Cooperation project, implemented by the UNDP (2015-2020)
- ✓ IPA CROSS BORDER PROGRAMME, Water Protection Thematic Park Actions WATER.NET, 2. Enhancement of the environmental resources and cultural heritage of programme area, 2.1. Promote and protect the environmental resources of the area, Edessa – Ohrid – Thessaloniki, (2015 – 2016)
- ✓ Socio-economic impacts of tourism in the Municipality of Ohrid for the period 2004 - 2014, Project No: Decision No. 02-222/3-9 dated on 15.05.2015, Faculty of tourism and hospitality – Ohrid, 2015
- ✓ Increasing Market Employability (IME), Swiss Agency for Development and Cooperation SDC, SWISSCONTACT, Swiss Foundation for Technical Cooperation, 5 years project, (2014- Participated in many domestic and international symposiums, conferences and congresses, presenting her scientific papers. She has published over 70 scientific papers, and is an author or co-author of 4 university textbooks.

- 2) Hedging (protection) against negative or positive differences between assets sensitive to changes in interest rates and liabilities sensitive to changes in interest rates; for example, a sales (put) option can be used to compensate for losses due to a negative difference (liabilities sensitive to changes in interest rates > assets sensitive to changes in interest rates) when interest rates are rising, and buying (call) options can be used in order to compensate for the positive difference (assets sensitive to changes in interest rates > liabilities sensitive to changes in interest rates) when interest rates are declining.

Financial institutions can develop a strategy of buying and selling options, but basically they are more likely to be buyers of sales and buying options than sellers of these instruments. The basic reason for this is the much greater risk with which are faced the option sellers, in relation to the risk of the option buyers; the option seller's potential profit is limited to the premium paid by the buyer, while the potential loss if the interest rates change to the seller's expense is much higher.

The following figures 1 and 2 give a clear visual overview of how financial institutions can profit or at least protect their current position by careful use of options.[6]

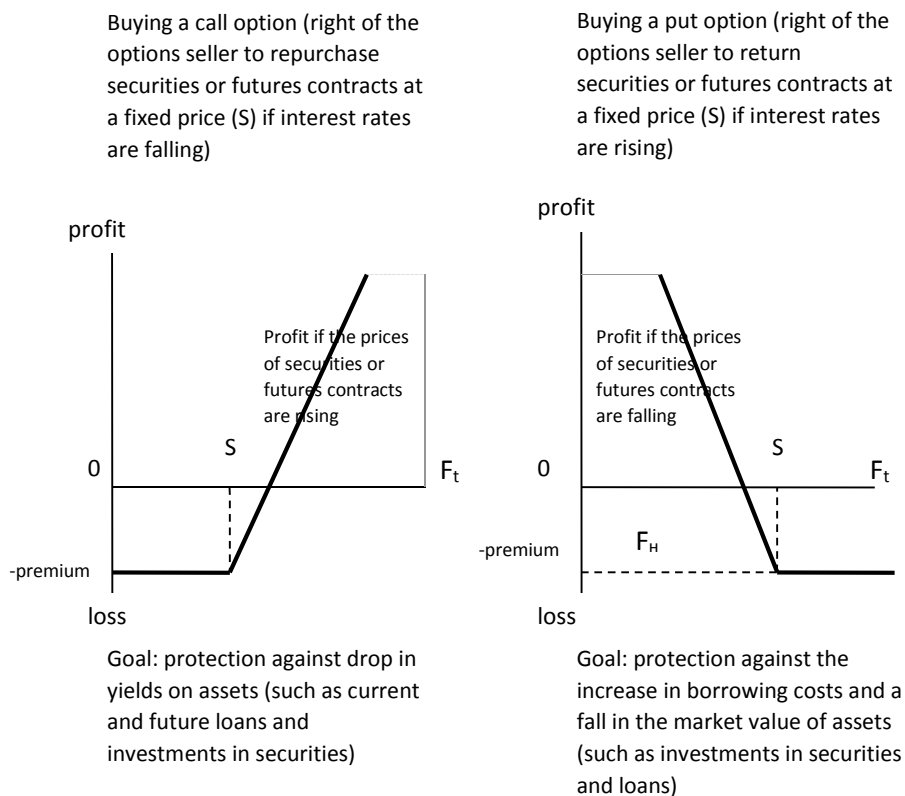


Figure 1: Diagram for sales (put) and buying (call) options which financial institution buys

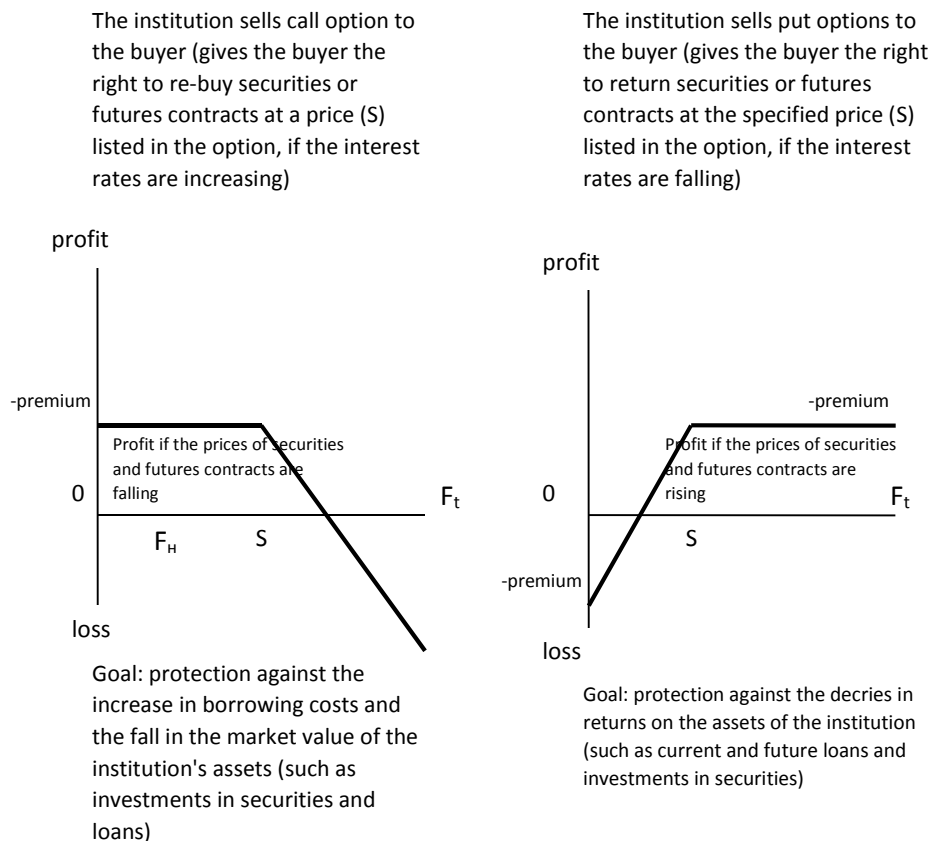


Figure 2. Diagram for sales (put) and buying (call) options which financial institution sells

It is necessary to emphasize that the buyer and the seller of the options are in unequal position, it means, the buyer of the option can achieve unlimited profit if the price of the funds from the contract moves in the direction he has expected or may have a minimal loss for the amount of the premium paid to acquire the right of the option, if the price of the assets of the deal moving in the opposite direction from the one he expected. On the other hand, the seller of the option has a limited profit, and that is the amount of the premium that the buyer pays to buy the right to option, if the price of the assets of the contract moves in the direction he has expected and can notice unlimited loss if the price of the funds from the contract moves in the unexpected direction.

In the Republic of Macedonia financial derivatives almost do not exist. Banks in their balance sheets almost did not note investments in financial derivatives. According to the State Statistical Office, in 2016, the banks and savings houses in the Republic of Macedonia had financial derivatives in the amount of only 9 million denars.

The basic prerequisite for successful implementation of financial derivatives is the existence of a developed capital market. An efficient capital market involves:[7]

- offer of capital from a larger number of participants who will offer their capital on an organized market, directly or through intermediaries;
- demand - customers (buyers) of capital;
- existence of a number of intermediaries necessary for channeling the supply of capital in the most profitable placements and improving the efficiency of the allocation of investments;
- the accumulated savings, which directly depends on the level of national income and the inclination for saving, as well as the stability of the national economy.

Also, the level of development and efficiency of the banking system, the tax system and the tax policy is very important. For example, if there is a more flexible tax policy, the amount of the funds to be higher, and vice versa.

4. CONCLUSION

The increasing development of the capital markets and the creativity of investment bankers and other financial institutions have fostered the introduction and use of a wide variety of complex financial instruments and structured financial transactions. Most organisations now use these kinds of transactions, which involve the use of derivatives, to hedge exposures or manage portfolios more efficiently.

There are several ways to manage risks, but lately the most commonly used innovative financial instruments. The main motive for creating and placing financial innovations on financial market is profit and risk reduction. They use options and futures traded on organized exchanges, but also use forward contracts and currency swaps traded on unorganized markets. There by are used options and futures that are traded on organized stock exchanges, but also forward contracts and currency swaps traded on unorganized markets. These instruments allow hedging, i.e. limiting the risk. They enable negotiation of the purchase of financial assets, at the price and conditions determined at the moment of signing the contract. Very often, besides avoiding risk, these innovations also have a speculative nature. No matter whether they are used for reducing the risk or speculative reasons, it is certain that the volume of transactions on developed financial markets with derivative instruments is growing.

REFERENCES

- [1] Finance & Treasury, *Understanding and Managing Interest Rate Risk*, April 2008 pp. 6.
- [2] Basel Committee on Banking Supervision, *Risk management guidelines for derivative*, Bank for International Settlement, April, 2016
- [3] NBRM, *Decision on managing the interest rate risk in the banking activities*, Official Gazette of RM, No.163/2008
- [4] Karadjova Vera, *Principles of Risk Management*, CNIR – FTU Ohrid, 2012, (in Macedonian language), pp. 368-369.
- [5] Rose S. Peter, Hudgins C. Sylvia, *Bank Management and Financial Services*, 6 ed., translation, Data Status, Belgrade, 2005, (in Serbian language), pp. 255.
- [6] Karadjova Vera, *Principles of Risk Management*, CNIR – FTU Ohrid, 2012, (in Macedonian language), pp. 370-372.
- [7] Gordana Vitanova, *Financial Markets and Institution*, *Economic Faculty, Prilep*, 2003, pp. 79-86.

ANALYSIS OF THE GLOBAL OIL PRICE TRENDS ON INTERNATIONAL MARKETS

Adrijana Vuković¹⁵⁴
Marijana Milunović¹⁵⁵
Aleksandra Pavićević¹⁵⁶

Abstract: *The contemporary world is painted with constant changes, where the key to economic success lies in the ability to understand them and to optimally adapt to the new business environment. Today, the society is divided by numerous lines - horizontal, vertical, and even oblique - in equally numerous and interest-contested groups. The author, in the paper, points out that the opposing interests are a force that can not be ignored, because they impose certain moves and actions. These forces yield combinations of dynamic tendencies that generate appropriate effects, where the actors can neither modify nor eliminate them. These complex constraints act and impose themselves with the same force and inconvenience as that of standard static constraints, which are very familiar to economists and are part of their usual analytical instrument.*

The paper analyzes the breakdown of the bipolar system of international relations and a whole series of major political and economic consequences that have arisen from this and have caused some redirection of foreign policy and economic priorities. In today's world, international and economic relations represent a system of power relations, both political and economic. Research shows that energy has gained a prominent place in the national security strategies of most countries in the world, and energy security is more and more often equated to national security itself. Energy security has become a keyword in contemporary international relations.

Key words: *energy, oil, energy security, the world oil market.*

1. INTRODUCTION

“Security and certainty in oil lies in variety and variety alone” said Winston Churchill, at the dawning of The First World War. This sentence can justifiably be considered the slogan for energy security, which is observably a topic that has not diminished in its relevance, as a mandatory element of world-wide domestic and foreign government policies on the global scene. Energy security became a keyword of contemporary international relations. Since the industrial revolution, coal, followed by oil, and currently gas and nuclear energy, have always significantly influenced world-stage political climate, events and conflicts, and even instigated wars. Oil and gas have divided and merged, have forced into conflicts and reconciled opposing sides.

Oil is the blood of the industrial civilization; it is an energy source without which the world of today would look significantly different. Oil is often called “black gold”. In a strictly economic point-of-view, it is in the forefront of interest of the world’s industrial economies. Oil occupies

¹⁵⁴Union – Nikola Tesla University Belgrade, Faculty of Law, Security and Management “Konstantin Veliki”, Nis, Serbia

¹⁵⁵Union – Nikola Tesla University Belgrade, Faculty of Management, Sremski Karlovci. Serbia

¹⁵⁶Union – Nikola Tesla University Belgrade, Faculty of Business Studies and Law, Belgrade. Serbia

the position of the singular most important primary fuel, with the share of over 40%, and with an average yearly growth rate of 1.83%, concluding with the year 2025.

Global oil market is unstable. Over the last 40 years, it went through numerous changes. In the background of everyday economic processes, such as economic and financial crises, manipulated and free markets, abrupt price changes that continuously shake the oil market, the fact remains that there is an additional problem of depletion of the world oil reserves. Future oil prices can only raise further, both absolutely and relatively, which will only worsen the effects of the inevitable collapse of financial markets. Increase in oil prices has a major impact on the drop-off in economic development. World economy has, at least partially, adjusted to these uncertainties and surprises in the oil markets by: development of energy-intensive industries, activation of oil reserves, and formation of amicable political and economic alliances with high oil production countries.

Worryingly, the threats to the secure oil supply (faster exponential growth in demand, war and hostile threats in the Middle East, unresolved Israeli-Palestinian question, world powers' interference in the politics and economies of high oil production countries, political instability in the Caspian region, slow market reform in Russia), which in turn exasperate price increase, are persistent and they do not have sure and permanent solutions.

However, the question of trend forecasting on the world oil market is an extremely ungrateful assignment. Over the last number of years, the wrong predictions and misjudged assessments were numerous. Events on the oil market in some cases were surprising to the point that even the most renowned analysts had to acknowledge their own fallacies and incorrect forecasts.

2. STRUCTURE OF THE WORLD OIL MARKET

Structure of any market is characterized by a correlation between supply and demand. Regarding supply and demand of oil, for the longest time, in addition to economic factors, influence of certain political factors has also been discernible. Basic possible relationships on the global market are being researched through the matrix of the politico-economic system and technological development. In the economic sense, it is possible to discuss supremacy of supply and demand, while political relations in the world can be categorized as dominantly bipolar or multipolar relations.

Particularity of the market itself is in the fact that the greatest suppliers of crude oil are not its most prevalent consumers. The fact that geological oil reserves are not equally distributed, brought forth the establishment of the global market, where only a small number of geographic locations on the planet are the main determiners of the crude oil prices.

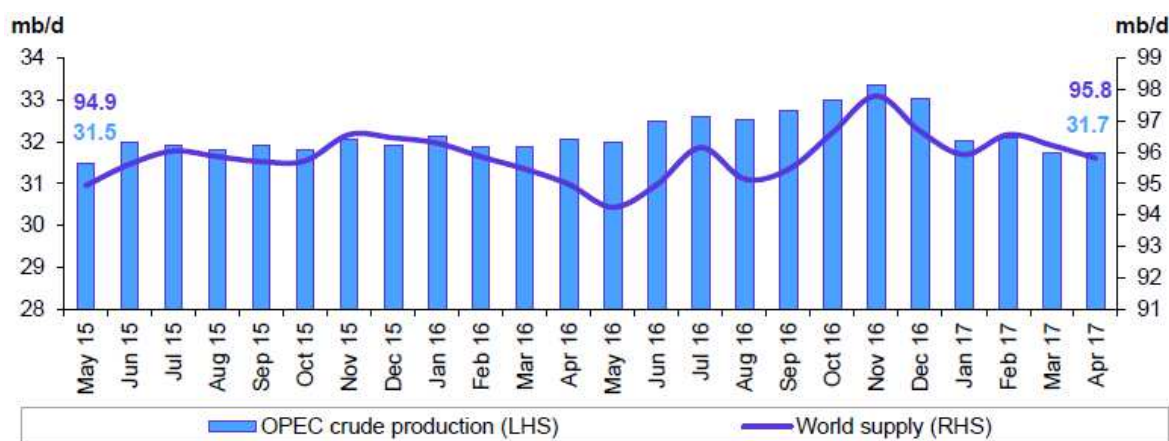
Adrijana Vuković was born in 1982 in Kotor, Montenegro. Earned her doctorate at the Alfa University in Belgrade, Faculty of Trade and Banking. Currently employed as docent for the scientific field of economics at the Union – Nikola Tesla University, Faculty of Law, Security and Management "Konstantin Veliki". Published a number of original, scientific papers and participated in numerous international and domestic, scientific and professional conferences and symposiums.



Central crude oil markets in the world encompass: North Sea, West Africa, Mediterranean Market, Persian Gulf, Asian region, as well as Eastern and Western coasts of the USA.

OPEC countries are the most prominent exporters of oil for both industrialized and unindustrialized countries. Their share of the global oil supply will rise to 61% by the year 2025. [1] With their high share in the global oil production and reserves, they directly influence crude oil prices. Members of the OPEC, whose economies directly depend on the oil export revenue, fight to preserve stability of oil prices, for both the producers and the consumers.

In December of 2016, overall oil reserves of all members of OPEC were 3.1 billion barrels, which was above their five year average. If in the first months of 2017 OPEC manages to decrease the production to the agreed upon 32.5 million barrels per day, that still will not be enough to bring up the overall level of supply reserves to the five year average. On the opposite side, EIA expects that the OECD reserves will increase by additional 40 million barrels by mid-2017.



Graph 1: OPEC and world supply [2]

The richest, industrialized countries and regions spend around 57% of total global oil, which comes to 44 million barrels per day (out of the total of 78 million barrels per day). Leaders in oil consumption are: USA, China, Japan, Germany and Russia. Contemporary developing countries spend only 36% of overall world oil. USA in the overall production participates, on average, with less than 8%, while their share in consumption is above 22%. Contrary, Saudi Arabia counts for around 13% of global oil produced, while its share in consumption is less than 3%. [3]

Over the last number of years, China, India, South Korea and other Asian and Latin American countries achieved higher levels of economic growth, resulting in a higher demand for oil and other energy sources. Over the forthcoming twenty years, accelerated growth in oil consumption in countries with budding markets will be one of the important specific development features of the oil market. [4] Owing to the economic growth, as well as the improved standard of living, it is estimated that by the year 2025, their share in the oil consumption on the global scale will equate to around 42.6%. [5]

	2016.	2017.	Growth	%
Americas	24.73	24.91	0.17	0.70
Europe	14.05	14.14	0.08	0.60
Asia Pacific	8.07	8.05	-0.02	-0.30
Total OECD	46.86	47.09	0.23	0.49
Other Asia	12.85	13.18	0.33	2.57
Latin America	6.47	6.53	0.06	0.95
Middle East	7.97	8.08	0.11	1.36
Africa	4.10	4.20	0.11	2.64
Total DCs	31.39	32.00	0.61	1.94
FSU	4.66	4.73	0.07	1.51
Other Europe	0.70	0.72	0.02	3.15
China	11.51	11.84	0.34	2.93
Total „Other regions“	16.86	17.29	0.43	2.54
Total world	95.12	96.38	1.27	1.33

Table 1: World oil demand in 2013 (World oil demand in 2017. mb/d) [6]

3. TOP OIL-PRODUCING COUNTRIES

World oil production moves according to the layout of oil fields and reserves, but it also largely depends on politics of a given country – oil producer, or an oil company.

In 2011, Russia produced 1.3% more oil than the previous year, although the difference between them and the countries closest to their level of production was significantly diminished. Russian share in the overall global oil production in 2011 was 12.8%. In 2012, Russia produced on average 10.8 million barrels of oil per day, 900,000 barrels more than the United States, whose production in the same period was averaging 9.9 million barrels per day.

From January to October of 2013, Russia produced 434.9 million tons of oil, with respect to 430.8 million tons put out the previous year. Oil production in Russia during June of the same year reached 10.53 million barrels per day, which enabled Russia to overtake Saudi Arabia (9.47 million barrels per day) in oil production. Just in October of 2013, 44.7 million barrels of oil were produced, which is 1.2% more than in the same month of 2012.

Marijana Milunović was born in 1973 in Belgrade, Republic of Serbia. Earned her doctorate at the Alfa University in Belgrade, Faculty of Trade and Banking. Currently employed as



associate professor for the scientific fields of economics and finance at the Union – Nikola Tesla University, Faculty of Management, Sremski Karlovci. Published a number of original, scientific papers and participated in numerous international and domestic, scientific and professional conferences and symposiums. Is a member of the Scientific Society of Economists of Serbia (NDES); a member of the program committee for an international scientific conference; reviewer of various textbooks and scientific papers published in scientific publications.

In May of 2015, Russia produced 45.29 million tons of oil, 1.6% more than in the same month of 2014, with average daily production of 10.708 million barrels.

In May of 2015, Saudi Arabia, the second ranked oil producing country in the world and the biggest oil producer of OPEC, averagely produced 10.25 million barrels of oil per day.

Russian oil production in 2016 rose 1.2%, for a seventh year in a row, achieving a new record of 11 million barrels per day. In March of 2016, Russian oil production exceeded that of Saudi Arabia, since Russian oil producers averaged 10.92 million barrels per day, comparing to Saudi Arabia's 10.12 mb/d. (Rostat)

USA occupies the third place, with 3,285 million barrels (11.2% of overall global production). Towards the end of 2011, oil extraction in the United States began to accelerate, so the increase in production over the entire year was 4.2%.

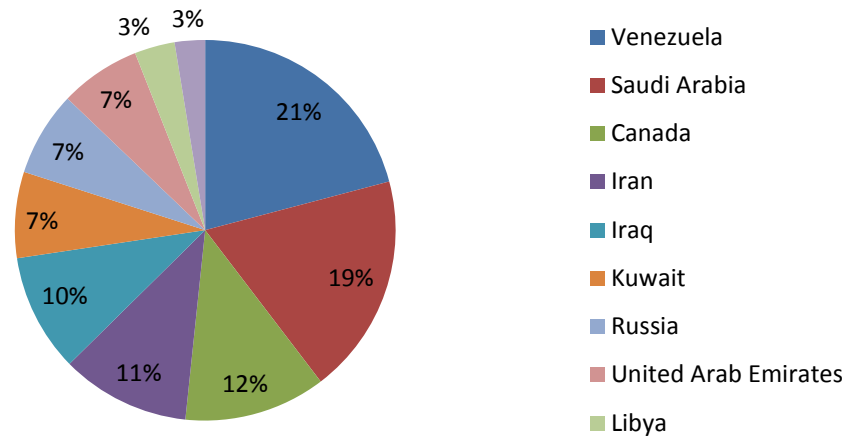
Concerning unconventional oil production, USA leads the trend, producing oil from shale, while this type of production just recently started in the Kashagan Field, an offshore oil field in Kazakhstan's territorial waters.

United States import half of their oil demands from Canada, Mexico and Saudi Arabia, with almost no import from other top oil producing countries. Although United States are themselves third ranked in oil production in the entire world, import of crude oil covers for 63% of oil demands domestically. Canada and Mexico are USA's main oil suppliers and they act as partners, according to the NAFTA (North American Free Trade Agreement) free trade agreement.

In the fourth place in oil production is China, producing 1,511.1 million barrels, which accounts for 5.2% of the total global production. [7]

The list of top five oil producing countries is rounded off by Iran, whose oil exploitation is around two million. Venezuela and Norway produce around 1.6 million barrels a day.

When discussing largest oil reserves in the world, Venezuela is the leader in this aspect. Country of Venezuela holds astounding 17.7% of world oil reserves, which is double that of Iraq and eight times that of USA. Still, in global trade, Venezuelan oil accounts for merely 3% of all traded oil. Second in reserves is Saudi Arabia (15.9%), and it is also in the second place according to oil supply (12.5%). According to the proven oil reserves, Canada is third (10.2%). Iran follows with 9.3% of proven oil reserves, and their resources account for 3.6% of oil on the world market, equaling that of Iraq, whose reserves comprise 8.5% of total world reserves. Kuwait comes in sixth with only 6.2% of world reserves, and they hold 3% of the global oil market. Behind them is Russia, with 6.1% global reserves, but this country occupies the first place in their oil market supply. Eight in reserves are United Arab Emirates (5.8%), with 3.7% market share. Following them is Libya, with the share of just 0.5% on the world market. In the tenth place in oil reserves is Nigeria, with 2.2%, but their oil fields produce impressive 2.6% of all the oil on the global market. United States comes in a low, eleventh place in proven reserves of crude oil, but they are the third oil supplier in the world.



Graph 2: World's largest oil reserves [8]

4. OIL PRICE MOVEMENT

Oil is an exhaustible resource, an unrenovable raw material with tendency for price vacillation. Oil prices are susceptible to sudden jumps. High price of a barrel of oil, observable over the recent period, and caused by then current world events, is not just a result of market relation between supply and demand, but it is a consequence of nonmarket factors, where politics play a substantial role. That is exactly why oil prices are an extremely susceptible category, influenced by a plethora of factors. International politics and geopolitical circumstances of the world significantly reflect on all aspects of crude oil production and exploitation, while the price of a barrel of oil is considerably prone to the impact of political climate. Consequently, as a result of an enormous economic growth of certain countries, it is almost inevitable that cheap oil will cease to be an important energy source driving economic and contemporary technological progress. Furthermore, potential resources for oil production are located in inaccessible areas, where the exploitation conditions are severe and significantly raise production and distribution costs.

In the period from 1998 until present day, **oil barrel price** increased multiply. In the span of 10 years, oil prices have constantly increased, being little less than 20 USD/bbl in 1998, to 147.27 USD/bbl in June of 2008. With its constant increase, in 2008 oil price per barrel crossed the psychological price barrier of 100 USD, after which, during the same year, oil price started to decrease. In 2008, total world oil consumption was 84.45 million barrels per day or 3,928 million tons daily.

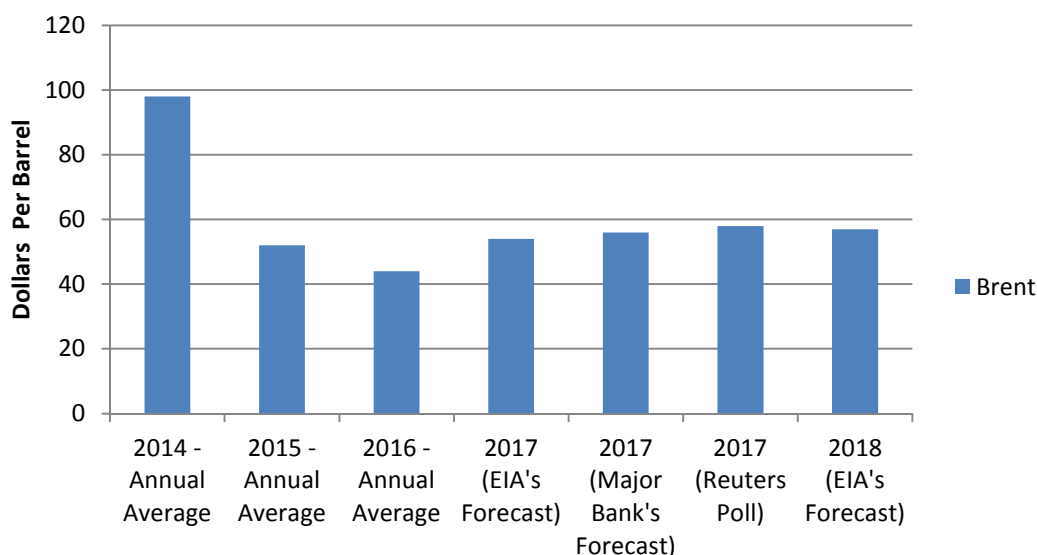
In February of 2009, oil price was 41 USD/bbl. Origin of these low prices in 2009 were the emphatic global economic slowdown and the world financial crisis. Slowdown in economic growth in certain countries, for example Germany and Japan, devolved into full recession. For months, demand for black gold reduced substantially, causing the price decrease of two thirds over just four months.

Due to the events known worldwide as "Arab spring", namely the political unrest in Egypt and Libya, the first part of 2011 was marked by a sudden jump in oil barrel prices, and it reached the value of 100 USD/bbl for Brent Oil, for the first time since October of 2008. In October 2008, OPEC, aiming to hinder this, for them extremely negative, trend, responded and decided to reduce production quotas for its member countries, totaling at 1.5 million barrels a day.

However, that measure did not show itself as particularly successful, since black gold continued its decrease in value.

Average crude oil price in 2012 varied on a level with the previous year. Yearly average price of the referential Brent oil was 111.53 USD/bbl, while in 2011 this average was 110.79. First half of the year exhibited one significant instance of price oscillation when, in the beginning of March, the price reached its multi-year high of 126.06 USD/bbl, but also the price of 89.23 dollars per barrel, the price level that was last recorded during Libyan crisis. Taking into a consideration such intense price fluctuations, it can be said that starting in August of that same year, prices of crude oil stabilized, in the range between 100 and 115 dollars per barrel. [9]

However, ever since June of 2014, oil prices have been falling. Biggest fall was recorded in the beginning of October. Obviously, the cause for this price drop was low demand for oil, which is a consequence of world economy's slow growth, but also, another cause that can be postulated is an overgrown supply of oil. Sudden oil price decline that began in 2014 continued into 2015, surprising the market. In 2016, oil prices fell to less than 50 USD/bbl.



Graph 3: Crude Oil Price Forecast – Brent [10]

After the November agreement between the Organization of Petroleum Exporting Countries (OPEC) and other countries calling for reduction in production by January 1st 2017, that was put in place in order to remedy the oversaturation of world oil markets, oil prices recorded mild incline and were above 50 USD/bbl. In 2016, average oil price was 42.7 dollars per barrel. (IMF)

For the year 2017, Merrill Lynch, in her report, predicted the value of 61 dollars for Brent, with the annotation that this forecast was made in accordance to OPEC agreed production quota of 500 million barrels per day. Moreover, according to the World Bank's latest forecast, average price of oil during 2017 will be 55 dollars, which is approximately 2 dollars more than what was predicted in their previous analysis.

For 2017, International Monetary Fund (IMF) expects that the oil prices will average 51.2 dollars per barrel, and for that price to raise to 53.1 dollars in 2018.

Everyday forecasts with predictions of oil price movements during 2017, demonstrate the turbulent character of the market, as well as improbability of a realistic analysis of market trends pertaining to oil prices, intended even for relatively immediate future.

Oil prices and supply conditions, as well as their movement in the near and distant future, is clearly linked with exploitation plans for any other energy source. Complementarity and substitutability of energy sources during the conditions of market instability of one of them imposes the need for continuous analysis of basic parameters for every factor. Such role of oil in energetics of almost any country facilitates the influence of political factors on the activities on the global oil market. Strategic function of oil is observable throughout the entire previous century.

Aleksandra Pavićević
was born in 1973 in Belgrade, Republic of Serbia. Earned her doctorate at the Alfa University in Belgrade, Faculty of Trade and Banking. Currently



employed as docent for the scientific field of trade at the Union – Nikola Tesla University, Faculty of Business Studies and Law. Published a number of original, scientific papers and participated in numerous international and domestic, scientific and professional conferences and symposiums.

Through observing the value of a barrel of oil over a multi-year period, it can be deduced that all the way up until 1972, oil prices possessed a high level of stability; in 1972 the oil prices experienced a momentous drop, after which a permanent increase in market prices of oil ensued. Forecasts predicting that, in the near future, oil production will reach its peak, and that by the year 2050 there will exist a serious threat of complete depletion of the entirety of world oil reserves, are possible facilitators of additional, sudden and considerate oil price increase. In this sense, world economies are strained with effort to prevent a crisis of immense magnitude and proportions, due to a further increase in the oil barrel prices, which necessitates larger use of other energy sources, such as nuclear energy, water and wind energy, as well as carbon combustion as a special and still developing technology. Demand for oil depends mostly on macroeconomic circumstance, and the International Energy Agency warns of the excessive negative influence that the high oil barrel price has on global economic growth.

5. CONCLUSION

World oil market is going to play a substantial role in creating global market politics for at least another 50 years.

Speaking long-term, economic growth in countries with developing markets will prompt the growth of global oil demand and, therefore, the increase in oil prices. Opposite effect will be achieved through measures such as: effective energy consumption, wider use of renewable energy sources, natural gas, etc., development of less energy intensive industry branches, activation of energy reserves, creation of peaceful political and economic alliances, etc.

However, oil market will still be agitated by wars, political tensions and conflicts, worker strikes, terror threats and attacks, climate disasters, etc. No one knows how will the oil prices fluctuate in the future, which is exemplified by diversity in experts' analytical forecasts. Occasional periods of high oil prices can still be expected. However, predicting the exact date or length of such occurrences is challenging. To this day, many expert analysts find their own forecasts unproductive, and, for most part, significantly incorrect. It remains to be seen if such

problematic trend in predicting oil prices will continue over the next 50 years, for when it is predicted that the era of oil will come to its close.

It can be inferred that it is extremely hard to predict future oil price movement. Then, what will be the price of oil in five to ten years? Will it be 100, 200 or 300 per barrel? Will it stay on its average level, due to a fall in demand and lower inflation? Simple answer does not exist, but one thing is for certain: effects of depletion of world's oil reserves are already manifesting themselves. The price of oil may increase both absolutely and relatively, and that way worsen the ramifications of the impending financial market collapse.

Concerning oil supply and demand, for some time now, beside economic factors, the presence of political influence can also be observed. Still, the events on the world oil market over the last twenty years followed the logic of the market. No matter how important of a strategic material oil is, and the fact that the structure of the global oil market is determined by political factors, those basic relations, under the surface, were and will continue to be characterized by market conditions.

REFERENCES

- [1] Benac, K., Slosar, T., Žuvić, M. (2008) *Svjetsko tržište nafte*, Pomorski fakultet u Rijeci, Rijeka, Hrvatska, pp. 62-65
- [2] OPEC, Organization of the Petroleum Exporting Countries, *Monthly Oil Market Report*, October 2013., http://www.opec.org/opec_web/en/publications/2482.htm
- [3] Benac, K., Slosar, T., Žuvić, M. (2008) *Svjetsko tržište nafte*, Pomorski fakultet u Rijeci, Rijeka, Hrvatska, pp. 38-39
- [4] Sekulić, G., *Skokovi cijena na ranjivom i neizvjesnom naftnom tržištu*, Časopis EGC, 5/2004.
- [5] <http://www.iea.org/energyaccess/>
- [6] OPEC, Organization of the Petroleum Exporting Countries, *Monthly Oil Market Report*, http://www.opec.org/opec_web/en/publications/338.htm
- [7] EPA, <https://www.epa.gov/sustainability>
- [8] IEA, International Energy Agency, Key World Energy Statistics, <https://www.iea.org/publications/freepublications/publication/key-world-energy-statistics.html>
- [9] <http://www.unks.rs/?page=home&lang=1>
- [10] EIA, Wall Street Analysts, Reuters, www.eia.gov

CONSEQUENCES OF SYSTEMIC FINANCIAL CRISIS ON REAL ECONOMY AND FISCAL IMBALANCES

Lucia Mihóková¹⁵⁷
Radovan Dráb¹⁵⁸

Abstract: *New characteristics of the latest crisis have categorized it among models of financial crises described as systemic financial crisis. Many research confirms that the current crisis has a significantly negative impact on the real economy. Crisis's systemic nature, however, underlines the need to consider serious long-term consequences for the financial system and public finances in the context of fiscal sustainability. The main objective of the paper is based on the theoretical and empirical knowledge to estimate crisis costs and to identify and analyse the relations between the fiscal costs and selected determinants. The purpose of the paper in the context of theoretical implication is to present the systemization of knowledge about the fiscalisation process of the crisis and fiscal crisis costs. In the context of practical implication is the purpose of the research to empirically quantify consequences of systemic crisis within EU member countries using quantitative economics. The main approach of the research is the analytic-synthetic approach. Within the research general methods (analysis, comparison, induction and synthesis), qualitative (text and documents) and quantitative methods (descriptive statistics, time series analysis and panel regression model) are used. The performed research pointed out that the systemic crisis had a negative impact on real economy, fiscal imbalance and financial sector (increase in fiscal costs in the form of output loss increase, public debt ratio increase and NPL increase). The econometric analysis identified several significant crisis features contributing to fiscal crisis costs. The paper was developed within the project VEGA 1/0967/15.*

Key words: *systemic financial crisis, fiscal imbalance, real economy, fiscal crisis costs, output loss, determinants of costs, panel regression model*

1. INTRODUCTION

Since the beginning of the other crisis and its gradual penetration into European countries, it is clear that its character, depth and consequences go beyond previous experiences, which has led to the need of its consequences understanding and to a "new systemic approach" e.g. [1] or [2]. The objectives of researches in the context of the other crisis outcomes, classified as "systemic financial crisis" have become not only the consequences for the real economy and the financial system, but also the implications for public finances in the context of the fiscal sustainability of the countries ([3], [4], [5]). The transfer of the emerging private debt burden into the banking sector and the subsequent transfer to the public debt represents a serious impact on public finances and the financial system. The process referred to as the "crisis fiscalization" [6] is mainly linked to a increase in public debt and the deterioration of fiscal imbalances (e.g.[7], [8], etc.)

¹⁵⁷ Faculty of Economics, Technical university of Košice, Némcovej 32, 04001 Košice, Slovakia

¹⁵⁸ Faculty of Economics, Technical university of Košice, Némcovej 32, 04001 Košice, Slovakia

2. RESEARCH OBJECTIVE, DATA AND METHODS

The main objective of the paper is based on the theoretical and empirical knowledge to estimate crisis costs and to identify and analyse the relations between the fiscal costs and selected determinants within EU member countries. The purpose of the paper in the context of theoretical implication is to present a systemization of knowledge about the fiscalisation process of the crisis and fiscal crisis costs. In the context of practical implication is the purpose of the research to empirically quantify consequences of systemic crisis within EU member countries using quantitative economics. In line with the main objective, is the object of investigation (fiscal costs under crisis conditions) broken down into parts so that they can be understood, analyzed and evaluated. Research is divided into three parts: (1) the first part presents the theoretical aspects of the impact of the crisis on real economics and fiscal imbalances in the context of the process of crisis fiscalization. (2) the second part of the research focuses on defining the first category of fiscal crisis costs expressed by three basic indicators: output loss, increase in public debt and peak NPL. At the same time, the second part focuses on estimation of fiscal costs in EU member countries. (3) the third part of the research includes an analysis of the links between the fiscal costs of the crisis and the selected features of the crisis based on the PLM model methods.

The main research method is the analytic-synthetic method. Analysis of economic interactions of fiscal imbalances and crises required the application of quantitative and qualitative methods. Systematization of the fiscal imbalance and systemic crisis theoretical aspects is based on secondary sources: the literature of home and foreign origin, research documents and publications of international institutions: eg. OECD Economic Department Papers, ECB Economic Papers, National Bureau of Economic Research, IMF, Economic Publications of the European Commission, etc.). Knowledge is systemized using general methods, through in-depth research, opinion analysis, comparison and synthesis. An overview of the methods used for the partial objectives set out in the research section is given in Table 1.

Analytical part of research				
Object of the research	Database	General methods	Statistical methods	Prerequisites for the statistical methods applicability
Fiscal costs estimation	Secondary data: [25] and [26]	Depth analysis, comparison, induction, deduction, synthesis, abstraction	Descriptive statistics, mathematical modeling	Production and selection of indicators based on empirical analysis
Fiscal costs determinants identification	Secondary data: [25], [26], [27] [28], [29]		Higher statistics in form panel regression analysis	Determination of preference between OLS model and PLM model using pFtest; Determination of the preference between the fixed and random effects of the model using the Hausmann test; Determination of the preference between the fixed effect for panels and the time effect by means of a plg test (Lagrange Multiplier test); Verification of interpanel correlation by PCD test (Pesarov test); Verification of serial correlation using pbgtest (Breusch - Godfrey test);

Table 1: Overview of research methods

3. CONSEQUENCES OF CRISIS ON REAL ECONOMY AND FISCAL IMBALANCES: THEORETICAL APPROACH

The financial crisis and its consequences are reflected in all areas of the real economy. Every existing financial crisis in the so-called Generation Logic [1] was characterized by the definition of the crisis nature, the causes of its origin, but also, in particular, its consequences in the macroeconomic and financial spheres. Research aimed on the financial crisis impact identification (e.g. [9], [10], [11] or [12], [24] etc.) draw attention to the quantification of macroeconomic consequences. Their focus is the analysis of the impact on the potential output.

Research [11] confirmed that the financial crisis has a negative and lasting impact on potential output in the range of 1.5-2.4%. A crucial factor in research is the "severity" of the crisis, which has a significant impact on the size of the product decline. Taking this factor into account, the study by [12] "Big Five Crises" showed that the financial crisis has led to a loss in output and employment. On average, during all the periods under review, has the real GDP declined from its local maximum to a minimum by more than 9% and the duration of the decline has been on average around two years, what is a year more than the normal economic slowdowns. The decline in GDP corresponds to the loss of around 5 years of growth, assuming that the country has a potential growth rate of 2-2.5%. The research by Bernanke, Lown and Friedman (in: [7]) and Kashyapou and Stein (in: [7]) has increased the sample used by [12] and [7], for the EU15 countries. The results of the analysis showed that the loss of output is usually 2 to 3 times greater than in the "normal" recession period, and the output recovery period to the potential product level is at least doubled (ie the output gap is zero) and the impact of these recessions to long-term potential growth is mixed.

The [10] identifies two key channels through which the crisis can influence the level of potential product and the rate of growth, both direct and indirect consequences. Indirect impacts are related to the application of government's stabilization policies that use its measures against the economic downturn. Direct consequences are visible through the individual components of the production function: labor and capital productivity and total factor productivity

The studies mainly of foreign origin (e.g. [9], [7], [12], [10], [24] etc.) pay their attention to several aspects of the labor. Impact of the crisis is manifested in particular in labor supply reduction, increased risk of permanent loss of human capital, labor supply competition reduction, which ultimately results in long-term loss of output. These states referred to as "hysteresis effects", according to studies by Blanchard and Summers (in: [9]) and Balla (in: [10]), have led to an increase in structural unemployment. At the same time, according to the study by Pichelman and Elmeskov (in: [10]), they lead to a discouraged worker effect. All these consequences lead to long-term loss of output in the long run. The [12] study confirmed an increase in the unemployment rate by 7% during the cycle phase, which lasts on average for more than four years, and the duration of the drop in employment is significantly longer than the output decrease. The second component of the production function, which has an impact on the potential output, is the capital. [9] stated that the immediate effect that the crisis may have on the potential output is through its negative impact on investment and on a slower accumulation of capital. In the long run, the impact of the crisis will be determined, in particular, by the situation on the financial markets and the perceived degree of uncertainty. Similarly, Pindyck and Solimano (in: [10]) also point out that increased uncertainty leads to a risky premium growth, which has a negative impact on investment. Increased uncertainty also leads to an increase in the so called values of investment delays. The negative effect may be greater if the investment process is also characterized by non-resilience and drowned costs [13].

Another component that reflects the impact of the financial crisis on the level of growth in economic output is total factor productivity (TFP). The effect of the TFP is according to [10] a priori uncertain. Expenditures on innovation have, according to the authors, pro-cyclical nature and their significant reduction is likely to occur in times of crisis. According to their results, the crisis reduces the expected return on investment in research and development, while also reducing the cash flows of businesses, which are the main source of funding for innovation.

The research findings above indicate that the financial crisis has a significant negative impact on the real economy and the loss of output can be severe. Since the beginning of the crisis in the US and its gradual widening into different European countries, it is clear that the nature, depth and consequences go beyond past experience, which makes it necessary to alter the interpretation of its implications for the "new systemic approach". It is necessary to consider the serious and long-term consequences for the financial system. In particular, the fiscal costs or damages caused by the banking system. Given that the fundamental problem is the debt problem - the most serious consequence is the volume of outstanding loans.

4. ESTIMATING FISCAL CRISIS COSTS

Transfer costs which are caused by the financial crisis in the public finances identified by [6] as fiscalization of the financial crisis. Despite the claims that the process of fiscalization is confusing, tedious and time-consuming is the connection of the financial crisis with the fiscal imbalance problem obvious, as evidenced by several studies in this area (e.g. [14], [15], [16], etc.). The issues of objective fiscal costs determination and their share on the growth of public debt has become the center of attention of several expert discussions.

According to [17] measure of crises costs can emerge in a variety of ways and there is a number of difficulties in measuring the crises costs. As [18] state, the estimation of fiscal costs is linked to a number of issues such as the ambiguity of the definition of crises, the methodological problems of cost measurement or the low willingness of subjects to provide relevant data. An important problem is the absence of budget costs taken over by the state state budget, which do not show up in the fiscal imbalances of a country. For these reasons, there are several methods of estimating costs of crises in empirical studies. Among the basic categories, according to [8] and [14] can be included: 1) *indicators that capture actual fiscal losses (output loss, relative ratio of government debt and non-performing loans)*; 2) *direct fiscal costs (linked to financial sector support)*; 3) *indirect fiscal costs* and 4) *recession costs*.

Taking into account the complexity and size of the crisis and fiscal costs problems, as well as the limited scope of the contribution, is the auricle focused on definition and examination of only one type of fiscal cost from the above stated, namely costs in the form of *indicators capturing actual fiscal losses: public debt ratio and NPL (non-performing loans)*. This category of crisis costs includes indicators that from the view of the crisis depict actual fiscal losses [8]. The significance of variables enhances the fact, that the variables are in contrast to the costs directly related to the financial sector aid will take effect in fiscal balances [14] or the argument that the level of public debt is the most relevant indicator for the long-term sustainability of public finances [14] and [8].

The following, part of the paper focuses on the estimation of the crisis costs: output loss, increase in public debt and peak NPL (Table 2). Individual indicators were identified in the EU member countries in times of crisis, based on the methodology of [19] and [20]. Beginning of the crisis in this case had to meet criteria according to [18]. Similarly is the end crisis year

considered and defined. In all cases, we have truncated the duration of a crisis to 5 years, starting from the first year of the crisis. Overview of the identified crisis periods in individual EU member countries and the associated values of the crisis costs are provided in Table 2. When determining the period of crisis we have to note that we did not distinguish the specific type of financial crisis, which means that we have identified a financial crisis in general regardless its type (systemic, banking or currency crisis).

Country	Output Loss in percent of GDP	Increase in Public Debt in percent of GDP	Peak NPLs in percent of total loans	Duration in years	Years
BE	1.52	15.56	3.30	4	2008-2011
BG	17.34	4.29	-	4	1998-2001
CZ	8.64	11.57	5.21	4	2008-2011
DK	3.71	12.75	3.66	4	2008-2011
DE	1.68	13.46	3.0	4	2008-2011
EE	15.86	1.57	4.04	4	2008-2011
IE	7.18	86.43	16.12	5	2007-2011
EL	13.11	50.15	23.27	5	2008-2012
	29.41	3.43	36.29	5	2013-current
ES	4.76	46.26	7.48	5	2008-2012
	14.06	3.98	6.16	3	2013-2015
FR	1.13	17.19	4.29	4	2008-2011
HR	5.25	31.11	13.75	5	2008-2012
	16.81	1.17	13.60	4	2013-2016
IT	0.16	20.95	13.74	5	2008-2012
	7.73	2.52	18.06	3	2013-2015
CY	19.64	34.59	18.37	5	2008-2012
	21.84	4.53	47.74	4	2013-2016
LV	12.18	23.03	8.72	5	2008-2012
LT	10.38	6.35	-	4	1998-2001
	5.13	22.61	18.84	4	2008-2011
LU	4.07	3.79	0.37	4	2008-2011
HU	2.99	8.95	13.67	4	2008-2011
NL	3.24	6.80	2.71	4	2008-2011
AT	1.18	13.76	2.70		2008-2011
PT	2.48	54.55	9.77	5	2008-2012
	8.14	1.55	11.89	2	2013-2014
RO	12.12	21.03	14.32	4	2008-2011
SI	5.16	31.98	15.17	5	2008-2012
SK	11.44	15.21	5.61	4	2008-2011
FI	3.45	15.85	-	4	2008-2011
SE	2.96	0.09	0.65	4	2008-2011
UK	6.59	31.34	3.96	4	2008-2011

Table 2: Selected Crises Outcomes 1995-current

The analysis of fiscal crisis period confirmed that crisis periods were concentrated in EU member countries within the period of 2008-2011/2012. Values of fiscal costs represented by the output loss indicator do confirm that during these crisis years 2008-2012 was the increase in the output loss significant. The average output loss during this period was 6.55 % GDP.

Significant fiscal costs were recorded when compared to other countries in countries as IE, EE, EL, ES, CY, LV and RO. The research results confirm that the effects of the crisis on the real economy can be negative and that the crisis period was characterized by a sharp economic and fiscal deterioration. As [21] states that EU member countries have not been prepared for crisis and many EU countries (including the IE, EL, and ES) have faced a sharp economic downturn and huge imbalances in the private sector as well as in the public sector. As shown in Table 2, in two countries, namely MT and PL, it was not possible to quantify the fiscal costs in the form of identified indicators, because according to established assumptions, the crisis episodes were not identified in the countries.

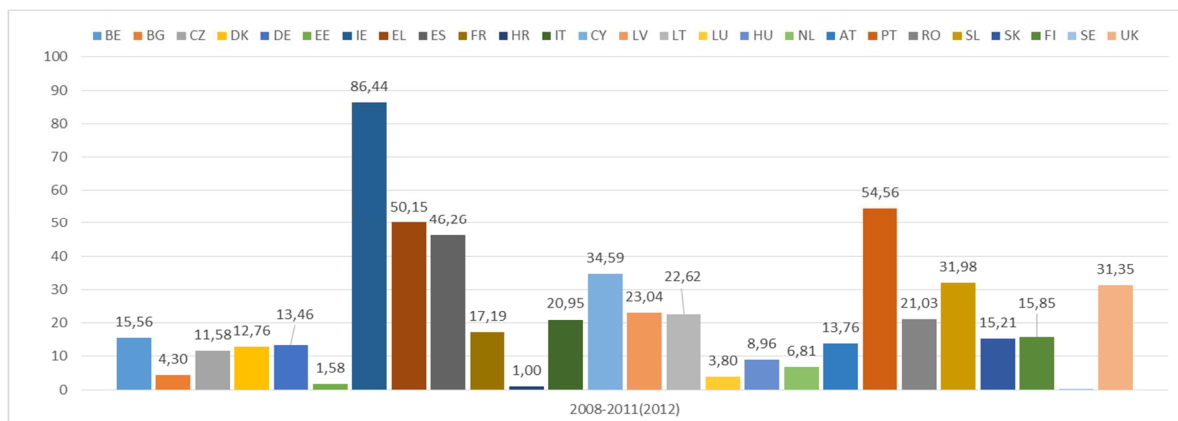


Figure 1: Increase in public debt in EU member countries during the crisis period

The fiscal costs expressed as the increase in public debt was measured in percent of GDP over [T-1, T+3], where T was the starting year of the crisis. An increase in public debt-to-GDP ratio over the identified crisis period 2008-2011/2012 (Figure 1) was visible in all EU member countries except several countries such as SE and EE. The average increase of debt in the countries was 22.70%, which is indeed in comparison with the historical median by 16% of GDP more. The most significant increase of fiscal crisis costs in the form of public debt was recorded in countries such as IE, EL, ES, CY and PT (mainly PIIGS countries) which can be the result of implemented fiscal policy and direct financial costs to support the financial sector. Results of analysis confirmed that the crisis period deteriorated the general government balances and caused a large deficit (7.5% of GDP) in the EU27 as a whole. The sharp economic decline and huge imbalances in private sector created the pressure on a partial change in the structure of public sector liabilities and have led to a dramatic increase in the countries' debt ratio by about 30 pp. and fostered the need to tighten its fiscal policy [21].

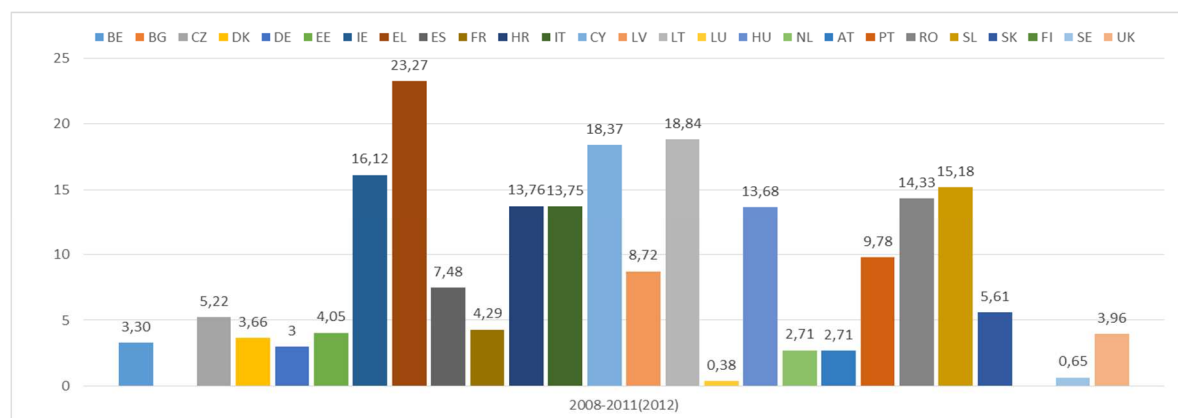


Figure 2: NPLs Peak in EU member countries during the crisis period

NPL was defined as the peak level of nonperforming loans, over the period $[T, T+5]$, where T was the starting year of the crisis. For the recent episodes, where a 5-year window may not be available yet, the peak is computed over the period $[T, \text{latest data available}]$. According to research results can be stated that the proportion of total loans during the crisis period 2008-2011/2012 within EU member countries significantly increased. The average value of NPL growth was 8.18%. The highest values of NPL increase was recorded in several countries such as IE, EL, CY, RO or SI. With this result, we can conclude that an insufficient effectiveness in use of credit in the economies exist and in the next period can be a transfer of non-performing loans to public debt expected. The research results have confirmed that the current crisis period had a significant impact on the financial sector. Results have confirmed that the process of crisis fiscalization, in which according to [1] the rise in private debt weakens the banking sector, and its problems are then starting to create a pressure on the central bank and the government to address the problem. The limited possibilities of the banking sector to solve the problem thus may result in the transfer of unpaid private debts to public debt. The accompanying phenomenon of removing the negative effects from the banking sector in the country is therefore an increase in public debt.

5. DETERMINANTS OF COSTS

The aim of the paper is to analyse the relations between the fiscal costs and selected determinants within EU member countries. Therefore in the context of practical implication is the research in its second part of the paper focused on the empirical quantification of systemic crisis consequences using quantitative economics within EU member countries. The second part of the paper identifies the mutual relation between output loss and selected characteristics of the crisis as well as the linkages between the public debt-to-GDP increase and features of crisis affecting their size using OLS or PLM methods (1).

$$Y = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_k X_{ki} + \mu_i \quad (1)$$

The objective of the econometric analysis was to identify the linear equation describing the relation between the fiscal costs (debt-to-gdp and output loss) and their key determinants, estimate the coefficients of the model's parameters and confirm the theory on the relations between the variables. The explanatory variables ($X_{1i} - X_{ki}$) are in line with several research (e.g. [8], [22] or [23] etc.) divided into three groups: (1) initial conditions (constituting the systemic characteristics: deposits, FB, FiScalpol), (2) banking and currency crises (syscrisis, bankcrisis, curcrisis, NPL, bankrun, CB) and (3) macroeconomic variables (characterizing the macroeconomic environment of countries: Rgrowth, Developed, INF, CaB). Details of all defined exogenous variables are presented in research [18] and were obtained from the [26], [28], [29], [25] and [27].

The panel regression model was selected based on the model's variables character, which are a combination of cross-sectional data and time series of the 28 EU countries. During the econometric analysis four types of models were performed (OLS model, Fixed Effects PLM Model and Random Effects PLM Model and Pooled Regression Model). The selection of the final appropriate regression model was based on statistical significance tests that were applied (F-test of the statistical significance of the individual components, Hausman test, Panel Lagrange Multiplier test (PLM test)). Based on the tests described, as an appropriate model was the PLM with the fixed effect on country selected. The econometric verification was carried out in the form of verification of the basic Gauss-Markov theorem: (i) verifying the existence

of correlation between individual panels (Pesaranov test) and (ii) verifying the existence of serial correlation for panel models (Breusch-Godfrey/Wooldridge test). The economic verification showed feasibility of the model, based on the econometric assumptions.

Explanatory variables	Estimate	Std.Error	t value	Pr(> t)	Sig.
NPL	1.479914	0.230747	6.4136	5.183e-09	***
Credit boom	-8.913895	2.588217	-3.4440	0.0008479	***
debtcrisis	5.637674	2.027975	2.7800	0.0065306	**
fiscalpol	-6.571519	3.555868	-1.8481	0.0676381	.
FB	0.562703	0.312821	-1.7988	0.0751604	.
inf	0.681988	0.577635	1.1807	0.2406267	
Bankcrisis	-1.675329	2.520113	-0.6648	0.5077665	
Curcrisis	-3.084069	5.580580	-0.5526	0.5817792	
CaB	0.234967	0.070072	3.3532	0.0011404	**

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1,
R-Squared : 0.76824, Adj. R-Squared : 0.69179, F: 35.7268, p-value: 2.296e-16

Table 3: Crisis Effects' Regression Results for Debt-to-GDP

Results in Table 3 present the model regression estimates for fiscal costs expressed as Debt-to-GDP. As can be seen several explanatory variables seem to be statistically significant in explaining the Debt-to-GDP indicator. The most significant variables are NPL and Credit boom. The 1 pp increase in NPL leads to a 1.47% increase in the fiscal costs. This result is in line with the research e.g. [1] or [15] according to which the increase in NPL weakens the banking sector and limits its options to take countermeasures, so in the end are the NPLs transferred into public debt in an Debt-to-GDP ratio. On the other hand, the model suggested a negative impact of Credit boom dummy (-8.91%), which is in contrary with the process of fiscalization [6]. Among significant variables that have a positive impact on increase of fiscal costs belong: debtcrisis, FB and CaB. An interesting model result is that bancrisis and curcrisis do not have impact on the fiscal cost.

Explanatory variables	Estimate	Std.Error	t value	Pr(> t)	Sig.
Rgrowth	-0.641847	0.076153	-8.4283	7.166e-13	***
NPL	-0.770578	0.073594	-10.4707	<2.2e-16	***
Curcrisis	3.883871	2.315273	1.6775	0.09708	.
Bankrun	-1.462260	1.071000	-1.3653	0.17571	
FB	-0.299193	0.133884	-2.2347	0.02803	*
Inf	1.263091	0.263911	4.7861	7.002e-06	***
CaB	-0.047716	0.027280	-1.7491	0.08384	.

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1,
R-Squared : 0.81325, Adj. R-Squared : 0.7481, F: 53.50, p-value: 2.296e-16

Table 4: Crisis Effects' Regression Results for Output Loss

As shown in Table 4, after the elimination of several insignificant variables from the model only relevant variables are left. From the model can be concluded that among the significant variables with a negative coefficient and an effect on fiscal costs expressed as output loss belongs also Rgrowth. The 1 pp increase in Rgrowth leads to a -0.64% decrease in output loss, which is in line with theoretical assumption [10]. The negative effect on output loss have also

variables NPL (-0.77%) and Bankrun (-1.46%). These results are in contracy with the theory but, as [1] state, that the increase in non-performing loans and bankrun expressed whether or not the country's banking system experiences a depositors' run can contribute to decrease in output loss. The „wrong“ direction of the result coefficient comparing to empirical estimation, could be the objective of the next research. On the other hand, the positive effect on output loss have curcrisis dummy variable and macroeconomic variable inflation. Based on the model results can be stated that the effect of selected determinants on fiscal costs are in line with the direct consequences on potential product [9], [7] or [12] through the component of production function.

*Ing. Lucia Mihóková,
PhD.*

*Assistant Professor,
Faculty of Economics,
Department of Finance,
Technical University of
Košice, Slovak Republic*



Since 2013 works as Assistant Professor at the Department of Finance at Faculty of Economics TUKE. Her research is focused on public finance and in particular on taxes, fiscal imbalance and its consolidation. She participates in several national and international scientific research projects. Courses taught: Finance and Currency, Public Finance, Tax and Taxation Systems.

The resulting mismatch with the expected effects may be affected by several factors, such as: the use of estimated values, as well as various indices of exogenous determinants or the existence of deficiencies in individual applied quantitative methods (construction of the panel regression model). In addition, taking into account the number of analysed countries (28 EU) the results might also be impacted by a number of random failures.

6. CONCLUSION

New characteristics of the latest crisis have categorized it among models of financial crises described as systemic financial crisis. Many research confirm that the current crisis has a significantly negative impact on the real economy. Crisis's systemic nature, however, underlines the need for consideration of serious long-term consequences for the financial system and public finances in the context of fiscal sustainability. The main objective of the paper was based on the theoretical and empirical knowledge to estimate crisis costs and to identify and analyse the relations between the fiscal costs and selected determinants within EU member countries.

The first part of the research, focused on the estimation of fiscal crisis costs during the time of crises, includes estimation of three crisis costs: output loss, increase in public debt and peak of NPL that from the view of the crisis depict actual fiscal losses. In the context of fiscal costs, debt-to-gdp ratio and output loss resulted in an increase in all EU member countries comparing to pre-crisis periods. The average increase in fiscal costs expressed as output loss during this period 2008-2011/2012 was 6.55 % GDP, in debt-to-gdp ratio was 22.70% and in NPL 8.18%. Based on above, the research pointed out that the consequences of systemic crisis were significant and negative. The second part of the resreach was aimed to analyse the relations between the fiscal costs and selected determinants within EU member countries. Results of the analyzed models using PLM regression identified several significant crisis features contributing to increase of fiscal costs: output loss and debt-to-GDP ratio. Debtcrisis as a dummy variable and macroeconomic variables (fiscal balance and inflation) resulted in a postivie effect on debt-to-gdp ratio, what is in line with the empirical estimation. Explanatory variables: currency crisis

and inflation had a positive effect on output loss. Based on research results can be stated that the fiscal costs are affected by the crisis characteristics.

Acknowledgements

This paper was supported by the Scientific Grant Agency of Ministry of Education, Science, Research and Sport of the Slovak Republic and the Slovak Academy of Sciences under the grant VEGA 1/0967/15: *Approaches for fiscal imbalance solution in terms of the EU and in the context of the systemic crisis.*

REFERENCES

- [1] Dvořák, P. (2008) *Veřejné finance, fiskální nerovnováha a finanční krize*, Praha: C.H. Beck.
- [2] International Monetary Fund (2011) *Analytics of Systemic Crises and the Role of Global Financial Safety Nets*. [cit. 2012-09-8]. Available at: <
<http://www.imf.org/external/np/pp/eng/2011/053111.pdf>>.
- [3] Radelet, S., Sachs, J. (1998) *The Onset of the East Asian Financial Crisis*, *NBER Working Paper Series No. 6680*. National Bureau of Economic Research. Cambridge.
- [4] Mishkin, F.S. (2001) *Financial Policies and the Prevention of Financial Crises in Emerging Market Economies*.
- [5] Krugman, P. (2001) *Crises: The Next Generation?* Draft prepared for conference in Tel Aviv.
- [6] Rosengard, J.K. (2004) *Will Bank Bailouts Bust Budget? Fiscalization of the East Asian Financial Crisis*, *Working Paper Series rwp04-012*, Harvard University, John F. Kennedy School of Government.
- [7] Haugh, D., Ollivaud, P., Turner, D. (2009) *The Macroeconomic Consequences of Banking Crises in OECD Countries*, *OECD Economics Department Working Papers No. 683*, OECD Publishing.
- [8] Laeven, L., Valencia, F. (2010) *Resolution of Banking Crises: The Good, the Bad, and the Ugly*, *IMF Working Paper WP/10/146*.
- [9] Koopman, G.J., Székely, I.P. (2009) *Impact of the current economic and financial crisis on potential output*, *Occasional Papers No. 49*, European Commission. Directorate-General for Economic and Financial Affairs.
- [10] Furceri, D., Mourougane, A. (2009) *The Effect of Financial Crises on Potential Output: New Empirical Evidence from OECD Countries*, *OECD Economics Department Working Papers No. 699*, OECD Publishing.
- [11] Cerra, V., Saxena, S. (2008) *Growth dynamics: the myth of economic recovery*, *American Economic Review*, 98(1), pp. 439-457.
- [12] Reinhart, C.M., Rogoff, K.S. (2009) *The Aftermath of Financial Crises*, *NBER Working Paper Series No. 14656*, National Bureau of Economic Research. Cambridge.
- [13] Pindyck, R.S. (1991). *Irreversibility, Uncertainty and Investments*, *Journal of Monetary Economics*, Vol. 12, pp. 139-162.
- [14] Eschenbach F., Schuknecht, L. (2002) *The Fiscal Costs of Financial Instability Revisited*, *ECB Working Paper Series No. 191*.
- [15] Molnar, M. (2012) *Fiscal Consolidation: Part 5. What Factors Determine the Success of Consolidation Efforts?* *OECD Economics Department Working Papers No. 936*, OECD Publishing.
- [16] Honohan, P., Klingebiel, D. (2000) *Controlling the Fiscal Costs of Banking Crisis*, *World Bank Policy Research Working Paper Series No.2441*.

- [17] Hoggarth, G., Reis, R., Saporta, V. (2002) Costs of Banking System Instability: Some Empirical Evidence, *Journal of Banking & Finance*, Vol. 26, pp. 825–855.
- [18] Jakubíková, E., Mihóková, L., Dráb, R., Bánociová, A. (2013) *Quantification of fiscal crisis costs*, In: Theoretical and Practical Aspects of Public Finance 2013: Proceedings of the 18th International Conference: April 12-13, 2013, Prague, Praha : Wolters Kluwer ČR, pp. 74-85.
- [19] Laeven, L., Valencia, F. (2012) Systemic Banking Crises Database: An Update, *IMF Working Paper WP/12/163*.
- [20] International Monetary Fund. (2011) *Analytics of Systemic Crises and the Role of Global Financial Safety Nets*. [cit. 2012-09-8]. Available at: <<http://www.imf.org/external/np/pp/eng/2011/053111.pdf>>.
- [21] European Commission. (2011). Public finances in EMU 2011. European Economy No.3/2007. Belgium: Directorate-General for Economic and Financial Affairs.
- [22] Deltuvaitė, V. (2011) Measuring the Costs of Banking Crises: Theoretical and Practical Aspects. *Economics and Management*. 16, pp. 1089-1100.
- [23] Zistler, M. (2010) Banking Crises: Determinants and Crises impact on Fiscal Cost and Economic Output. Master's Thesis, Aalto University School of Economics, Department of Accounting and Finance.
- [24] Mihóková, L., Dráb, R. (2017). Systemic Financial Crisis: Definition, Measurement and Consequences - A literature Review, *Transactions of the Universities of Košice*. Vol. 1, pp. 24-35.
- [25] Ameco (Annual macro-economic database). [online database]. [cit. 2012-11-5]. Available at: <http://ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm>
- [26] World Bank Database: [online database]. [cit. 2012-11-5]. Available at: <<http://data.worldbank.org/>>
- [27] World Economic Outlook: International Monetary Fund . [online database]. [cit. 2013-02-5]. Available at: <<http://www.imf.org/external/pubs/ft/weo/2012/02/weodata/download.aspx>>
- [28] Government Finance Statistics (GFS), Database and Browser, International Monetary Fund, September 2011.
- [29] European Central Bank. Statistical Data Warehouse: [online database]. [cit. 2012-11-5]. Available at: <<http://sdw.ecb.europa.eu/>>

STRATEGIES OF SOCIALLY RESPONSIBLE INVESTMENT IN POLAND

Marzena Remlein¹⁵⁹

Abstract: *Socially responsible investing is a relatively new concept that keeps on evolving, which makes it difficult to assign one clear definition. At present, however, attention is paid to the need to include in the investment process not only economic benefits, but also social and environmental factors as well as ethical values, social or environmental interests, and building dialogue with stakeholders.*

The aim of the article is to analyze and evaluate the market of socially responsible investments in in Poland according to the European classification of strategies for investing socially responsible. The paper presents the results of empirical research of the Polish market of socially responsible investments.

For the implementation of the goal in the article, both qualitative and quantitative methods were used: descriptive method, – study of literature, analysis of legal acts, logical reasoning method and methods of financial analysis.

Conclusions of the study indicate the initial stage of development of the Polish market of socially responsible investments. In addition, the attention was paid to the introduction of the RESPECT socially responsible index on the Stock Exchange in Warsaw.

Key words: *Socially responsible investing, SRI, strategies of socially responsible investing*

1. INTRODUCTION

Currently the role of social responsibility in investment is stressed ever more often, which means that we emphasize the social and environmental aspects. The global financial crisis also contributed to that, by making the investors aware of the need to minimize the risk, even at the cost of profitability of the investment. This in turn made the socially responsible investments a potential alternative to the traditional forms of investment.

Literature overview and the analysis of data gathered by the European Sustainable Investment Forum (Eurosif) do confirm the growing interest in the concept of socially responsible investment in Poland.

The aim of the present article is to analyze and evaluate the market of socially responsible investments in Poland according to the European classification of strategies for investing socially responsibly. The paper presents the results of empirical research of the Polish market of socially responsible investments.

For the implementation of the objective of the present article, both qualitative and quantitative methods were utilized: descriptive method – study of literature, analysis of legal acts, logical reasoning method and methods of financial analysis.

¹⁵⁹ Poznan University of Economics and Business, Faculty of Management, Department of Accounting, al. Niepodległości 10, 61-875 Poznań, Poland

2. THEORETICAL BACKGROUND

Study of subject literature allowed us to come to the conclusion that the socially responsible investment is a relatively new concept that still evolves, and could not be defined unanimously. In the majority of works on the socially responsible investments the attention is brought to the need of inclusion of not just the financial conditions, but also the social and environmental factors in the investment process.

R. Sparkes (2002, p. 22) treats SRI as a kind of investment philosophy that links both the financial and non-financial criteria.

P. Kinder (1984), author of the pioneering research on socially responsible investments, believes that responsible investment is the inclusion of social or ethical criteria in the process of investment decision making.

According to M. Mansley (2000) responsible investing is an element of financial analysis, concentrating on social, environmental and ethical issues during decision making, management and realization of investment. SRI includes investments that integrate social, ethical, environmental and corporate orders in the investment process (Sandberg, 2009). This means that the criteria for social responsibility of business become equally important to the economic criteria. It seems that it is effected not just by the social responsibility of investors, but also simple calculation that makes them realize that the chances for survival and profit are open for those businesses that harmonically adopt to the requirements of contemporaneity and future. This means that the stakeholders have to include the idea of social responsibility of businesses (Dziawgo, 2010, p. 16).

M.J Munoz-Torres (2004) presents a similar opinion, defining socially responsible investments as investments that link financial objectives with social values. The socially responsible investing does not contradict the essence of traditional investing, it does not put the importance of ethical questions over the issues of efficiency (Rogowski & Ulianiuk, 2012, p. 64). Socially responsible investing is an investment strategy that targets not only the achievement of particular economic profits, but also social and environmental effects. When principles are considered, the socially responsible investors select companies that keep high ethical standards and observe sustainable development principles in their activities.

The European Sustainable Investment Forum (Eurosif) defines SRI (Sustainable and Responsible Investing) as a general concept including sustainable, ethical or responsible investments that do link the financial objectives of the investor with its care for the social, environmental and corporate order issues (European SRI Study, 2010, p. 8).

Marzena Remlein, PhD is Associate Professor in Accounting Department at Poznan University of Economics & Business in Poland. Director of Postgraduate Studies of Accounting and Taxes. Member of European Accounting Association, Polish Economic Society, Accountants Association in Poland. The scientific supervisor of the PhD students and the Kirkland Program students.



Scientific and research interests: Consolidated financial statements, Corporate Social Responsibility, Socially Responsible Investing, Accounting theory and policy, Value measurement and reporting, IFRS.

The manager of research projects:

- Legal regulations of accounting for joint arrangements and the practice of Polish consortiums,
- Tripartite formula of accounting,
- Financial reporting and audit in the conditions of crisis.

The author of over 100 books and papers-

The International Finance Corporation (IFC) proposes the term “sustainable investing” that – according to IFC – integrates the ESG factors in analyses concerning the selection of companies and in application of corporate laws, believing that these factors can beneficially influence the long-term efficiency of risk management (www.ifc.org).

The literature study allows us to ascertain, that the definition of socially responsible investing is rather troublesome, as it largely depends on the adoption – by the investor – of specific non-financial criteria of the investment process. We still see, that the majority of the encountered concepts of socially responsible investing do relate to the need of inclusion, in the investment process, of not just the economic criteria, but also ethical values, social or environmental interests, and building dialogue with stakeholders. Investing that follows the SRI concept is such that aims at profit maximization and at the same time includes ESG factors.

The definitions of socially responsible investing quoted above broaden the notion of investment that was applied in the past. Up until recently only the cause-and-effect connection between investment expenditure and its effects was investigated, in form of the economic profits in form of return on capital. In case of the socially responsible investment the investor also profits from the financial outcome of the invested capital, but has further non-financial profits, that can bring financial results in longer time perspective.

The socially responsible investing is a decision making process concerning the allocation of free financial resources, where the investor aims at maximization of profit and minimization of risk on one part, and includes the socio-ethical and environmental-ecological considerations on the other.

3. LEGAL BASIS FOR SOCIAL RESPONSIBILITY OF POLISH BUSINESS

According to the Constitution of the Republic of Poland the basis of the Polish economic system is the social market economy, based on freedom of business activity, private property, and solidarity, dialogue and cooperation of social partners (The 2 April 1997 Constitution of the Republic of Poland, Official Legislature Journal, no. 78, item 483, art. 20). This means that the state, and other social partners (including the businesspersons) are co-responsible for the condition of economy and its proper functioning. The values that the social participants of economic process shall follow are the solidarity, dialogue and cooperation with actors that the business activities include. The social responsibility of Polish business person, including that in the investment activities, should – according to the Constitution – come down to the following:

- observation of principles of equality and non-discrimination,
- securing workers' rights,
- respecting consumer rights,
- respect for principles of free competition,
- protection of natural environment.

The consequence of growing importance of social and ecological aspects of economic activities is the increased interest and requirements concerning reporting, understood as set of reports that includes information pertaining both to financial and non-financial aspects. The financial statement, the final product of accountancy is the source of financial information, and the non-financial information are presented in separate reports. This means that just sections of image of the respective fields of activity are presented. The attempt of linking the financial and non-

financial sources of information on the business activities was attempted in the new reporting concept, named the integrated reporting (Remlein, 2015, p. 150).

The Directive 2014/95/EU of the European Parliament of 22 October 2014 amending the Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups is regarded as the most significant EU legislative initiative in the field of disclosure of environmental, social and corporate governance information is the. Provisions of the Directive oblige large European undertakings to disclose environmental, social, workers, human rights and prevention of corruption and bribery information. These undertakings are also obliged to disclose their diversity policy applied to its various administrative, management and supervisory bodies. The regulations of the Directive were introduced by all member states, including Poland, and came in force on 1 January, 2017.

In Poland the requirement for presentation of non-financial information relating to the concept of socially responsible business practices was introduced by the new accountancy act. According to regulations of this act the so called “public trust units” are obliged to present, in their statement of activities, a separate item entitled “Declaration of non-financial information” (Act of 15 December 2016, amending the accountancy act).

The information contained in the “Declaration of non-financial information” are to provide evaluation of development, results and situation of the unit and the influence of its activities on its environment. The aforesaid evaluation will largely facilitate the decision making concerning the socially responsible investing by selection of companies that apply the CSR concept.

4. THE POLISH MARKET OF SOCIALLY RESPONSIBLE INVESTMENTS

The Polish market of socially responsible investments is still in its infancy stage. Nevertheless, the data on socially responsible investments indicate its growth, which may further be proved by inclusion of our country in the European SRI report.

The classification of SRI strategies by Eurosif has been used in Europe since 2012. A short characteristic of the respective SRI strategies is presented in table 1 below.

<i>SRI strategy</i>	<i>Short characteristic</i>
<i>Sustainability Themed Investment</i>	Strategy of investing in assets connected with sustainable development that concentrated on selected aspects of ESG;
<i>Best in Class Investment Selection</i>	investing in the most efficient assets in the respective category that still meet the ESG criteria,
<i>Exclusion of Holdings From Investment Universe</i>	a negative-selection type strategy, that comes down to exclusion of companies that have activities that are ethically or socially doubtful,
<i>Norms-Based Screening</i>	the strategy comes down to exclusion, from the investment portfolio, of those companies that fail to conform with selected international ESG standards and norms,
<i>Integration of ESG Factors in Financial Analysis</i>	concerns the direct inclusion of risk and opportunities connected with ESG, concentrating on the potential impact of ESG factors on financial result of the business

<i>Engagement and Voting on Sustainability Matters</i>	the strategy of communicating with enterprises in order to change their practices in social, ethical and environmental protection issues
<i>Impact Investment</i>	concerns direct investments in companies, organizations or funds, which apart from financial objective, aim to influence the society and environment in a positive way

Table 1: Classification of SRI strategies

According to data of the Eurosif European SRI Study 2016 report the 2015 Polish market of socially responsible investments is estimated at 12.1 billion Euro, and the European market in total is estimated at 22 trillion Euro. The value of socially responsible investments in Poland and Europe, divided on the investment strategies, is presented in table 2.

SRI Strategy	Poland		Europe	
	million Euro	% share	million Euro	% share
Themed investments	3 762	31.22	145 249	0.63
Best-in-class investments	2 717	22.54	493 375	2.16
Exclusions from investment universe	2 769	22.98	10 150 595	44.34
Norms-based screening	2769	22.98	5 087 774	22.23
Integration of ESG factors in financial analysis	0	0.00	2 646 346	11.56
Engagement of shareholders in ESG matters	0	0.00	4 270 045	18.65
Impact Investing	34	0.28	98 329	0.43
Total	12 051	100.00	22 891 713	100.00

Table 2: Socially responsible investments in Poland and Europe in 2015.

Source: Author's work based on European SRI Study 2016.

The results presented in the table above allow us to see that there are four significant SRI strategies in Poland. The largest interest (31.22%) is in themed investments, that is investments concentrating on sustainable development. The negative selection (exclusion from the investment universe) and norm-based screening came second (22.98%) among the SRI strategies applied in Poland. The "best in class" strategy was the third most significant strategy in Poland (22.54%). The share of the remaining strategies is low (impact investing – 0.28%) or non-existent in the Polish investment market. Whereas in Europe the most popular investment strategy is the negative selection (44.34%), followed by the norm-based screening (22.23%) and engagement of shareholders in ESG matters (18.65%).

The value of Polish socially responsible investments accounts for just 0.05% of the European SRI market. Even with that exiguous share of Poland it is well worth noting that Poland, as the sole country of the Central and Eastern Europe was included in the Eurosif study already in 2010. Furthermore the dynamics of recent socially responsible investment demonstrates that ever more frequently the investors apply the social and environmental factors apart from the criterion of efficiency of invested capital (table 3).

SRI Strategy	2013	2015	Dynamics
Themed investments	0	3 762	-
Best-in-class investments	3	2 717	90 567%
Exclusions from investment universe	773	2 769	358%
Norms-based screening	1 060	2 769	261%
Integration of ESG factors in financial analysis	0	0	-
Engagement of shareholders in ESG matters	578	0	0
Impact Investing	0	34	-
Total	2 414	12 051	499.21%

Table 3: Strategies for socially responsible investments in Poland (million Euro)

Source: Author's work based on European SRI Study 2014 & 2016.

Data from table 3 show that the value of socially responsible investments in Poland grew in 2015, in comparison with 2013, by 399.21% reaching the total value of 12 051 million Euro. The largest changes are observed in the “best-in-class investments” group, where a growth of 2 714 million Euro was recorded (that is by 90 467%). This growth in value was also observed in the screening-based investments – negative selection (i.e. exclusion from investment universe) – 258%, and the norms-based screening – 161%.

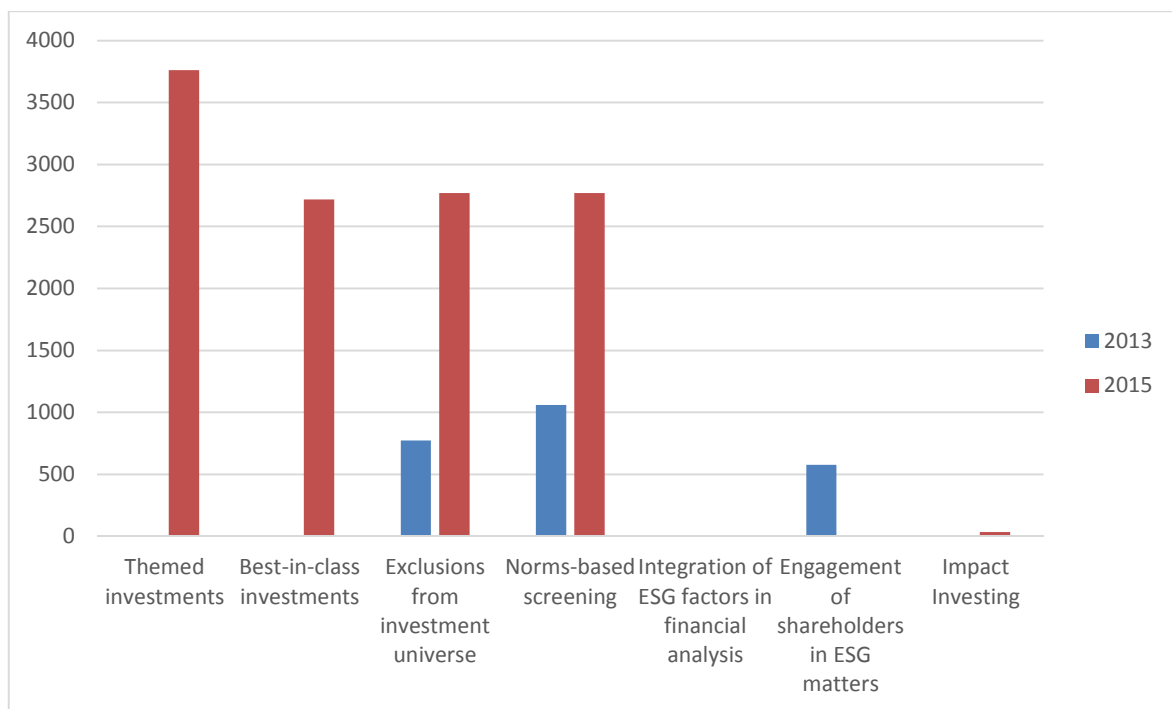


Figure 1: Comparison of socially responsible investments in Poland in 2013 & 2015

Source: Author's work based on European SRI Study 2014 & 2016.

What is worth noting is that in 2015 there were investments in “themed investments” and “impact investing” that saw no investment activities in previous years. The sole decrease was recorded for the group of “engagement of shareholders in ESG matters” investments.

5. CONCLUSIONS

Socially responsible investments are one of the most dynamically developing segments of investments and the socially responsible investing plays an ever growing role in the world's financial markets.

Poland is in the infancy stage of development of socially responsible investments. The reasons for that seem to be the insufficient knowledge and lack of investor awareness of profits and practical aspects of responsible and sustainable investments. Only broader involvement of investors in actions in this field may contribute to the increase of value of socially responsible investments.

Legal regulations pertaining to SRIs are of no lesser importance. Poland lacks legislative actions originating from the state, that in other European countries largely influenced the development of the SRI concept.

Nevertheless, it is worth noting that Poland, as the first country in Central and Eastern Europe was noted and included in Eurosif research. The results of that research allow us to claim that ever more frequently the investors apply the development of the idea of sustainable development and support of local communities, apart from the financial criteria.

REFERENCES

- [1] Czerwonka M. (2013), *Inwestowanie społecznie odpowiedzialne*, Difin, Warszawa.
- [2] Domini A., Kinder P. (1984), *Ethical Investment*, Addison-Wesley, New York.
- [3] Directive 2014/95/EU of the European Parliament of 22 October 2014 amending the Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups, Official Journal of European Union L 330/1.
- [4] Dziawgo L. (2010), *Zielony rynek. Ekologiczna ewolucja rynku finansowego*, Polskie Wydawnictwo Ekonomiczne, Warszawa.
- [5] *European SRI Study 2010* (2010), Eurosif
- [6] *European SRI Study 2012* (2012), Eurosif
- [7] *European SRI Study 2014* (2014), Eurosif
- [8] *European SRI Study 2016* (2016), Eurosif
- [9] Janik B. (2014), *Inwestycje finansowe w koncepcji zrównoważonego rozwoju*, Difin, Warszawa.
- [10] Konstytucja Rzeczypospolitej Polskiej z dnia 2 kwietnia 1997r., Dz.U. no. 78, item. 483.
- [11] Kubińska E. (2014), *Inwestowanie odpowiedzialne społecznie na europejskich rynkach wschodzących*, Annales Universitatis Mariae Curie-Skłodowska Lublin- Polonia, vol. XLVIII, 3.
- [12] Lulewicz-Sas A. (2014), *Spółecznie odpowiedzialne inwestowanie narzędziem koncepcji społecznie odpowiedzialnego biznesu*, Economics and Management no. 1.
- [13] Mansley M. (2000), *Socially responsible investment: a guide for pension funds and institutional investors*, Sudbury – UK, Monitor Press.
- [14] Munoz-Torres M. J., Fernandez-Izquierdo M. A., Balaguer-Franch M. R. (2004), *The Social Responsibility Performance of Ethical and Solidarity Funds: An Approach to the Case of Spain*, Business Ethics no. 13.
- [15] Remlein M. (2015), *Doświadczenia polskich grup kapitałowych w zakresie zintegrowanej sprawozdawczości*, Studia Oeconomica Posnaniensia, vol. 3, no.1.

- [16] Rogowski W., Ulianiuk A. (2012), *Spółecznie odpowiedzialne inwestowanie (SRI) – próba charakterystyki. Część III: Efektywność inwestycji społecznie odpowiedzialnych*, Studia i Prace Kolegium Zarządzania i Finansów. Zeszyt Naukowy 114, SGH, Warszawa
- [17] Sandberg J., Juravle C., Hedesstrom T. M., Hamilton I. (2009), *The Heterogeneity of Socially Responsible Investment*, Journal of Business Ethics no. 87.
- [18] Sparkes R. (2002), *Socially Responsible Investment: A Global Revolution*, Chichester, UK: John Wiley & Sons Ltd.
- [19] Urban D. (2011), *Zarys koncepcji inwestowania społecznie odpowiedzialnego*, Acta Universitatis Lodziensis, Folia Oeconomica, nr 261.
- [20] Ustawa z dnia 15 grudnia 2016 r. o zmianie ustawy o rachunkowości, Dz.U. z 2017r. poz. 61.
- [21] Wolska M., Czerwonka M. (2013), *Spółecznie odpowiedzialne inwestowani – analiza rentowności funduszy SRI w Polsce*, Studia i Prace Kolegium Zarządzania i Finansów, Zeszyt Naukowy 126, SGH, Warszawa
- [22] www.ifc.org [12.02.2017]
- [23] www.odpowiedzialni.gpw.pl/opis_projektu [16.02.2017].

REALIZATION OF PARTNERSHIP IN THE CONCEPT OF SUSTAINABLE DEVELOPMENT ON REGIONAL LEVEL

Zhanna Mingaleva¹⁶⁰
Christina Uzhegova¹⁶¹

Abstract: *The article defines the importance of the transition to sustainable development at the macro, meso and microeconomic level. An analysis of the conservative, systemic and evolutionary approaches to the definition of the sustainable development of the regional system is carried out. It is concluded that from the point of view of the evolutionary approach, sustainable development contributes not only to the self-preservation of the region as a system, but also to its continuous progress and growth of well-being. The definitions of sustainable development are presented from the standpoint of the indicated approaches. The contradiction of the concept of "sustainable development" is noted. The conclusion is made about the need to apply a hierarchical approach to the analysis of the sustainable development of economic systems. It is proposed to consider public-private partnership within the framework of the development of the modern Russian economy as an innovative mechanism, the result of productive functioning of which is a synergetic effect aimed at ensuring sustainable development of a modern system of social, economic, ecological and political institutions with high technology, degree of greening production.*

Key words: *The concept of sustainable development, socio-ecological and economic system, hierarchical structure, public-private partnership, regional development, business, institutional environment.*

INTRODUCTION

In the face of economic instability, one of the most important tasks is to effectively manage sustainable development and integrate it into existing institutional systems. Global changes in the world, connected with political, economic and ecological processes, high rates of development of scientific and technical progress, require modernization of existing approaches to the study of sustainable development.

The connection between economic progress and the deterioration of the ecology is obvious, so there is a need for a reasonable combination of interests in maximizing profit, material well-being and environmental requirements [1].

THEORY AND METHODS

According to the definition of the international commission on environment and development, sustainable development should be aimed at meeting the needs of the present, provided that the needs of the next generation can be met. The model of sustainable development is based on the

¹⁶⁰ Director of the Research Center for Sustainable Development and innovation processes, Professor of Department of Economics and management in industrial production; Perm National Research Polytechnic University, Komsomolsky Av., 29, Perm, Russia

¹⁶¹ Postgraduate Student, Dept. of Economics and Management of Industrial Production, Perm National Research Polytechnic University, Perm, Russia

combined three main interrelated components: economic, social and environmental. As a result of the intersection of these areas, four new elements are formed: tolerance - the harmonious development of society and the environment; justice - harmonious development of society and economy; viability - harmonious development of the environment and economy; and as a general result, with the simultaneous development of all elements, is a sustainable development [2].

In the study of the concept of sustainable development, a significant contribution was made by such scientists as D. Meadows, J. Randers [3], S. Bobylev [4], O. Pchelintsev [5], A. Ursul [6], G. Haughton, D. Counsell [7], W. David, C. William [8], G. Berger, R. Steurer [9], J. Barry, B. Baxter [10] and others.

This problem is addressed in many international legal instruments, such as the Rio Declaration on Environment and Development, the Johannesburg Declaration on Sustainable Development, the UNEP Report "Towards a green economy: a path to sustainable development and poverty eradication", the UN Conference on Sustainable Development Rio + 20, a resolution adopted by the General Assembly "Transforming Our World: An Agenda for Sustainable Development for the period up to 2030" and from this moment the task of transition to sustainable development at the state level, at the level of regional and municipal entities and at the level of individual economic entities is actualized.

RESEARCHES

In modern economic science there are about 100 definitions of sustainable development. At the same time, this category is considered from the point of view of different theoretical and methodological approaches.

The position of the conservative approach to sustainable development is focused first of all on the preservation of available resources in order to transfer them to future generations; systemic approach, the main goal determines the reproduction of available resources; the evolutionary approach considers sustainable development from the point of view that global changes occurring in the environment make corrections, which in turn affect the development of society as a whole [11].

The table 1 attempts to systematize these approaches with reference to the definition of the concept of "sustainable development".

<i>N</i>	<i>Authors</i>	<i>Definition</i>
Conservative approach		
1.	Korchagina E.	The property of the system to achieve the set social and economic goals in conditions of transformation of the external environment, preserving its internal potential and basic parameters of the natural environment [12].
2.	Bruntland G.H.	Development, in which the present generations meet their needs, without depriving future generations of the opportunity to meet their own needs [13].
Systems approach		

<i>N</i>	<i>Authors</i>	<i>Definition</i>
3.	Mazunina M.	Development of a system of equitable elements in response to environmental factors and contributing to a qualitative improvement of the regional system at a new stage of development [14].
4.	Pchelintsev O.	The transition from the "economy of resource use" to the economy of their systemic reproduction [15].
5.	The World Bank	Managing the total capital of society in the interests of preserving and multiplying human capabilities [16].
Evolutionary approach		
6.	Kolosova T.	The state of harmony and the controlled process of change, in which the scale of exploitation of resources, the magnitude and purposiveness of investments, technical development and institutional changes are consistent with current and future needs [17].
7.	Kuvshinov M.	A purposeful process of managing the social and economic system of a municipal formation ensuring the stability of the links, elements and structure of the system as a whole in the direction of increasing the quality of life of the population within the framework of the balance with the environment [18].
8.	Ivanov P.	the ability of the region to preserve and develop the value of the necessary parameters of the quality of life of the population within the threshold of security or above it, with fluctuations in external and internal influences (socio-political, socio-economic, technogenic, natural-climatic and other) that threaten the quality of life of the population [19].

Table 1: Systematization of approaches to the definition of the concept of sustainable development

Based on the analysis of the presented definitions, it can be concluded that from the position of a conservative approach, the system should evolve so in the present period of time to provide a stable basis for future development. From the point of view of systemic approaches, the basic prerequisites for sustainable development are not only the function of conservation, but also reproduction, as well as careful treatment of available resources for the purpose of self-preservation as a system, taking into account internal and external factors.

From the point of view of the evolutionary approach, sustainable development contributes not only to the self-preservation and reproduction of the region as a system, but also to its continuous progress and the growth of the population's welfare, balanced socio-economic development, not destroying the environment [20].

To comprehensively reflect the level of the regional economy, the regional economic sustainable development capacity needs to include all existing and potential economic capacity. Ecological environmental sustainable development capacity refers to the environmental elements of regional sustainable development capacity, which requires not only research on the regional environmental protection construction ability, but also on the coordination and development abilities of the regional environment and its resources [21]. Social sustainable development capacity refers to the social factors of regional sustainable development capacity, which mainly focuses on the impact on the citizens' life of the regional social mechanism and

includes the effects of social progress as well as the effects of education and daily entertainment conditions [22].

Due to the multifaceted overlapping contents of the economy-environment-society complicated system's components [23] – [24], the regional system is a multi-level, multi-functional and dynamic complex system which encompasses economic structure, social structure and natural structure.

The effectiveness of the implementation of the principles of sustainable development, consisting in the direction towards improving the life of the population, preserving nature and natural resources, increasing responsibility for activities that damage the environment, is more dependent on institutions.

At the moment, within the paradigm of institutionalism, the interpretation of D. North's institutions is widely used, in which institutions are rules that include formal and informal restrictions and certain coercive characteristics [25].

One of the institutions aimed at, among other things, improving the level of sustainable development is the institution of public-private partnership, whose goal is to coordinate the interests of the state and business.

The concept of "public-private partnership" (PPP) was introduced in the 90's. XX century, which originates from the "British model" of PPP. The concept of "private financial initiative" (PFI), developed by the Government of Great Britain, represented a modernized system of state property management. The main idea of this concept is the transfer to the private sector of the functions of financing objects of socio-cultural and industrial spheres that are in state ownership [26]. The result was a transformation of the public administration system, which was reflected in the change in the institutional environment as a whole, as well as in the relationship between state structures and private business [27].

Most researchers in the field of PPP focus on the division of risks, powers and profits between partners in the public and private sectors, which provides a balance of interests [28].

In the aggregate unity, the main benefits of cooperation in the implementation of the PPP project are determined, provided that the principles of achieving a balance of interests of the participants are observed (table 2).

Criterion	Authorities	Private sector (business)
Reduced financial burden	Bringing financial resources of business to implement state investment projects	Attraction of financial resources of the state with the purpose of the decision of social and economic problems of business; obtaining tax benefits, advisory support, administrative and political assistance from the authorities when implementing partnership projects;

Improving the efficiency of property management	Use of technical and managerial experience, innovative technologies of private business, use of an established project management mechanism;	Access to areas previously closed to business;
Optimization of risks	Increasing the reliability of public investment and increasing the likelihood of obtaining the expected result in order to optimize the risk management process of the project;	Separation of risks of entrepreneurial activity with the public sector;
Increasing the effectiveness of management personnel	Optimization of the number of management personnel of the authorities in the implementation of project management;	Possibility of training, advanced training in the field of PPP;
Creating favorable business conditions	Rationalization of the structure of the territorial economy; prevention of social tension;	Anti-crisis support from the state; creating a positive image in the eyes of the public and the business community.

Table 2: The benefits of the parties from participating in public-private partnership projects

The result of interaction between the state and business is the effect on public structures, which consists of:

- intensive development of infrastructure,
- improving the quality of services provided through innovation, incentives and competencies of private partners, improving the quality standards and efficiency of facility management agreements,
- increasing the physical and economic accessibility of the services provided;
- reducing the budget burden and releasing additional resources,
- improving the quality of life of the population [29].

The possibility of obtaining benefits will provide a synergistic effect, which will manifest itself in increasing social and economic efficiency, and will help to save resources in the implementation of projects.

DISCUSSIONS

In the context of participation of all interested parties, an opportunity is made to attract additional resources, expedient distribution and risk management, which contributes to achieving information transparency at all stages of project implementation [30].

The most important role in enhancing the sustainability of the development of society belongs to the authorities. With the help of instruments of influence, regional authorities and administrations are able to exert direct and indirect influence on nature management, as well as create incentives for rational nature management, environmental protection and resource conservation by nature users and producers of goods and services [31]. The business is obliged to implement the necessary environmental measures, including paying for the use of natural resources, to compensate for the negative impact on the environment, to construct and effectively operate environmental facilities. Otherwise, the business should be stopped. Business should be interested in not being subjected to paying significant amounts of fines, stopping production, which directly affects the profits and, consequently, the earnings of staff.

The effectiveness of sustainable development policies depends to a large extent on the correct allocation of public investment. They should be aimed at: creating an effective system of regulation and control; implementation of priority measures for the liquidation and prevention of the crisis ecological situation; carrying out of specialized environmental measures; creation of ecologically perfect technologies and technology [32].

The correct combination of all forms of influence of the state power on society creates prerequisites for its sustainable development.

Researches of works of scientists in the field of sustainable development made it possible to determine the results of PPP application in order to realize the concept of sustainable development at the level of the region and the enterprise:

- holding joint events aimed at improving the policy of social and economic development of the region and the company;
- formation of the basic directions of social and economic development of the region and the company;
- increasing efficiency in the allocation of budgetary funds;
- increasing the accuracy of settlements and reducing the cost and timing of the project;
- more favorable allocation of budgetary and extra-budgetary funds for the implementation of socially significant projects (social, innovative, environmental, etc.) in order to meet the needs of the population;
- acceleration of the solution of public tasks;
- development and implementation of innovations.

CONCLUSIONS

Thus, the institution of public-private partnership can contribute to the economic development of the country, the region, the municipality, as with effective interaction they will have a beneficial effect on the economy, increasing the stability of the socio-ecological and economic system.

In order to realize the concept of sustainable development, the authorities and the market sector, without merging or opposing each other, must form an institutional environment in which they fulfill the specific functions assigned to each of them. By involving the business community, regulators and policy-making organizations, they can make more effective decisions using the public-private partnership mechanism, taking into account the particularities of the economy in which the business operates.

ACKNOWLEDGMENT

The work is carried out based on the task on fulfillment of government contractual work in the field of scientific activities as a part of base portion of the state task of the Ministry of Education and Science of the Russian Federation to Perm National Research Polytechnic University (the topic # 26.6884.2017/8.9 “Sustainable development of urban areas and the improvement of the human environment”).

REFERENCES

- [1] Lepeshkov, Y. (2011) Ecological aspect of sustainable development: concept and content, *Proceedings of the Faculty of International Relations*, vol. 2, pp. 60-64.

- [2] *The United Nations and sustainable development*. Data Views 17.10.17 URL: <http://www.un.org/en/development/sustainable/csd.shtml>.
- [3] Meadows, D. H., Meadows, D. L., Randers, I. (1994) *Beyond Growth*, Moscow, 304 p.
- [4] Bobylev, S. (2007) Indicators of sustainable development: a regional dimension. *A Handbook on Regional Environmental Policy*, Moscow, p. 60.
- [5] Pchelintsev, O. (2004) *Regional Economy in the System of Sustainable Development*, Moscow, p.258.
- [6] Ursul, A. D., Los', V. A., Demidov, F. D. (2003) *Conceptual Framework for Sustainable Development*, Moscow, p 350.
- [7] Haughton, G., Counsell, D. (2004) Regions and sustainable development: regional planning matters, *The Geographical Journal*, 170 (2), pp. 135-145.
- [8] David, W. C., William C. C. (2003) Knowledge systems for sustainable development, *PNAS*, 100 (14), pp. 86-91.
- [9] Berger, G., Steurer, R. (2005) *National strategies for sustainable development and their implications on the regional level*, ECPR Joint Sessions, Workshop 17, pp. 198-213.
- [10] Barry, J., Baxter, B. (2004) Editors' introduction. In *Europe, globalization and sustainable development*. eds. London, New York: Routledge, pp. 1-12.
- [11] Petrushinova, V. (2014) *Sustainable development of territories based on agro-tourism*, PhD, Ulan-Ude, p.200.
- [12] Korchagina, E. (2012) *Analysis and assessment of sustainable development of socio-ecological and economic systems* PhD, Gatchina, p.9.
- [13] *Our Common Future: Dokl. the International Commission on Environment and Development* (1989) H. Harlem Brundtland. Moscow, p. 50.
- [14] Mazunina, M. (2012) *Mechanism of Sustainable Social and Economic Development of the Region*, PhD, Moscow, p.22.
- [15] Pchelintsev, O. (2004) *Regional Economy in the System of Sustainable Development*, Moscow, p.258.
- [16] *World Development Indicators*. The World Bank. Data Views 15.10.17 URL: data.worldbank.org/indicator.
- [17] Kolosova, T.(2011) *Ensuring sustainable development of the enterprise on the basis of increasing its innovative potential*, PhD, Nizhny Novgorod, p.21.
- [18] Kuvshinov, M. (2011) The concept of sustainable development management of the social and economic system of the municipal formation, *Young scientist*, no7, vol. 1, p. 86-91.
- [19] Ivanov, P. (1996) *Algebraic modeling of complex systems*, Moscow, 185 p.
- [20] Orenstein, D., Shach-Pinsley, D. (2017) A comparative framework for assessing sustainability initiatives at the regional scale, *World Development*, 98, pp. 245-256.
- [21] Yang, F., Pan, S., Yao, X. (2016) Regional Convergence and Sustainable Development in China. *Sustainability*; doi: 10.3390 / su8020121.
- [22] Dempsey N., Bramley G., Power S., Brown C. (2011) The social dimension of sustainable development: Defining urban social sustainability. *Sustain. Dev.* 2011; 19: 289-300. doi: 10.1002 / sd.417
- [23] Salvati, L., Carlucci, M.A. (2014) The composite index of sustainable development at the local scale: Italy as a case study. *Ecol. Indic.*; 43, pp.162-171. doi: 10.1016 / j.ecolind.2014.02.021.
- [24] Bohringer, C., Jochem, P.,E.,P. (2007) Measuring the immeasurable-A survey of sustainability indices. *Ecol. Econ.* 63, pp.1-8. doi: 10.1016 / j.ecolecon.2007.03.008.
- [25] North, D. (1997) *Institutions, institutional changes and functioning of the economy*, Moscow, p.180.
- [26] *National Public Private Partnership Guidelines* (2008), Volume 4: Public Sector Comparator. Guidance Published by Infrastructure Australia, December 2008, p.7.

- [27] Amuntz, D. M. (2005) Public-private partnership, *Directory of the head of the cultural institution*, 12, p. 89.
- [28] Hodge, G. A., Greve, C. (2007) Public-Private Partnerships: An International Performance Review, *Public Administration Review*. May-June 2007, p. 545-558.
- [29] *Private Participation in Infrastructure Projects Database*. The Public-Private Infrastructure Advisory Facility. The World Bank Group. Data Views 15.10.17 URL: - <http://ppi.worldbank.org>
- [30] Kolosova, T. (2011) *Ensuring the sustainable development of the enterprise on the basis of increasing its innovative potential* PhD, Nizhny Novgorod, p. 44.
- [31] Mingaleva, Zh. A., Gershanok, G. A. (2012) Sustainable development of the region: innovations, economic security, competitiveness, *Economy of the region*. 3, pp. 68-77.
- [32] Dansaranova, S. D. (2007) *Institute of Public-Private Partnerships: Formation and Development in Russia* PhD, Ulan-Ude, p.140.

THE IMPACT OF SERVICE QUALITY DIMENSIONS IN BANKING ON BUSINESS SUCCESS OF BANKS IN BOSNIA AND HERZEGOVINA

Momčilo Poljić¹⁶²
Željko Jovanović¹⁶³

Abstract: *In modern banking, achieving a high level of quality is a strategic imperative for a bank that operates under conditions of intense competition. Given that a high level of service quality is not a goal in itself, banks are increasingly investigating the effects of service quality and the resulting customer satisfaction within the satisfaction-profit chain. The satisfaction-profit chain is an integrative conceptual framework that explains how investments in service improvement affect the perception and behavior of the users, as well as their impacts on bank's profit. In addition, the quality of services can be viewed as a determinant of satisfaction, where satisfaction is placed in relation to the indicators of financial performance, or a direct relationship between the quality and the financial and non-financial performance of the bank can be observed. This paper examines the concept, as well as measurement of the quality of services in the banking sector. It presents the results of exploratory research related to perceptions of users on the quality of services in the banking sector in retail banking in Bosnia and Herzegovina. The aim of the paper is to identify the relationships between the quality of services, customer satisfaction, customer loyalty and business performance in the banking sector. Empirical research has confirmed that the impact of service quality on business success is not necessarily linear and symmetric, and it does not necessarily have to influence a proportional increase in business success.*

Key words: *banking, quality of services, SERVQUAL, regression analysis with dummy variables, matrix of importance*

1. INTRODUCTION

Some authors consider banking services quality to be the main source of competitiveness, first of all because it is most difficult to imitate and, therefore, it is one of the reasons why quality-based strategies should become a strategic commitment for banks [10]. Since quality improvement is a prerequisite for the satisfaction of banking services users, which leads to greater loyalty and profitability, quality has become the most important factor of economic efficiency and the basic principle of the performance of successful banks in achieving competitiveness. Therefore, it is essential for the development and business success of each and every bank to achieve a closer relationship with clients and ensure their loyalty. This loyalty is the result of customer satisfaction and it cannot exist without reliance on quality, as the main determinant in the service process. Many authors point out that quality has a decisive influence on the survival and development of the service organization's business, which includes banks [5]. Therefore, the aim of this study is to investigate the quality of banking services perceived by individual user, and to identify the relationships between quality of services, customer

¹⁶² Faculty of Economics Brčko, University of East Sarajevo, Bosnia and Herzegovina

¹⁶³ NLB Banka, a.d. Banja Luka, Filijala Doboje, Bosnia and Herzegovina

satisfaction, customer loyalty and business performance in the banking sector of Bosnia and Herzegovina.

2. LITERATURE REVIEW OF AND CONCEPTUAL ISSUES

The conceptual logic of the satisfaction-profit chain can explain how investments in service improvements affect user's perceptions and behavior, and how they reflect on the profit of the bank, where next causal relationships within the service chain are most commonly observed:

- a) the impact of service quality on customer satisfaction,
- b) the impact of customer satisfaction on users' loyalty, and
- c) the influence of customer loyalty on the bank's profit.

In the literature, there are numerous empirical confirmations for positive connections in the aforementioned relations. Many authors have examined the relationship between quality and satisfaction within the service chain and they have come to empirical confirmation that the level of service quality has an immediate and positive impact on the level of user satisfaction [9], [11]. Recently, there have been studies that show that the increase in the quality of service performance does not always result in a linear increase in satisfaction, loyalty and/or profit. Therefore, the validity of the linear perspective in relation to quality and satisfaction is increasingly questioned, and the focus of research within the satisfaction and profit chain becomes increasingly focused on the analysis of asymmetric and non-linear effects for particular service features. Also, the studies have empirically confirmed that a higher level of satisfaction results in a higher level of loyalty, that is, in a greater future purchase intent [1], [21], [22], but in a higher level of actual purchasing, as well [6].

Furthermore, many studies provide a strong confirmation of the positive impact of customer satisfaction and service quality on the intended behavior of users [9], [4], [11], [22]. In their empirical research, Cronin and Taylor [9] identified a positive correlation between quality of service and future purchases intent. Other studies also showed a positive and significant relationship between the user's perception of service quality and its readiness to recommend a service to their acquaintances [20] and confirmed the positive correlation between service quality, future purchase intent and readiness to recommend [7]. However, according to some authors [4], we should be cautious in generalizing the thesis about the existence of a positive and significant impact of quality and satisfaction on the users' loyalty, because most of these studies usually use (conative) indicators of intended behavior (e.g. the intention of future purchase), and much less (behavioral) indicators of real behavior (e.g. real purchase). Also, measuring customer satisfaction and loyalty with one instrument (e.g. the same questionnaire), measured in the period $t = 1$ shows strong correlation with the intended behavior, but the satisfaction of those users, measured in the period $t = 1$, does not correlate identically with the intended behavior measured in the following period ($t = 2$) [18]. In his research, Loveman [17] showed that the satisfaction of banking services users is in a positive relation with their real future behavior. The second study [16] similarly identifies positive effect of intended behavior (readiness to give recommendations) on actual behavior of banking services users, measured by variables such as the number of transactions and the market share of a particular bank in the total consumption of banking services. Based on the above-mentioned, it is possible to confirm a positive correlation between intent and actual purchase, although the results of these studies show the need for a more significant correction of the intent level in order to predict the level of actual purchase. Although there are numerous empirical confirmations of the relations within the satisfaction-profit chain, there are some studies in which their validity is being re-examined,

since some of those studies have not showed the expected results [19], [13]. A possible explanation for the occurrence of such deviations within the satisfaction-profit chain may be found in different factors within the chain, such as different user characteristics (age, education and income), demographic characteristics, as well as a range of psychological and situational factors that can significantly affect relations within the chain.

3. METHODOLOGY

The measuring instrument of the survey was structured quota sampling, where the control variable was a bank. Based on qualitative research, a questionnaire which contains questions regarding the different elements of banking services quality in four systemic banks in Bosnia and Herzegovina was constructed. The perceived importance of components, the performance of component indicators and the implementation of banking services components themselves were measured by Likert's scale from 1 to 5. Also, overall satisfaction was measured by the Likert scale from 1 to 5, with one indicator commonly found in similar surveys. The structure of the subjects was checked by questions standard for such research. In order to generate an initial fund of banking service elements, preliminary qualitative research was carried out on a sample of 15 clients with varying degrees of experience in using banking services. The instrument of qualitative research was an unstructured questionnaire containing four open questions, and the data were collected by the method of direct examination in four banks. The results of the conducted qualitative research were then combined with the elements of banking services identified in earlier studies in the relevant literature. In this way, a survey questionnaire was designed and it contained questions about the implementation of five main components of banking services (tangibles - four indicators, i.e. questions from 1 to 4, reliability - questions from 5 to 9, responsiveness - questions from 10 to 13, assurance - questions 14 up to 17; empathy - questions 18 to 22 and satisfaction - question 23 as a dependent variable).

The data collected by the survey questionnaire were analyzed using the Statistical Program for Social Sciences (SPSS Statistics 22.0).

Importance-performance analysis was used to measure perceived service quality, where simple ranking of the performance and importance of characteristics formed a two-dimensional matrix, later divided into four quadrants in order to examine which of the "five basic dimensions" of service is significant to users of banking services and to show the usefulness and relative simplicity of the application of the method of measuring the services quality of the banking sector. Our goal was to show not only how clients perceive the quality of services provided by banks, but to show what is important to them when they use banking services as well.

Impact-asymmetry analysis is a newer analysis based on *penalty-reward contrast* analysis [8]. In this paper, this analysis is used to quantify asymmetry between the perceived performance of the indicators of banking service components and the overall satisfaction of users with banking services. For the purposes of the analysis, the indicator/component performance data was encoded so that three sets of binary (dummy) variables were created for each indicator/component. Since the Likert scales from 1 to 5 were used in the research, the first set was obtained by coding grades 1 and 2 as 1, and all other grades as 0 (grades 3, 4, 5). The second set was obtained by coding the average scale as 1 (grade 3), and all other grades as 0 (grades 1, 2, 4, 5). The third set was obtained by coding grade 5 as 1, and all the other grades as 0 (grades 1, 2, 3, 4). After that, these three sets of dummy variables were used in regression analysis as independent variables, and the dependent variable is a variable of interest, that is, overall satisfaction with banking services. For each analyzed component/indicator, regression

analysis resulted in three regression coefficients. The first coefficient was the quantification of 'punishment' in the case of a very low level of performance (performance grade = 1 and performance grade = 2), the second coefficient represented the reference point (performance grade = 3), and the third coefficient was a 'reward' in case of a very high performance level (performance rating = 5). By calculating the range between the first and third coefficients, we obtained an indicator of the influence of the indicator/component on the dependent variable. By calculating the range between the first and the second coefficients, we obtained an indicator of *the potential for creating dissatisfaction*, and by calculating the range between the second and the third coefficients, an indicator of *the potential of creating satisfaction*. The indicators of both potentials were then put in relation to the impacts range, so that the data would be standardized in such a way that the sum of their absolute values became 1. By calculating the difference between the standardized potential for creating dissatisfaction and the standardized potential for creating satisfaction, we obtained the asymmetry of influence upon the dependent variable. The value -1 means that the observed component/indicator is the perfect *creator of dissatisfaction* (completely negative asymmetry of influence), while value 1 represents the perfect creator of satisfaction (completely positive asymmetry of influence). If the value is 0, then the indicator/component has the same potential for creating dissatisfaction and satisfaction, and can be called *a linear factor* (impact symmetry). The obtained indicators of the impact and the asymmetry of impact can be graphically represented by introducing the impact asymmetry values to the vertical axis, and the influence range values on the horizontal estimates, which enables simple identification of the components/indicators of a minor or greater impact on user satisfaction.

Banking services *customer satisfaction indexes* are an instrument used to measure the level of customer satisfaction. The index of banking services customer satisfaction used in this paper is a two level formative index. In the first step, the indexes of the individual components of banking service quality are calculated using a significant number of formative indicators. In the second step, the banking services satisfaction index is calculated using the component quality index. The indexes are calculated for all four banks that represent the subject of the research in this paper. The method of weighting indicators at the component level, that is, at the level of the overall service, is based on derived importance, where the evaluations of the indicators/components impact ranges were used. In order to reflect the actual level of the component's quality perception more accurately, i.e. the level of satisfaction with the total banking service, the possible asymmetry of the indicators' influence on the perception of service component quality, that is, the influence of components' quality on user satisfaction were considered in the weighting of the characteristics. Thus, the weighting was dependent on the level of performance, where the weights were calculated for the performance levels lower than 3 (scale mean value) and higher than 3. The influence span was observed at the same time as the indicator's *maximum potential* for raising the perception of the component's quality, that is, *the maximum potential* of the component to create customer satisfaction with banking services. The lower limit of the impact range (i.e. the penalty quantification) was transformed to a value 0%, and the upper limit (i.e., the quantification of the award) to a value 100%. In other words, grades 1 and 2 on the original scale from 1 to 5 mean that 0% of the potential was used and, if the score is 5, that 100% of the potential was used. The utilization of potentials in case of average grade (grade 3) was obtained by transforming the quantification of *the reference value* from the impact-analysis asymmetry to the percentage value. By the same procedure, the actual utilization of the component/indicator potential was created through the linear transformation of the arithmetic mean of the performance evaluation to the percentage value. If the performance was lower than 3, then the grade was linearly transformed using the potential range between grades 1 and 3, and if it was higher than 3, then by using the potential range

between grades 3 and 5. Given that the impacts range can show a significant positive or negative asymmetry, such a method of weighting allowed the possible asymmetry and, in this respect, to some extent weighting was dynamic.

The percentage values of the utilization of the components/indicators' potentials were then weighted with the ratio of the influence range of the components/indicators and the sum of the impacts range of all components/indicators. Obtained data on the utilization of the indicators' potentials i.e. the components were then added in order to obtain the component quality index, i.e. the index of satisfaction with banking services. Since modeling of the index was approached hierarchically, the component quality indexes became the baseline values for calculating the utilization of the components' potential for creating satisfaction with banking services. As in case of the indicators at the component level, the possible asymmetry of the component's impact on overall satisfaction was taken into account, and the linear transformations of the component quality index into the indicators of potential utilization were carried out using two different rates (for the values of the components quality index below the value equivalent to grade 3 on the original scales from 1 to 5, and for the values of the components quality index above the value that is equivalent to grade 3 on the same scale).

4. ANALYSIS AND RESULTS

The survey sample was quota-based, where a bank was used as a control variable. The researchers' intention was to collect approximately the same number of questionnaires in the selected banks. A total of 493 questionnaires were collected, of which 303 questionnaires were useful for the analysis, considering that only four banks, with a significant number of complete and useful questionnaires, were taken into the consideration. Given the fact that one of the goals of this paper was to construct a user satisfaction index and compare its value among different banks, one of the main criteria for selecting banks was that they had to provide similar services and, in that regard, could be considered to be direct competitors.

Based on the results obtained from the survey questionnaire it can be concluded that no quality characteristic has been identified as problematic, with a small correlation value within the measuring instrument, that is, that there is no statistically significant increase in the reliability coefficient of the measuring instrument construction if any of the above-mentioned 22 characteristics is removed. In total, the value of reliability coefficient (Cronbach's alpha) related to the characteristic of the performance (performance perception) is 0.937, while for the importance of the characteristics (expectations), the quality is 0.924.

Momcilo Poljic was born in Koretasi, municipality of Lopare. He studied economics at the Faculty of Economics in Brcko, received MSc in marketing from the University of Belgrade, Faculty of Economics and successfully defended his doctoral dissertation in the field of marketing at the University of Belgrade, Faculty of Economics. In addition to teaching International Marketing, Consumer Behavior and Human Resource Management at the Faculty of Economics in Brčko and the Faculty of Business Economics in Bijeljina (the first cycle degree programme), he teaches Strategic Marketing and Market Communications Strategies at the Faculty of Economics in Brcko (the second cycle degree programme). In addition to the aforementioned, he is the Head of Postgraduate Master and Doctoral Studies at the Faculty of Economics in Brcko. He has published three books and over thirty scientific and professional papers.

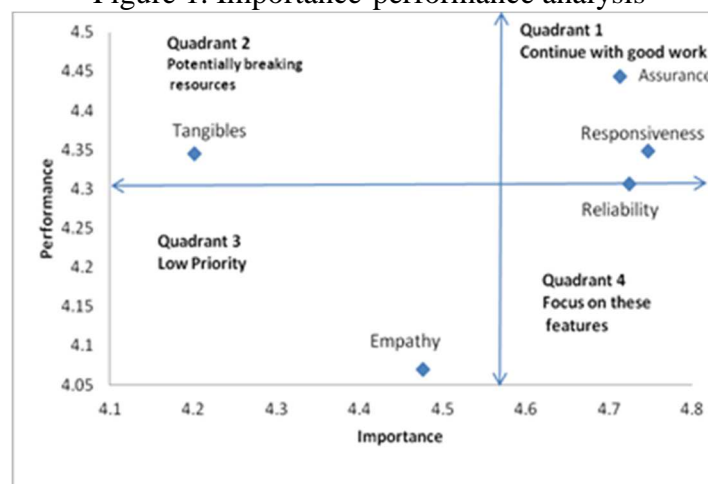
Table 1 shows good estimates of the perception of performance and the importance of quality characteristics, along with SERVQUAL ratings for each individual dimension. It can be seen that for all dimensions the importance of the characteristics and the perception of the service performance is significantly different. All dimensions have a positive SERVQUAL rating. In other words, banks provide the quality of services above the expected level.

Table 1: SERVQUAL dimensions of service quality

Dimension	Perception	Expectations	SERVQUAL ratings
Tangibles	0.809	0.748	0.061
Reliability	0.772	0.627	0.145
Responsiveness	0.766	0.604	0.162
Assurance	0.807	0.645	0.162
Empathy	0.802	0.673	0.129

After confirming the reliability of the measuring instrument using Cronbach's alpha model and regression analysis, the importance-performance analysis was used to identify the perception of individual users on the different characteristics of the quality of banking services, as well as the quality of different services that individual users consider important. The importance-performance analysis (IPA) is an analytical tool used to determine the priority of improving the characteristics of products/services. While conducting the analysis of the importance and performance, the evaluations of the importance and performance of the analyzed product/service characteristics (arithmetic mean by components) were employed and, by using them, a two-dimensional matrix was constructed. The matrix was then divided into four quadrants and, depending on the position of the features inside the quadrant, it was possible to perform predefined business recommendations for these features. The main objective of the IPA is to provide an information framework for the direct determination of relative priorities for the improvement of the features based on their current level of performance compared to their importance. The interpretation of importance - performance analysis results are shown graphically (Figure 1). Observed banks should *focus mostly* on "Reliability", located on the border between the lower and the upper right quadrant. "Responsiveness" and "Assurance" dimensions are the fields where the banks should, above all, continue with good work. "Empathy" dimension should have *lower priority*, since it is in positioned in the low priority quadrant, but it has a low level of performance and a relatively high degree of importance. Potential waste of resources threatens "Tangibles" dimension.

Figure 1. Importance-performance analysis



Considering the fact that the analyses in second part of this research were to a great extent based on regression analysis, the quality of the selected indicators of banking service overall satisfaction, as well as the indicators of the individual components of bank service quality were analyzed in the first place. The quality of the indicators was evaluated as follows:

The correlation matrix for the indicators of overall satisfaction (i.e. the main components of the services) was calculated.

Table 2: Correlation matrix for the indicators of overall satisfaction with the bank's services

	Tangibles	Reliability	Responsiveness	Assurance	Empathy	Satisfaction
Tangibles	1	0.488**	0.481**	0.502**	0.413**	0.399**
Reliability	0.488**	1	0.655**	0.509**	0.627**	0.396**
Responsiveness	0.481**	0.655**	1	0.598**	0.483**	0.448**
Assurance	0.502**	0.509**	0.598**	1	0.547**	0.519**
Empathy	0.413**	0.627**	0.483**	0.547**	1	0.372**
Satisfaction	0.399**	0.396**	0.448**	0.519**	0.372**	1

Remark:**Correlation is significant at the 0.01 level (2-tailed).

The purpose of this step is the identification of significant inter-correlations between the indicators that can lead to the problems of multicollinearity in regression analysis, thereby significantly reducing the reliability and quality of the model. The correlation matrix of overall satisfaction indicators with banking services shows that all indicators of the perception of performance of certain banking service components are positively correlated with overall services satisfaction, that is, the improvement of any component's quality increases the satisfaction with services received. Furthermore, we see that all components are not equally and statistically significantly correlated with the overall satisfaction with the bank's services. The highest level of correlation is indicated by Assurance ($r_{\text{Assurance} * \text{Satisfaction}} = 0.519$) and Responsiveness ($r_{\text{Responsiveness} * \text{Satisfaction}} = 0.448$). The lowest level of correlation "Empathy" ($r_{\text{Empathy} * \text{Satisfaction}} = 0.372$). The strongest correlation within the componential indicators is between "Reliability" and "Responsiveness" ($r_{\text{Reliability} * \text{Responsiveness}} = 0.655$). However, the level of correlation is not too high to indicate a significant overlap between the conceptual domains of these indicators.

Table 3: Initial model of regression of overall satisfaction with banking services

Indicators:	B	Std. Error	Beta	t	Sig.
(Constant)	87.346	3.228		27.058	0.000
Tangibles	0.222	0.103	0.127	2.163	0.031
Reliability	0.074	0.104	0.052	0.714	0.476
Responsiveness	0.169	0.085	0.139	1.980	0.049
Assurance	0.290	0.060	0.322	4.860	0.000
Empathy	0.087	0.131	0.044	0.666	0.506

Remark: R=0.563; R²=0.317; Adjusted R²=0.306.

The model of regression of overall satisfaction with banking services provides average results in terms of individual and group statistical significance of the selected indicators/components. The level of the explained variance in the dependent variable is R² = 0.306 so, therefore, the model can be described as satisfactory. The only indicator with a statistical significance at a level below 90% is "Empathy" ($p_{\text{Empathy}} = 0.506$). Since the value of the regression coefficient

of this indicator is relatively low compared to other indicators in the model ($B_{\text{Empathy}}=0.087$), it can be said that in the model, the component "Empathy" is of little significance in forming overall satisfaction with banking services. Therefore, a decision was made to exclude this indicator from the final model. After the elimination of "Empathy" in the second model, "Reliability" ($p_{\text{Reliability}}=0.476$) had a relatively low statistical significance, so a decision was made to exclude this indicator from the final model as well.

Table 4: Final model of the regression of overall satisfaction with banking services

Indicators:	B	Std. Error	Beta	t	Sig.
(Constant)	87.370	3.224		27.102	0.000
Tangibles	0.250	0.100	0.143	2.496	0.013
Responsiveness	0.211	0.075	0.173	2.797	0.005
Assurance	0.310	0.056	0.344	5.479	0.000

Remark: $R=0.560$; $R^2=0.313$; Adjusted $R^2=0.307$.

Dependent Variable: Satisfaction

According to the results of testing in the final model (Table 4), the biggest impact in the field of overall satisfaction with banking services has the "Assurance" component ($B_{\text{Assurance}}=0.310$). It is followed by "Tangibles" ($B_{\text{Tangibles}}=0.250$) and "Responsiveness" ($B_{\text{Responsiveness}}=0.211$). In this case, the regression equation is:

$$\text{Satisfaction} = 87.370 + 0.310 * \text{Assurance} + 0.250 * \text{Tangibles} + 0.211 * \text{Responsiveness}.$$

For the purpose of the analysis of asymmetric effects within the satisfaction of banking service users, an analysis of the asymmetry of influence was used. The analysis was conducted for the indicators of overall satisfaction with banking services. The analysis covered only the indicators/components selected in the regression model of the previous title (the quality components of service Tangibles, Responsiveness and Assurance). The results of the dummy regression for overall user satisfaction, upon which were calculated values required for the analysis of the asymmetry impact, are shown in Table 5.

Table 5: Dummy regression for the indicators of overall satisfaction with banking service users

Indicators:	B	Std. Error	Beta	t	Sig.
(Constant)	24.423	15.330		1.593	0.112
D_1_Tangibles	0.007	0.037	0.009	0.194	0.847
D_3_Tangibles	0.124	0.023	0.272	5.291	0.000
D_5_Tangibles	0.013	0.074	0.009	0.178	0.859
D_1_Responsiveness	-0.023	0.038	-0.031	-0.599	0.549
D_3_Responsiveness	0.148	0.027	0.328	5.513	0.000
D_5_Responsiveness	0.051	0.059	0.046	0.863	0.389
D_1_Assurance	0.113	0.032	0.187	3.530	0.000
D_3_Assurance	0.013	0.028	0.028	0.466	0.642
D_5_Assurance	0.211	0.052	0.212	4.075	0.000

Remark: $R=0.606$; $R^2=0.367$; Adjusted $R^2=0.347$.

Dependent Variable: DZ_Satisfaction

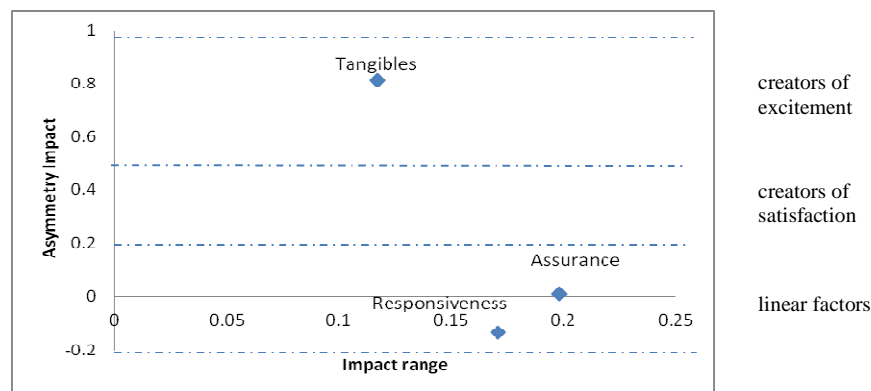
The five variables in the initial model (Table 5) show a low statistical significance at the level of less than 90% (bounded by gray), however, the overall model gives good results, and the analysis of the asymmetry impact for the indicators of overall user satisfaction will be based on

the initial model. The results of the asymmetry analysis for overall user satisfaction indices are shown graphically in Table 6 and Figure 2.

Table 6: The Analysis of asymmetry impact for indicators of overall satisfaction of banking service users

Indicators:	Impact range	Potential for creation of dissatisfaction	Potential for creation of satisfaction	Asymmetry impact
D_ Tangibles	0.117	0.906	0.094	0.812
D_ Responsiveness	0.171	0.433	0.567	-0.135
D_ Assurance	0.198	0.505	0.495	0.01

Figure 2: The Analysis of asymmetry impact for indicators of overall satisfaction of banking service users



The results of the impact asymmetry analysis for three of the five main components of the banking services quality show that the "Tangibles" component has a significant positive impact ($AU=0.812$) on overall user satisfaction. For this component, service quality is considered to fall into the category of "creators of excitement", and has a positive impact on overall satisfaction in the case of a very high performance perception created by the user. On the contrary, when users of banking services perceive the performance of this component as bad, this does not lead to a high level of dissatisfaction. Also, although it has a positive asymmetry of influence and it can be called the creator of enthusiasm, it still has a marginal impact range ($RU=0.117$), compared to other components and, therefore, the categorization of this component into the asymmetry of influence is quite unreliable, since in dummy regression the values of the punishment and awards showed very low levels of statistical significance. For the "Assurance" components ($AU=0.01$) and "Responsiveness" ($AU=-0.135$) it can be said to fall into the category of "linear factors", with the "Assurance" component having a mild positive asymmetry of impact, and the "Responsiveness" component has a negative asymmetry of influence. However, the impact range of the "Assurance" component, in comparison with the other two components, i.e. its importance in forming overall satisfaction of users with banking services, is higher than the other two components (the impact range is $RU=0.198$).

Prioritizing of the quality of banking services individual indicators/components improvement is applied to the matrix of relevance and determinacy which is, basically, the adjusted matrix of importance. The difference is only in the interpretation of the results. This analysis uses the

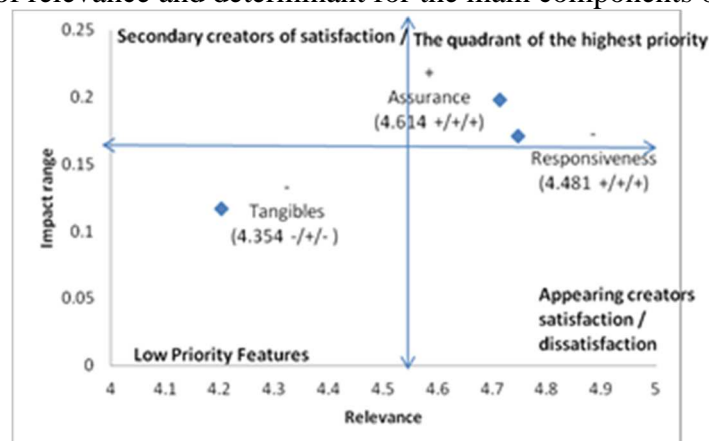
performance indicators, as well as the two types of evaluation of the significance of the indicators, i.e. the direct importance of the indicators - explicit importance (part of the survey questionnaire concerning relevance), and the impacts range of the indicators - implicit importance, obtained from multiple regression analyses and represents measuring of the feature determinant [15]. Then, the priorities of the components (or indicators within individual components) are determined. In this case, the values of the component/indicator effect influence range are calculated as important values. Priorities are calculated for bank A, where the performance ratings of banks B, C and D are observed as the competition dimension or, as an additional criterion in determining the priority of the improvement of bank A elements.

Table 7: Relevance, impacts range and the implementation of the main quality components of banking services

Indicators:	Importance	Impact range	Performance Bank A	Performance Bank B	Performance Bank C	Performance Bank D
D_Tangibles	4.202	0.117	4.354	4.38	4.217	4.43
D_Responsiveness	4.747	0.171	4.481	4.47	4.118	4.323
D_Assurance	4.713	0.198	4.614	4.347	4.28	4.53
Arithmetic mean	4.554	0.162	4.483	4.399	4.205	4.428

Based on Table 7, the matrix of relevance and determinacy is constructed for the purpose of determining the priority of the improvement - the three-factor structure (Figure 3).

Figure 3: Matrix of relevance and determinant for the main components of banking services



The components that are labeled with plus (+) have an above-average performance level, compared to other components of the same bank. The components that are marked with a minus (-) have a below-average performance level, compared to other components of the same bank. The arithmetic mean of the performance is given in brackets. If the component performance level is above the level of the bank, in front of the performance appraisal is plus (+), and if it is below the level of the competitor bank, in front of the performance appraisal stands minus (-). The first sign next to performance appraisal refers to Bank B, the second to Bank C, and third to Bank D. The highest priority should have components that show a high level of relevance, a large range of impacts and a low level of performance. According to Figure 3, bank A should assign the highest priority to the *Tangibles component*. Although this component is in the quadrant of the lowest priority, bank A should focus on this component because it is below average in comparison to other components of the same bank, and also the level of performance is below the level of performance of B and D banks. Also, bank A should focus on the

Responsiveness component, which has a fairly high level of relevance, a lower level of performance, compared to other components of the same bank, and a higher level of performance than the competition. The main advantage of bank A is the Assurance component, located in the upper right quadrant, and has a very high range of impacts, as well as an above-average performance level and a performance level above competitors.

Below you will find the results of calculating the quality index for individual banking services components and the index for overall satisfaction with banking service. When calculating the index of quality, i.e. the index of overall satisfaction with banking services, only the indicators/components selected in the regression model are included (Table 4 – the Components of the services quality Tangibles, Responsiveness and Assurance, as well as their indicators). The index of overall satisfaction with banking service is of a composite nature, since the input values are the quality indexes of the components that constitute the total service (the abovementioned three components). As the weights of individual indicators at the component or component level, that is, at the level of overall service, the values of indicators/components impacts range were used. The individual index at the level of the indicator or component is expressed as a percentage, indicating the utilization of the maximum potential of the indicators for increasing the perception of quality, i.e. the utilization of the maximum potential of the component for creating satisfaction. In this respect, the possible asymmetry impact was taken into the consideration, and the weighing of the indicators/components in this respect was dynamic, since the weight is dependent on the current level of indicator/component performance.

Table 8. Overview of the quality index of banking services components and banking services satisfaction index

	A	B	C	D
SATISFACTION INDEX	85.03%	84.92%	72.64%	67.22%
The indexes of quality of "Tangibles" components	30.13%	29.99%	33.27%	32.76%
Your bank possesses modern equipment	4.13%	3.73%	6.34%	3.96%
The exterior and interior of your bank is visually acceptable and attractive	11.23%	14.58%	7.82%	15.79%
Employees in your bank look neat	5.39%	3.58%	3.43%	3.11%
Service related materials (flyers and patterns) are visually acceptable	9.38%	8.10%	15.68%	9.90%
The indexes of quality of "Responsiveness" components	33.61%	33.17%	30.09%	25.42%
The staff of your bank tells you exactly when the service will be provided	2.30%	6.33%	5.44%	6.99%
The staff of your bank provides timely service	12.52%	10.81%	14.48%	1.86%
The staff of your bank is always ready to help	13.77%	15.14%	9.24%	12.44%
The staff of your bank is in favor of your questions and responds to them	5.02%	0.89%	0.93%	4.13%
The indexes of quality of "Assurance" components	32.94%	30.41%	30.90%	32.01%
The behavior of your bank staff contributes to customer trust	15.23%	13.90%	9.15%	11.33%
When you perform transactions with your bank, you feel safe	4.46%	2.99%	4.06%	3.16%
Your bank staff is always cautiously in touch with you	11.20%	8.86%	13.14%	13.05%

Your bank staff possesses the knowledge to answer your questions	2.05%	4.66%	4.55%	4.47%
--	-------	-------	-------	-------

5. ANALYSIS OF THE IMPACT OF CUSTOMER SATISFACTION INDEX AND PERFORMANCE INDICATORS

A large number of studies dealt with the study of the relationship between customer satisfaction and bookkeeping financial indicators, such as the operating profit margin [6], return on investment-ROI [2], return on asset (ROA), return on equity (ROE) [12], bookkeeping income [14], and the value of equity capital [3]. In some of these studies, a direct relationship is seen between the quality and financial performance of the organization, while in other studies quality is viewed as a determinant of satisfaction, and satisfaction is placed in relation to the indicators of financial performance of business (profitability indicators, market indicators of banks' operations etc.).

There are many different ways to measure financial performance, and in a situation where many are mutually incomparable and the measurement is problematic, a good solution might be to use the average of all measures. In other words, a combination of several estimates and different indicators of financial performance (so-called "rank average") should be used.

Since customer satisfaction is one of the important determinants of business success and, on the other hand, one of the objectives of the survey was to compare the values of the calculated customer satisfaction indexes of four monitored banks with selected indicators of financial and non-financial performance of business, in this part, the impact of quality and index of satisfaction on the business success of analyzed banks will be analyzed in detail. However, it is clear that the size of banks significantly determines the level of market share, and therefore the income and profit, which is why we should be cautious when comparing directly absolute performance indicators. In this paper, we consider two analytically most consistent indicators for measuring the bank's profitability, which are most often used by bank analysts and the bank management:

- Return on assets (ROA) profitability rate - a measure that reflects the ability to generate the gain of engaging the bank's average assets in a given period;
- Return on equity (ROE) profitability ratio - a measure that reflects returns to the bank's shareholders

Table 10: Satisfaction indices and profitability indicators for banks A, B, C and D

	Satisfaction index	ROA			ROE		
		2014	2015	2016	2014	2015	2016
Bank A	85,03%	1.80	2.00	2.00	10.10	11.80	11.40
Bank B	84,92%	1.30	1.60	0.91	12.30	14.70	9.01
Bank C	72,64%	1.60	2.00	1.60	10.40	13.50	14.40
Bank D	67,22%	0.72	0.74	0.77	9.19	8.91	8.81

According to Table 10, the bank A with a higher value of the customer satisfaction index really shows a stable ROA value in all three years observed. In addition, within the observed periods, it had a stable and enviable other financial indicators (operating income, net operating income, profit, assets). Bank C, with the value of the customer satisfaction index ranked third, had a stable and the highest level of profitability ROE. It also had the largest founding capital, and other financial indicators ranked behind bank A, but in front of banks B and D.

It can be concluded that such static cross-sectional comparisons of the satisfaction index and performance indicators at one moment in time cannot be reliably used to confirm the positive effect of satisfaction upon business performance. In order to provide empirical evidence for such a claim, a significantly larger number of respondents, as well as a larger number of banks, should be analyzed. Likewise, in order to analyze the impact of satisfaction on business success, longitudinal studies should be carried out in order to analyze changes in business performance indicators due to changes in the level of satisfaction. In doing so, it is not enough to observe only the performance indicators from several periods, but also to conduct repeated testing of banking service users for the same banks, which is not the subject of this paper.

LITERATURE

- [1] Anderson, E.W. (1994) *Cross-category variation in customer satisfaction and retention*, Marketing Letters, Vol. 5, pp. 19-30.
- [2] Anderson, E.W., Fornell, C. i Rust, R.T. (1997) *Customer Satisfaction, Productivity, and Profitability: Differences Between Goods and Services*, Marketing Science, Vol. 16, br. 2, pp. 129-145.
- [3] Anderson, E.W., Fornell, C. i Mazvancheryl, S.K. (2004) *Customer Satisfaction and Shareholder Value*, Journal of Marketing, Vol. 68 (Oktober), pp. 172-185.
- [4] Anderson, E.W. i Sullivan, M.W. (1993) *The antecedents and consequences of customer satisfaction for firm*, Marketing Science, Vol. 12, (spring), pp. 125-143.
- [5] Arasli, H, Mehtap-Smadi, S, Katircioglu, S. T. (2005) *Customer service quality in the Greek Cypriot banking industry*, Managing Service Quality, Vol. 15, No. 1, pp. 41-56.
- [6] Bolton, R.N. (1998) *A dynamic model of the duration of the customer's relationship with a continuous service provider: The role of satisfaction*, Marketing Science, Vol. 17, No. 1, pp. 45-65.
- [7] Boulding, W., Kalra, A., Staelin, R. i Zeithaml, V.A. (1993) *A dynamic process model of service quality: From expectations to behavioral intentions*, Journal of Marketing Research, No. 30, pp. 7-27.
- [8] Brandt, R.D. (1987.) *A procedure for identifying value-enhancing service components using customer satisfaction survey data*, u: Surprenant, C. (Ed.), *Add Value to Your Service*, American Marketing Association, Chicago, pp. 61-65.
- [9] Cronin Jr, J. J. and Taylor, S. A. (1992) *Measuring service quality: a reexamination and extension*, The Journal of Marketing, Vol. 6 (July), pp. 55-68.
- [10] Devlin, J. F. (1998) *Adding value to service offerings: the case of UK retail financial services*, European Journal of Marketing, Vol. 32 No. 11/12, pp. 1091-1109.
- [11] Fornell, C., Johnson, M.D., Anderson, E.W., Cha, J. i Bryant, B.E. (1996.) *The American customer satisfaction index: Nature, purpose, and findings*, Journal of Marketing, Vol. 60, No. 4, pp. 7-18.
- [12] Harvey, T. (1996) *The banking revolution: position your bank in the new financial services marketplace*, Chicago, Irwin Professional Publishing, pp. 11.
- [13] Homburg, C., Giering, A. i Menon, A. (2003) *Relationship Characteristics as Moderators of the Satisfaction-Loyalty Link: Findings in a Business-to-Business Context*, Journal of Business to Business Marketing, Vol. 10, No. 3, pp. 35-62.
- [14] Ittner, C.D. i Larcker, D.F. (1998) *Are nonfinancial measures leading indicators of financial performance? An analysis of customer satisfaction*, Journal of Accounting Research, Vol. 36, pp. 1-35.

- [15] Ittersum, K.V., Pennings, J.M.E., Wansik, B. i Trijp, H.C.M. (2007) *The validity of attribute-importance measurement: A review*, Journal of Business Research, Vol. 60, pp. 1177-1190.
- [16] Kamakura, W.A., Mittal, V., de Rosa, F. i Mazzon, J.A. (2002) *Assessing the service-profit chain*, Marketing Science, Vol. 21, br. 3, pp. 294-317.
- [17] Loveman, G.W. (1998) *Employee satisfaction, customer loyalty, and financial performance: an empirical examination of the service profit chain in retail banking*, Journal of Service Research, Vol. 1, No.1, pp.18-31.
- [18] Mazursky, D. i Geva, A. (1989) *Temporal decay in satisfaction-purchase intention relationships*, Psychology & Marketing, Vol. 6, No.3, pp. 211-227.
- [19] Mittal, V. i Kamakura, W.A. (2001) *Satisfaction, repurchase intent and repurchase behavior: investigating the moderating effect of customer characteristics*, Journal of Marketing Research, Vol. 38 (February), pp. 131-142.
- [20] Parasuraman, A., Zeithaml, V.A. i Berry, L.L. (1994) *Reassessment of expectations as a comparison standard on measuring service quality: implications for further research*, Journal of Marketing, Vol. 58, No. 1, pp. 111-124.
- [21] Ralston, R. (1996.) *Model maps out sure path to growth in marketplace*, Marketing News, Vol. 30, br.11, pp. 12.
- [22] Zeithaml, V.A., Berry, L.L. i Parasuraman, A. (1996) *The behavioral consequences of service quality*, Journal of Marketing, Vol. 60, pp. 31-46.

ANALYSIS OF THE IMPACT OF THE ACQUISITION OF SOCIÉTÉ GÉNÉRALE – SPLITSKA BANKA BY OTP BANK CROATIA ON THE CONCENTRATION OF THE BANKING MARKET OF THE REPUBLIC OF CROATIA

Ivana Beljo¹⁶⁴
Kristina Devčić¹⁶⁵
Željko Deković¹⁶⁶

The banking market is, by number of mergers and acquisitions, among the leading markets in the world. For the last decades, the wave of mergers and acquisitions of banks was also present on the Croatian banking market, and these mergers and acquisitions mainly involve the acquisitions of domestic banks by foreign banks or the mergers of smaller banks to larger banks. In this paper an overview of mergers and acquisitions of banks is presented on the example of the acquisition of Société Générale - Splitska banka by OTP bank Croatia which is an interesting example as for the first time in the banking market in the Republic of Croatia, a smaller bank took over the larger one. Since the beginning of business in 2005, OTP bank Croatia is the eighth bank by the size of total assets. Over the last few years OTP bank Croatia invested in strengthening its market share on the Croatian banking market. Strengthening the market share of OTP bank Croatia by organic growth of business and, for the most part, by acquisitions of other banks is achieved. Prior to acquisition of the Société Générale - Splitska banka, in December 2014 OTP bank Croatia ended the legal process of acquisition of the Banco Popolare Croatia. With these acquisitions, market share of the total assets of OTP bank Croatia in the total assets of all banks operating in the Republic of Croatia increased to 11.02% and OTP bank Croatia became the bank with the fourth largest share of total assets in the Republic of Croatia. In this paper the market competition of the Croatian banking market is analyzed using the most well-known market concentration measure, Herfindahl-Hirschman's index, which showed that the Croatian banking market was moderately concentrated in the period between 2005 and 2016 with a mild growth trend. By acquisition of Splitska banka by OTP bank, Herfindahl-Hirschman's index increased from 0.148 to 0.154.

Key words: bank, acquisition, concentration measures, Herfindahl-Hirschman's index, analysis.

1. INTRODUCTION

Mergers and acquisitions has been one of the main characteristics of the economies around the world for more than a decade. Along with organic growth, mergers and acquisitions enable stable economic growth. Mergers and acquisitions took place in the waves, and now the fifth wave of mergers and acquisitions lasts, which is also the longest wave, it began in the 1990s and still continues today. On the Croatian banking market, there was mainly cross-border mergers and acquisitions of smaller banks, which have also influenced on their consolidation and increased market competition. Cross-border acquisitions are cheaper entry into a new

¹⁶⁴ Polytechnic of Šibenik, Trg Andrije Hebranga 11, 22000 Šibenik, Croatia

¹⁶⁵ Polytechnic Nikola Tesla, Bana Ivana Karlovića 16, 53000 Gospić, Croatia

¹⁶⁶ OTP bank, Ante Šupuka 22, 22000 Šibenik, Croatia

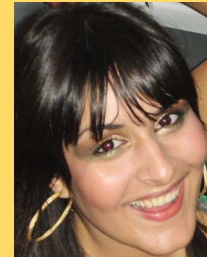
market than the creation of new banks branch offices. In this paper an overview of mergers and acquisitions of banks is presented on the example of the acquisition of SG - Splitska banka by OTP bank Croatia which is an interesting example as for the first time on the banking market in the Republic of Croatia, a smaller bank took over the larger one.

2. MERGERS AND ACQUISITIONS

The terms of mergers and acquisitions have no unambiguous definition, different authors define them differently. Nevertheless, standardization of the terms "mergers and acquisitions" was promoted by the American Accounting principles Board - APB in 1970 [1]. In the Republic of Croatia, the Companies Act [2] provides definitions and clarifications of the above mentioned terms. Mergers of companies is a process in which two or more companies can merge without the liquidation process by establishing a new company to which the entire property of each merging entity is placed in exchange for new company shares. Acquisition is a process in which one or more companies can join another company without the liquidation process being carried out by transferring the entire property of one or more companies (affiliated companies) to the acquirer in exchange for shares of that company.

Ivana Beljo

Born on October 28th, 1983 in Šibenik. Lives and works in Šibenik. In 2002 finished Grammar school Antun Vrančić in Šibenik. 2008 graduated Department of Mathematics from Faculty of Science of the University of Zagreb. From 2008 to 2015 worked as a credit risk manager in Jadranska banka d.d. Šibenik. From 2015 till today works in Polytechnic of Šibenik. Teaches Mathematics, Financial mathematics, Statistics and Operational research. Author of several scientific and professional papers, leader and participant of several projects.



The wave of mergers and acquisitions of banks on the banking market created a smaller number of larger banks. How horizontal mergers and acquisitions would not lead to a reduction in competition or the attempt to create a monopoly on markets, there are various guidelines and laws about market protection. There is a Competition Act (NN 80/13) [3] for the Republic of Croatia, for which enforcement Agency for the Protection of Market Competition is in charge.

Measuring market competition is closely related to measuring market concentration. The most known concentration measure is the Herfindahl-Hirschman's Index (HHI). HHI is calculated as the market shares squares sum of all companies in an industry, and is defined by the expression:

$$HHI = \sum_{i=1}^N s_i^2 = \frac{\sum_{i=1}^N x_i^2}{(\sum_{i=1}^N x_i)^2}, \quad \frac{1}{N} \leq HHI \leq 1 \quad (1)$$

where s_i is the market share of i companies. The HHI takes values between 0 and 1. When the market is monopolistic the index reaches a value of 1, while on un-concentrated markets the index is close to 0. If the index value is lower, there is less chance that one or a few companies will dominate a given market, and market shares are more equally distributed among companies [4].

3. CROATIAN BANKING SECTOR

Credit institutions have the dominant position in the financial system of the Republic of Croatia. Their business is regulated and supervised by the Croatian National Bank. The banks are the most active credit institutions in the payment system and on the financial market. According to

the data available on the Croatian National Bank web page at the end of 2016, there were 26 banks operating in the Republic of Croatia.

In the last two decades, the Croatian banking market has been extremely dynamic, a large number of banks have emerged from the system, several new banks, mostly foreign-owned, get permission for work. Foreign banks entered the Croatian market by acquisitions of existing banks.

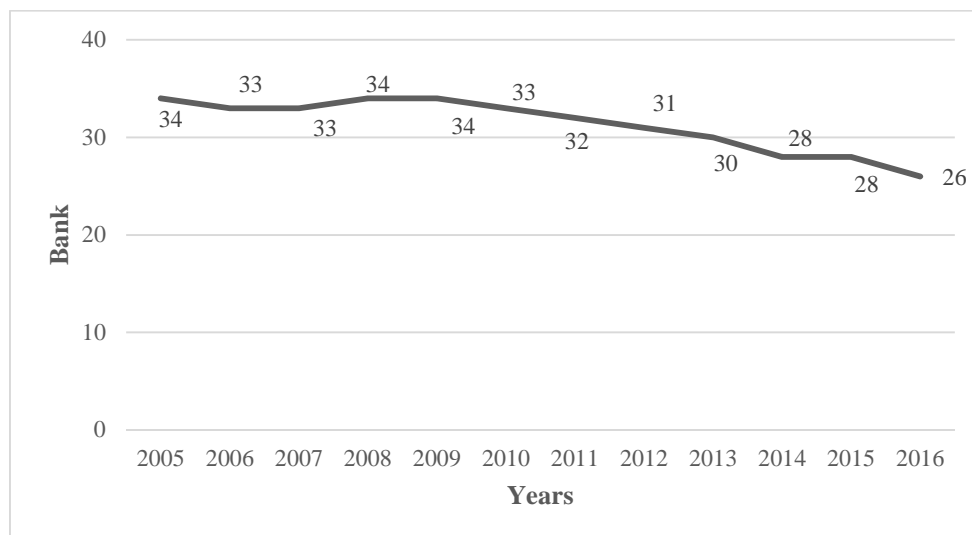


Figure 1: The number of banks in the Republic of Croatia
Source: authors' calculation according to [5].

The banking market in the Republic of Croatia is characterized by the high share of foreign banks which, due to their financial strength, are the biggest contributor to bank consolidation [6], which have influenced the classification of banks into large and small banks. Based on Figure 1, it can be concluded that in the last seven years the number of banks on the Croatian market has been constantly decreasing. Acquisitions of smaller banks, bankruptcy, resolution or winding-up proceedings, mainly in smaller banks are some of the reasons for the decreasing in the number of banks in the Croatian banking market.

Bank	Total assets	Share (%)
Zagrebačka banka	105.131.343	27,05%
Privredna banka Zagreb	72.438.725	18,64%
Erste&Steiermaerkische bank	56.118.727	14,44%
Raiffeisenbank Austria	31.423.727	8,08%
SG - Splitska banka	27.044.685	6,96%
Addiko Bank	21.099.101	5,43%
Hrvatska poštanska banka	19.357.720	4,98%
OTP bank	15.790.392	4,06%
Other banks	40.317.504	10,37%
Total	388.721.924	100,00%

Table 1: Banks with total assets higher than 10 billion HRK in 2016 in 000 HRK
Source: authors' calculation according to [5].

Based on Table 1 it is clear that in 2016 Zagrebačka banka is the largest bank in Republic of Croatia according to total assets, with total assets higher than 100 billion HRK with the share in total assets of all banks of 27.05%. The share of the first two largest banks, Zagrebačka banka and Privredna banka Zagreb makes up almost half of total assets of all banks with share of 45.68%. Total assets of banks in Table 1, banks with total assets higher than 10 billion HRK, makes 89.63% of total assets of all banks operating in the Republic of Croatia in 2016. The largest banks operating on the Croatian banking market are almost entirely foreign-owned, except the Hrvatska poštanska banka which is owned by the Republic of Croatia.

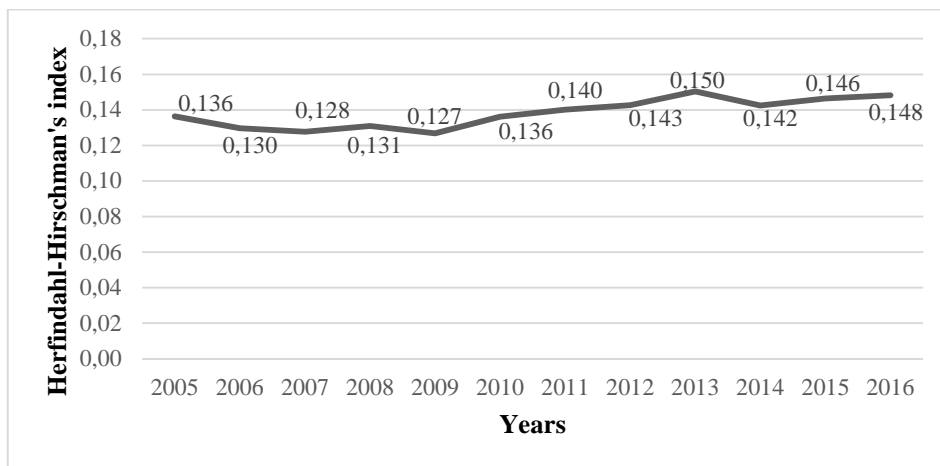


Figure 2: HHI of total assets of banks in the Republic of Croatia

Source: authors' calculation according to [5].

Based on Figure 2, it can be concluded that in 2005 the Croatian banking market was moderately concentrated with the HHI index of 0.136 and the level of concentration increased to 0.148 in 2016. It is believed that un-concentrated markets have the HHI index less than 0.1, and concentrated markets higher than 0.18 [7].

4. CHRONOLOGICAL OVERVIEW OF CONCENTRATION AND OPERATING ACTIVITIES OF OTP BANK CROATIA

OTP bank Croatia has been operating since February 2005 when the Croatian National Bank approved the request for acquisition of equity holdings of Nova Banka d.d. which was created in 2002 by merging three regional banks (Istarska, Sisačka and Dalmatinska banka), to whom Dubrovačka banka in 2004 was joined. According to data shown in Table 1. OTP bank Croatia on December 31st 2016 was the eighth largest bank with a total assets of 15.8 billion HRK. According to [5], the bank concluded 2016

Kristina Devčić

Born on December 14th, 1981 in Gospić. Lives and works in Gospić. In 1999 finished general grammar school in Otočac. 2006 graduated from Faculty of Humanities and Social Sciences in Rijeka and obtained a degree in Mathematics and Computer Science (teacher training). 2011 completed University Specialist Postgraduate Study Programme of Statistical Methods for Economic Analysis and Forecasting at Faculty of Economics in Zagreb. Enrolled in Doctoral Study Programme at Faculty of Economics in Zagreb. From 2004 to 2008 worked as a mathematics teacher in elementary and secondary school in Otočac. From 2008 till today works in Polytechnic Nikola Tesla in Gospić. Worked as Head of the Department and Vice Dean for Academic Affairs. Teaches Mathematical Economics, Statistics for Economists, Mathematics and Statistics in Traffic. Author of several teaching materials and text books and more than 15 scientific and professional papers. Married, mother of three.



with a profit of 123,4 million HRK. The total assets of the bank stood at 15,8 billion HRK, while the total equity of the bank stood at 1,8 billion HRK and the total capital ratio was 16.74%.

From the beginning of business OTP bank is the eighth largest bank according to total assets and has invested in strengthening its market share in the Croatian banking market in recent years. The strengthening of the market share is mainly achieved by acquisitions of other banks. Before acquisitions of SG - Splitska banka, in December 2014 OTP bank ended the legal process of acquisition of Banco Popolare Croatia. The share of total assets of OTP bank in total assets of all banks in 2005 was 2.66%, and after acquisitions this share was 11.02%.

Figure 3 shows the market share of total assets of OTP bank in the total assets of all banks from 2005 to 2016 and the simulation of the market share after the acquisition of SG - Splitska banka is marked with 2016*.

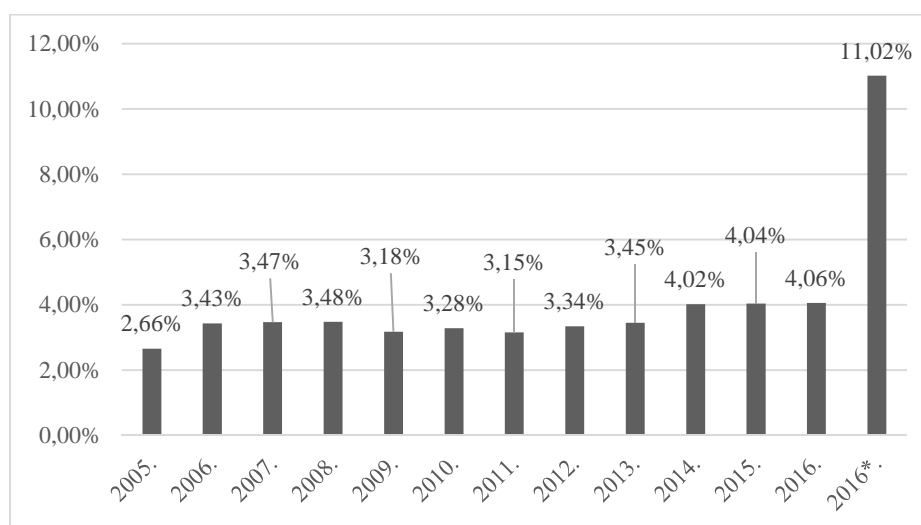


Figure 3. Market share of OTP bank
Source: authors' calculation according to [5].

Željko Deković, born 1958 in Šibenik, graduated from the Faculty of Economics in 1982 at the University of Split. He worked at the Solaris Hotel Inc. Šibenik from July 1983 to December 2001 and during that period he also worked as the director of the financial accounting department and the chairman of the management of the joint stock company "Solaris". In January 2002 he was elected for the director of joint stock company Hotel Primošten, where he worked until June 2003. In the following period, he worked as a director of the Public local institution "Šibenik Sports Facilities" in Šibenik, and since July 2004. has been managing the business unit of OTP bank d.d. in Šibenik. He is member of the Association "Croatian Accountant" – Zagreb and an authorized accountant and a standing expert for the financial and accounting of the County Court in Šibenik for more than twenty years and is the same for the Commercial Court in Split /more than a hundred expertises/. He was elected to the Senior Teacher at the Polytechnic of Šibenik for the field of social sciences, field of economics, branch of finance and fiscal policy on 06th October 2008. Since 2008 he was Senior Lecturer and Carrier for Financial Management - Professional Studies Management and Course Operational Management - Specialist Bachelor's Degree Program in Management of Polytechnics in Šibenik. He has published seventy six professional and scientific papers and has participated and led a number of projects, expertise and expertise. In the co-authorship he wrote the book "Application of Operational Management: a collection of tasks with theoretical explanations" II edited edition /Željko Deković, Jelena Šišara - Šibenik: Polytechnic in Šibenik, 2017, p. 584/. He also wrote a polytechnic tutorial "Analysis of the Financial Business of Hotel Firms", Polytechnic of Šibenik, 2016, p. 497/.



By acquisition of Banco Popolare, OTP bank expanded its market share mainly outside of its regional territory, Istra and Dalmacija, by stepping down to the market in Slavonija and strengthening its position in Zagreb and its surroundings. Figure 4 shows that in 2014 total assets of OTP bank increased for 2,1 billion HRK compared to 2013 as a result of the acquisition of Banco Popolare which has ceased business in 2014.

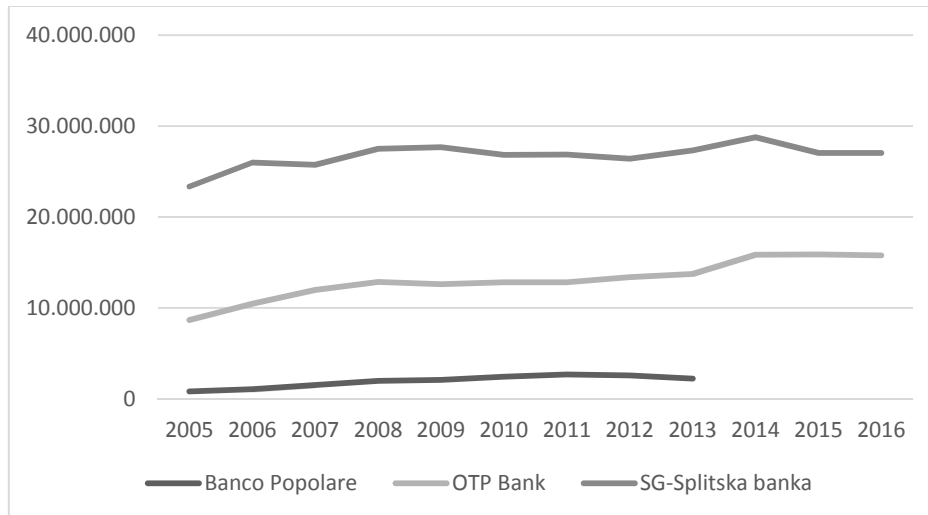


Figure 4. Comparison of total assets of banks in 000 HRK
Source: authors' calculation according to [5].

On May 2nd 2017, OTP bank has announced that it has 100% share in SG - Splitska banka, so Splitska banka became a member of OTP Group. The process of mergers of banks will last until September 30th 2018, and until then, the banks will operate as separate legal entities. By integrating the best qualities of both banks, higher standards of banking services will be ensured. Until September 2018, a strong, universal bank will be established, the fourth largest in the Republic of Croatia with a market share of 11% and which will operate with more than half a million clients. With stronger capital base, the future bank will provide better opportunities for financing the economy, local and infrastructure projects.

Table 2 shows that after the acquisition of SG - Splitska banka, OTP bank has risen to fourth place according to total assets.

Bank	Total assets	Share (%)
Zagrebačka banka	105.131.343	27,05%
Privredna banka Zagreb	72.438.725	18,64%
Erste&Steiermaerkische bank	56.118.727	14,44%
OTP Bank	42.835.077	11,02%
Raiffeisenbank Austria	31.423.727	8,08%
Addiko Bank	21.099.101	5,43%
Hrvatska poštanska banka	19.357.720	4,98%
Ostale banke	40.317.504	10,37%
Total	388.721.924	100,00%

Table 2. Banks with total assets higher than 10 billion HRK in 2016 after acquisitions, in 000 HRK

Source: authors' calculation according to [5].

With these acquisitions OTP bank has significantly strengthened its position in Dalmatia, with which it surely came to the leading position with a very rich network of branches offices and ATMs. According to observed parameters of the citizens' total money deposits and fixed-term deposits as well as the placed housing loans and all-purpose cash loans the market share of the new entity – OTP Bank will raise in Split-Dalmatia, Dubrovnik-Neretva and Zadar-County. In these counties the parties to the concentration traditionally and historically have had strong market positions particularly due to the well-known loyalty of the domicile clients to the local banks. However, this will not have a negative impact on competition in those parts of the relevant market due to strong competitive pressure and the total size and strength of the three largest competitors, participant of the concentration. [9]

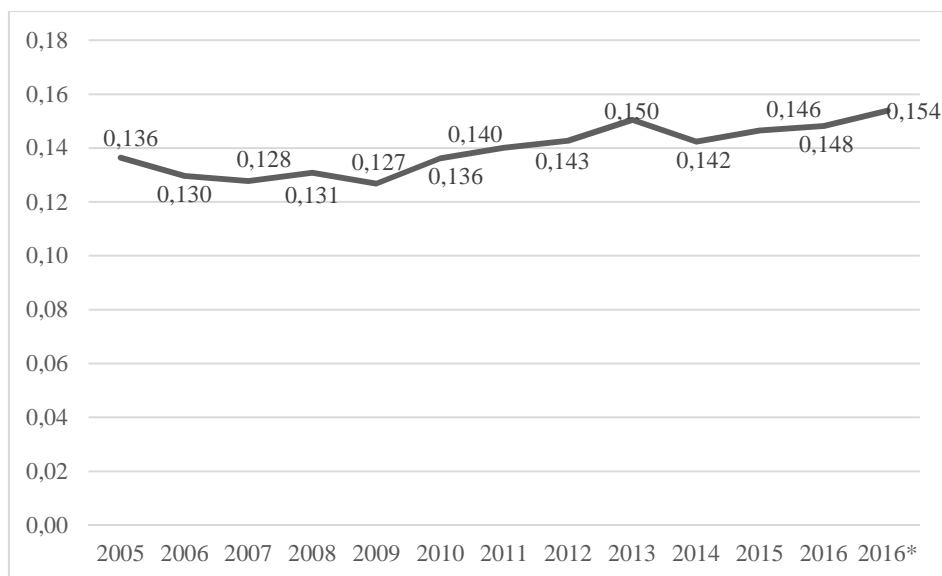


Figure 5. HHI index of total assets of banks in the Republic of Croatia after acquisitions
Source: authors' calculation according to [5].

In Figure 5 the HHI Index 2016* indicates the prediction of how much the HHI index could be, when the total assets of OTP bank Croatia after the acquisition of SG - Splitska banka is equal to the sum of the total assets of both banks at the end of 2016. After the summing of total assets, a moderate increase in market concentration on the Croatian banking market occurs. Namely, the HHI index 2016* is 0.154 and grew from 0.148 in 2016.

5. CONCLUSION

By acquisition of SG - Splitska banka as by the previous acquisition of Banco Popolare, OTP bank has shown long-term and serious commitment to the Croatian banking market. Namely, OTP bank with these acquisitions it has risen from the eighth position to the fourth largest bank, and the market share of the total assets of OTP bank in the total assets of all banks operating in the Republic of Croatia increased from 4.06% to 11.02%. With processes of mergers and acquisitions of banks, it is created a smaller number of larger banks, which leads to a reduction in market competition or the possibility of creating a monopoly. In this paper market competition on the Croatian banking market been analyzed using the most well-known market concentration measure, HHI, which showed that the Croatian banking market has been moderately concentrated with a mild growth trend over the period from 2005 to 2016. By acquisition of SG - Splitska banka by OTP bank HHI index increased from 0.148 to 0.154. In three counties, the degree of concentration has increased, since in these counties both banks had strong market positions, thus this should not have a negative impact on competition.

REFERENCES

- [1] Stojanović, A. (2005) Okrupnjavanje i konglomerizacija banaka. In: Leko, V., Božina, L., ur. Novac, bankarstvo i finansijska tržišta, Adverta, Zagreb, pp. 264-265
- [2] Companies Act (NN 111/93, 34/99, 121/99, 52/00, 118/03, 107/07, 146/08, 137/09, 125/11, 152/11, 111/12, 68/13, 110/15, available at: <https://www.zakon.hr/z/546/Zakon-o-trgova%C4%8Dkim-dru%C5%A1tvima>
- [3] Competition Act (NN 79/09, 80/13), available at: <https://www.zakon.hr/z/114/Zakon-za%C5%A1titi-tr%C5%BEi%C5%A1nog-natjecanja>
- [4] Rose, P. S. (1998) Commercial Bank Management, McGraw-Hill Education – Europe
- [5] Croatian National Bank: Banks Bulletin, No. 12 – 30, Zagreb, 2006. – 2017. available at: <http://www.hnb.hr/analize-i-publikacije/redovne-publikacije/bilten-o-bankama>
- [6] Šubić, R. (2009) Role of Foreign Banks in Integration og Banking Industry. Econviews 22, 2, Osijek, available at: <http://hrcak.srce.hr/file/73922>
- [7] Pavković A., Dumičić, K., Akalović Antić, J. (2012) Measuring the concentration of banking in the Republic of Croatia. Proceedings of the Faculty of Economics and Business in Zagreb, Vol. 10, No 2, Zagreb, available at: <http://hrcak.srce.hr/93113>
- [8] www.otpbanka.hr
- [9] Croatian Competition Agency, available at: <https://www.aztn.hr/aztn-odobrio-koncentraciju-otp-banke-i-societe-generale-splitske-banke/>

PREPARATION FOR THE INTRODUCTION OF A DIRECTIVE PSD2 IN BANKING

Petya Biolcheva¹⁶⁷

Abstract: *Europe prepares for a new way of online payments. Directive (EU) 2015/2366 of the European Parliament and the Council on payment services in the internal market enters into force for the banking system in 2018. It imposes a new approach to the implementation of payment services and new business rules for commercial banks. The Directive seeks to achieve standardization, integration and efficiency of payments in the EU, offering better consumer protection, promoting innovation in the area of payments and reducing costs. This paper examines the essence of the directive, the positive and negative views of the banking system on the operation of PSD2.*

Key words: *PSD2, Banks, Working*

1. INTRODUCTION

To carry out their core business, banks rely on their customers. Trends in bank services show that customers need two things: a trusted partner that is stable in the long run and a "modern experience" in performing their service operations. There is a direct relation between satisfaction of customer and how much of the banking services he uses. That is why banks have to meet customer requirements and create overtaking trends in this respect. The main means by which this can be realized is digitalization. Digitization is based on the prioritization of many different interconnected projects that are introduced consistently over time, responding to the growing demands of bank customers.

In Europe, customer needs impose a different degree of digitization. For example: Nordea Bank, one of the largest in Denmark, carries out 90% of its operations online. The Mobile Bank - N26 in Germany is entirely virtual, with thousands of customers and no physical branches. mBank in Poland is set up as a wholly virtual one, but the environment subsequently necessitates the opening of physical branches, i.e. the digitization of the banking system is pressingly needed, but the pace at which it can be introduced is determined by the particular market requirements. In this situation, transferring models directly from developed countries would be a mistake.

In Bulgaria, internet banking accounts for about 5% of all banking operations. Customers are still going for traditional offices to find information about the products and services offered. This justifies the efforts in the direction of more adaptable products to fit into local realities and to gradually digitize and adapt banks to their customers.

On average, Internet banking is over 45%, in Europe and worldwide it is 35%. These figures will continually grow due to the convenience that more and more customers are aware of, namely: service at any time (24/7), from anywhere, with any device, easier, more convenient, faster. [1]

¹⁶⁷ University of National and World Economy, Sofia, Bulgaria

2. ONLINE BANKING RISKS

Banks have always been among the most attractive crime sites. Trends show that physical crimes give way to virtual crimes. In recent years, almost all banks have registered online fraud attempts.

The most common abuses can be summarized as:

Phishing sites and spam. Online phishing is a way for computer users to be deceived to reveal their personal or financial information in an email message or website. Most often online phishing begins with an email that looks like an official message from a trusted source, such as a bank or credit card company. The message may look legitimate and contain the organization's logo, and the email address resembles that of the company on whose behalf the message is sent. In the email, the recipients are directed to a fraudulent website where they are asked to provide confidential secret data, such as name and password for Internet banking access, bank card number, CVV \ CVC or other. This information can then be used for identity theft and subsequent financial fraud and damage.

To prevent this risk, it is important that bank customers to never provide confidential information related to Internet banking access or a bank card via Internet or telephone. This information is not necessary to the Bank and will not be required under any circumstances. Here customers need to pay attention to the sender's address.

Farming - This method also uses fake websites, but no emails are sent. Pharming is done through the so-called DNS poisoning attack, or by changing the hosts file on the victim's computer. In this way, the traffic is redirected from a certain web site to another, which is a copy of it, and aims to steal secret information such as username, password, etc. With DNS poisoning, the DNS server converts the addresses of the websites you type into the address bar of the web browser

Petya Ivanova Biolcheva is Assistant Professor at University of National and World Economy, Sofia, Bulgaria.



Publications:

- Biolcheva, P., *Projects for Increasing Physical Security in Commercial Banks, Economic and Social Alternatives*, 3, 2014 c 138-151
- *Technological Innovation in Banking Security, Trakia Journal*, vol.9, suppl.2 pp.142-147
- Biolcheva, P., *Current risks in the collection activity, Izvestia magazine, Varna, 2016, issue 3/2016, p.367-381*
- Biolcheva, P., *Status of the Risk Caused by Information Leaks from Commercial Banks in Bulgaria, Economic Alternative Journal, Issue 1/2016, 2016, pp.110-118*
- Biolcheva, P., *Operational Risk Management in Commercial Banks, XIII International Conference, Management and Engineering, Sozopol, 2015, p.82-91*
- Biolcheva, P., *Identification of the risk of leakage of information from commercial banks, Svishtov, 2015, p.261-265*
- Biolcheva, P., *Stress Test - Preparation and Challenge to Commercial Banks in Bulgaria, Businesses in the 21st Century, UNWE, 2016, p.47-57*
- Biolcheva, P., *Role of the European Banking Authority for Risk Reduction in Commercial Banks in Bulgaria, Maritime Science Forum, Varna, 2016, p.127-132*
- Biolcheva, P., *Current State of Security in Commercial Banks in Bulgaria, Conf. 25 yr, cat. National and Regional Security, 2015, pp. 159-167*
- Biolcheva, P., *Prevention of the Risk of Leakage of Information, Scientific Works, vol. II, University of National and World Economy, 2016, p. 76-121*
- Biolcheva, P., *Barriers to Innovation - an Obstacle to Sustainable Development of Bulgarian Companies, Economic Challenges: Migration, Globalization, Sustainability, Policies, UNWE, Sofia, 2017*
- Biolcheva, P., *Advantages of the Risk Management Standard and its Application in Bulgarian Companies, Economic Welfare, by Sharing Knowledge, Cenov, Svishtov, 2016, p.430-435- Biolcheva, P., Preventing the Risk of Money Laundering in Commercial Banks, Trakia Journal, Vol.13/2015, 2015 pp. 129*
- Biolcheva, P., *Eco-innovation in Bulgaria - Responding to the Requirements for Ecological Growth of the EU, XV International Scientific Conference Management and Engineering 17, TU Sofia, 2017, 631-638*
- Draganov, J., Biolcheva, P., *Use of psychological methods in the workplace and their legal aspects, Globalization, the State and Individual, Lubin, Poland, 2017, pp. 95-102*

into IP addresses. For example, when writing "www.dskdirect.com", the computer will contact the ISP's DNS server to find the IP address of the site and to open it, and if it is replaced by another address, the request will be redirected to a server containing an exact copy of the bank's website. The user might remain thoroughly aware of the fraud, because he wrote the address of the website himself. As the "Hosts" file in the victim's computer is being changed, malware could modify the file and thus valuable information can be stolen from the victim.

Vishing - A phishing variation that uses emails containing a phone number where users are encouraged to call to verify their user IDs or other secret information. The email may also hide a virus that lets the scammer infect the victim's computer and gains full access to the data, including bank certificates.

Pre-Phishing - it is emerging as a new method used by scammers, which originally appears as an intelligence attack. Instead of trying directly to obtain credentials on customers' data, the attack seeks to identify their usernames and their password combinations. Here the fact is exploited that people would use the same passwords or similar combinations to sign up on different websites. In this way, the fishers can get the customers' access information and make financial moves on the respective banking site for e-banking. [2]

The threats shown so far do not claim to exhaust the list of threats to banking operations. They show the need to enhance the protection of bank information. At the same time, they give reason to think about a better and secure way of servicing customers and their payments. Working in the direction of a better and secure payment market within the European Union, the PSD has been developed.

3. PSD2 DIRECTIVE

By creating the framework of the PSD, the European Union is developing legislation that requires:

- ☒ rules and guidelines for advanced payment services in the EU;
- ☒ facilitates payments and payment procedures in the EU;
- ☒ encourages competition by opening payments for new entrants;
- ☒ protects the efficiency and changes in payments and cost reductions;
- ☒ provides the legal basis for the Single European Payment Area (SEPA).[3]

PSD2 - the Revised Payment Services Directive (PSD2 - EU Directive 2015/2366) now enters into force. The objectives of the Directive are:

- ☒ standardizing, integrating and improving the efficiency of payments in the EU,
- ☒ offering better consumer protection,
- ☒ promoting innovation in the field of payments and reducing costs,
- ☒ implementing and ensuring clarity about the use of new payment methods such as mobile payments and online payments,
- ☒ creating equality on the playing field for payment service providers, allowing new companies to enter the field,
- ☒ harmonizing prices and improving security of payments in the EU,
- ☒ Including new and emerging payment services in the law.

Services: Digital financial services, including payment initiation, will reduce the use of cash as a result of more user-friendly, safe and context integrated services. These will be used increasingly on alternate digital devices such as mobile phones and integrated chips. PSD2 will

contribute to developments where e-commerce is a daily channel used for purchases, from one-off orders to recurring automated deliveries of, for example, domestic goods such as food. Corporates will use digital financial services almost exclusively where order-to-cash and purchase-to-pay logistics (both physical and financial) are automated and integrated. Interaction, confirmations and payment execution end-to-end will happen instantly, when required. [4]

What PSD2 actually offers to bank customers?

First of all, in online purchases, customers now give their data to the merchant's site, which gets their money through several intermediaries. The directive shows the way to facilitate this complicated procedure. PSD2 will allow traders to "ask" customers to use their bank details. Once the authorization is granted, the merchant will receive payment directly from a bank without intermediaries. This will be done with the API (Application Programming Interface). Using API allows innovative companies to connect directly with financial institutions.

A second advantage for bank customers is that customers who have accounts in different banks now have to go to the website of each of the banks individually. PSD2 introduces an Account Information Service Provider (AISP), which will allow customers to see all bank information in one portal. This means that new vendors, not necessarily banks, can aggregate bank account information for users in one place. This offers lucrative cross selling opportunities for these new vendors. It is important to note that the introduction and regulation of third-party payment service providers (TPPs) will take place in two ways offering: PISP, Payment Initiation Services Providers and Service Providers maintaining the account (AISP, Account Information Service Providers)

The third advantage that bank customers will get is the unconditional right to direct debit refund under the SEPA CORE Scheme.

In addition, PSD2 provides a robust user identification system; prohibiting extra charging for card payments; better consumer protection against fraud, limited to possible payments up to € 50 for unauthorized payment; improved consumer protection for payments made outside the EU and non-EU countries. [5]

PSD2 aims to solve security problems. Along with their removal, new problems and threats are expected to emerge. At present, the main problem is the processing of client credentials by third-party payment service providers. The bank should be able to ensure that the authorized user of the account is the one who should be. The main directions from which a security threat is expected can be summarized as:

- 🔗 Processing of user security credentials,
- 🔗 Requirements for secure communication between PSP and the bank,
- 🔗 Full details and definition of strong identification,
- 🔗 The presence of a PSP real-time identification license register [6]

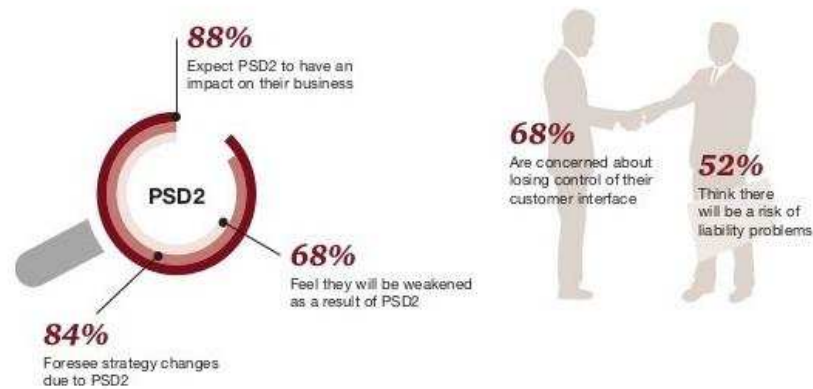


Figure 1. Assessment of PSD2 impact on banks.

Source: The strategic implications of PSD2 for Europe's banks, PWC; Strategy&.

Strategy&research in 30 leading European banks reveals a negative attitude towards PSD2. The survey shows that a majority of 88% of the respondents believe PSD2 will affect their business, but they cannot assess the concrete effects of the PSD2 directive coming into effect.[7]

In any case, the introduction of the directive will require a great deal of investment, while at the same time reducing existing bank revenue streams and introducing a whole wave of competitors. The challenges facing the banking market are now huge. Banks can choose different approaches under the impact of the directive.

The first option would be a reactive approach according to which banks can reform their operations into compliance with the regulation;

The second option is a cooperative approach - to partner with the new players on the market. PSD2 will reduce entry barriers for third-party vendors as well as companies for high tech finance technologies (Fin Techs), and will stimulate the development of new business models and expand the scope of new banking services. In this way, PSD2 will be a catalyst for both concussion and strategic renewal of the banking markets in Europe. The extent to which third-party suppliers can offer a high level of confidence in their payment services will be an important factor in resolving the competitive threats they pose to banks. If they can combine high levels of confidence with proprietary data on consumer behavior and preferences, third country suppliers could create a solid basis for expansion beyond payments. These include services such as bank account monitoring and personal finance management, which are traditional for banks.

The third option is a progressive banking approach where banks can rethink their banking model entirely, according to the opportunities PSD2 provides. They will themselves work on the opportunities offered by the directive and will change their model of work. Here investments and efforts will be the greatest, but will be able to meet the future requirements of the environment. [8]

Paramount to this is that the individual bank must identify their biggest strengths and core values to develop a strategy that can match and reinforce these characteristics. The uncertainty on how the financial industry might look like after the implementation of PSD2 is huge. The scenario analysis found that the future of European financial services is likely to enter a great transformation in the 2018/2019. Non-banks will be trying to position themselves as providing

the most innovative and value-adding services using the infrastructure of banks. Banks, on the other hand, will provide these third-parties with account information and initiate payments through their open APIs. Some of them will compete against the non-banks, while others will aim to operate as cost-leading banking platforms. The analysis also forecasts a greater degree of both banks and third-party providers operating across borders, as the national legal frameworks are becoming more harmonized. This is all contributing to increased competition. Uncertainty and risk are both inherent parts of investing into innovation and new business strategies. But there is also a great risk in focusing solely on compliance and not on preparing for the competition in the future landscape of financial services.[9]

REFERENCES

- [1] Digitalnite banki - evolyutsia ili revolyutsia? <http://www.investor.bg/biudjet-i-finansi/333/a/digitalnite-banki-evoliuciia-ili-revoliuciia-218877/>
- [2] Biolcheva, P., (2016) Preventsia na riska ot iztichane na informatsia ot targovskite banki, Nauchni trudove, tom II, s.91-92
- [3] PSD2 Directive and trend of API Banking, Siva Dorai, LinkedIn, July 30, 2016
- [4] Get to know PSD2, <https://www.nordea.com/da/vores-serviceydelsler/cashmanagement/insightsandknowledge/psd2/>
- [5] 5 Things You Need To Know About PSD2 – Payment Services Directive, Zee Abbas, LinkedIn, Nov 11, 2016
- [6] What Corporates can expect from PSD2, Nordea Banks, 2016
- [7] The strategic implications of PSD2 for Europe’s banks, PWC, Strategy& Novata direktiva PSD2 dava vyzmojnost na bankite za inovativni uslugi www.dnes.bg/technology/2017/06/21/novata-direktiva-psd2-dava-vyzmojnost-na-bankite-za-inovativni-uslugi.345053
- [8] PSD2 – Strategic opportunities beyond compliance, https://www.evry.com/globalassets/bransjer/financial-services/bank2020/wp_psd2/psd2_whitepaper.pdf

ANALYSIS OF THE CREDIT RATING OF THE COMPANY "13. JUL PLANTAŽE AD PODGORICA "FOR THE PERIOD FROM 2011 TO 2014

Zoran Todorović¹⁶⁸

Abstract *Financial analysis represents the examination and explanation of the financial position and performance of the business, determining deviations from it, the cause of these deviations and its consequences, and on the basis of its accounting reports. The financial analysis deals with the research and quantification of relationships and relationships between individual balance sheet items (balance sheet, income statement, cash flow statements and changes in equity reports) in order to assess the financial position and performance of a company. As the largest producer of wine and table grapes in Montenegro and an environment with annual production of wine grapes of about 22 million kilograms, they realize about 17 million bottles a year.*

Key words: *financial analysis, rating analysis, Z-score, ownership structure, COST actions*

INTRODUCTION

Modern business conditions, interactive relationships of participants in market competition, struggle and survival in the market, require the daily adoption of numerous operational and strategic decisions. Providing a quality information system, based on financial analysis and creditworthiness, implies the existence of complete, timely, comparable and accessible information. Determining indicators using analytical methods, as well as their mutual comparison over time periods, allows us to look at the overall financial situation in an enterprise.

1. MODERN FINANCIAL REPORTING

Modern financial management or financial management of the company is based on information and results of systematic monitoring, collection, processing and calculation of complex indicators of financial operations - that is, on financial analysis of operations.

The financial analysis is carried out on the basis of the financial statements of the entity. The financial analysis of the company includes the analysis of the yield, property and financial position of the company. We list typical financial analysis users and the type of decisions they make based on:

- management - based on analysis, makes daily decisions about corrective measures in managing company finances;
- owners - come to the conclusion that the company has a good perspective and whether the financial and top management is successful;
- creditors - whether their claims will be recovered within maturity, or they are risky, so it is necessary to require solid security of claims;;

¹⁶⁸Univerzitet Mediteran-MBS Podgorica, Montenegro

Information obtained through financial analysis is the starting point for taking measures and actions aimed at improving bonuses and trends in the business and development of the company.

1.1. GENERAL INFORMATION ON LEGAL ENTITY

Joint Stock Company "13. July Plantaže" was founded in 1963, and it is engaged in the production of wine and table grapes, peach, production and distribution of wine and grape brandy, fish farming, catering and retail. As the largest producer of wine and table grapes in Montenegro and an environment with annual production wine grapes of about 22 million kilograms, they realize about 17 million bottles a year. The company is a market leader in the Balkan region, and products for high quality and standard quality are exported to more than 30 countries - from the countries of Southeast Europe through the European Union, Russia, China and Australia to Canada and America. Accionatory Society "July 13 Plantaže" exports to more than 30 countries of the world and aims to conquer new markets. Competitiveness with the leading wine countries must confirm the quality of products, but it is very important to conquer new markets so that they can survive. In order to follow new trends, recognizing the importance of the world market, they regularly participate in almost all world wine festivals and fairs to present their products.

It is important to mention that the company's specificity is a strategy based on indigenous wine varieties Vranac and Krstac. About 60% of the vineyard is under Vranac, and each year the areas under this and other world-renowned varieties increase. Joint stock company "13 Jul. Plantaže" managed to create and preserve the only Montenegrin brand, and the success of the company is that it is the result of great work, dedication and employee deduction.

1.2. OWNERSHIP STRUCTURE

Ownership structure of the company "13.jul-Plantaže" (in%)

ž

Prof. Zoran Todorović, Ph.D., graduated from the Faculty of Economics at the University of Podgorica in 1981 in the direction of the General Economy.



He completed his master's studies in the direction of the international economy of the University of Belgrade in 1990. Since 1996, he has been employed as Secretary General of the RR CG, and later as Executive Director at the RRCG Institute since 2002, and since 2006 in the ISRCG. He is a professor at the Mediterranean University since 2008 for the scientific field Accounting and Auditing. In July 2001, he defended his doctoral thesis titled "The Need and Possibilities of Using Accounting Standards in Yugoslavia" at the University of Montenegro. He is currently teaching at basic studies at the University of the Mediterranean on subjects: Financial Accounting, Management Accounting, and Postgraduate Studies Strategic Management Accounting, Financial Reporting Standards and Code of Ethics for Accountants and Auditors.

Ownership structure of the company as at 31.12.2011		Ownership structure of the company as at 31.12.2012.	
The Investment Development Fund of MNE	22,22%	The Investment Development Fund of MNE	22,23%
Pension and Health Insurance Fund	21,50%	Pension and Health Insurance Fund	21,50%
Agency for Employment of Montenegro	8,53%	Agency for Employment of Montenegro	8,53%
Government of Montenegro	3,67%	Government of Montenegro	3,67%
Podgorica Bank Societe Generale Group	9,23%	Podgorica Bank Societe Generale Group	9,23%
Privatization funds	3,41%	Privatization funds	3,41%
Natural persons	27,38%	Natural persons	27,86%
Other legal entities	4,06%	Other legal entities	2,25%

Ownership structure of the company as at 31.12.2013		Ownership structure of the company as at 31.12.2014	
The Investment Development Fund of MNE	22,23%	The Investment Development Fund of MNE	22,23%
Pension and Health Insurance Fund	21,50%	Pension and Health Insurance Fund	21,50%
Agency for Employment of Montenegro	8,53%	Agency for Employment of Montenegro	8,53%
Government of Montenegro	3,67%	Government of Montenegro	3,67%
Podgorica Bank Societe Generale Group	9,23%	Podgorica Bank Societe Generale Group	9,23%
Privatization funds	4,74%	Privatization funds	4,74%
Natural persons	27,66%	Natural persons	27,66%
Other legal entities	2,44%	Other legal entities	2,25%

1.3. COMPANY STRATEGY

The company also works on the development of the market, which can be achieved by applying a pricing strategy (a relatively low price in comparison with quality), as well as offering products in new markets.

The company also aims to realize some of the already started actions and strategies.

The development strategy was continued through COST action with Italian partner Agronomy Faculty, University of Milan (National Project - Ecophysiological and Molecular Aspects of Synthesis and Polymerization of Flavanol in Vranac and Cabernet Sauvignon Varieties and Their Impact on Wine Quality).

COST actions relate to basic and applied research of public interest, through the organization of conferences, workshops on inter-laboratory visits, etc. In this way, strong interaction and cooperation is being achieved, which leads to the establishment of partnerships, joint projects and publications.

They are trying to create a better quality basis for further definition of autochthonous varieties of grapevine and winegrowing sector of Montenegro, because it is known that the grape variety is related to the territory and tradition.

2. ESTIMATION OF THE CREDIT BONITET OF ENTERPRISES BY TRADITIONAL PROCEDURE

The credit rating at present can be estimated on the basis of the balance and other information available to the rating assessor. It can be said that the company's solvency represents a synthesized assessment of: financial stability, liquidity, solvency, adequacy and capital

structure, property situation, profitability, risk of achieving financial result, profitability and organization. The creditor has an interest in knowing the credit rating of his debtor in the future. Since the creditworthiness of a company changes from year to year, there is a need to evaluate the creditworthiness of a given company in the future.

2.1. FINANCIAL POSITION

The financial position of the company primarily determines its financing possibilities, and is expressed by the volume and structure of assets and capital, as well as their interrelations that are reflected in the balance sheet of the enterprise. It is determined by the condition of financial balance, indebtedness, solvency, maintaining the real value of own capital and reproductive ability.¹⁶⁹

The financial position of the enterprise, determined by the above factors, qualifies as good, acceptable and bad.¹⁷⁰ If the financial equilibrium of the company provides its liquidity for a long time, if its financial structure is such that it ensures the independence of the company in the conduct of its own business policy and at the same time provides security to the creditors, If a company can provide the financing of a part of the extended reproduction from its own sources of financing, it is considered that the financial position of the company is good. It is acceptable that the financial position of the company in which there is an equilibrium or absolute equality between long-term assets and good sources (own capital increased for long-term debt), which only provides liquidity but does not guarantee security as it is lacking liquid reserves. The financial structure of a company, whose position qualifies as acceptable, provides it with relative independence, but does not optimize the profitability of its own investments.

2.2. FINANCIAL LEVELS

The analysis of the financial balance is the most important link in the analysis of the financial position of the company. It is directly linked to the principle of the stability of financial policy, and through the existence or non-existence of a financial balance, the quality of financial management is appreciated, especially in the domain of aligning the deadlines between the availability of funding sources and the terms of binding or immobilization of assets of the company. It is said that the company has a financial balance if its assets in terms of scope and terms of attachment (irrevocability) are equal to the volume and availability of the funding source. Given that when analyzing the financial equilibrium of the company, the equality of funds and sources of financing is observed, it is quite clear that the balance sheet of a joint stock company is the basic document of this analysis.

2.2.1. SHORT-TERM FINANCIAL LEVEL

The short-term financial equilibrium is determined by the ratio of liquid and short-term assets, on the one hand, and short-term liabilities, on the other hand. As noted above, the short-term financial equilibrium exists if liquid assets and short-term assets are equal to short-term funding sources, or if their ratio 1: 1, which corresponds to the rule of financing.¹⁷¹ The short-term financial equilibrium is determined by the ratio of liquid and short-term assets, from one, and short-term liabilities, on the other. For the purpose of assessing the short-term financial balance,

¹⁶⁹Andrić M., Vukelić G., Rodić J. (2011): *Analiza finansijskih izveštaja*, Proleter, Bečej, str. 270

¹⁷⁰Ibidem, str. 270

¹⁷¹Rodić J., Vukelić G., Andrić M., Teorija, politika i analiza bilansa, Poljoprivredni fakultet, Beograd 2007, str. 278

the balance sheet positions in the assets are grouped according to the principle of declining liquidity, and the positions in the liability according to the principle of increasing maturity.

2.2.2. LONG-TERM FINANCIAL LEVELS

Long-term financial equilibrium analysis can be carried out on the basis of long-term tied assets and on the basis of a working capital.¹⁷² The analysis of the long-term financial equilibrium is based on the comparison of long-term assets, on the one hand, and long-term capital, long-term liabilities and long-term provisions, on the other hand. Long-term financial equilibrium exists if long-term tied assets are equal to long-term capital plus long-term provisions and long-term liabilities. Long-term financial equilibrium is often expressed as a financial stability coefficient.

a) Financial stability coefficient

The financial stability coefficient is obtained by putting into the ratio of long-term assets, on the one hand, both capital and long-term liabilities, on the other hand.

Financial stability coefficient = long-term tied assets / equity + debt commitments

If the said coefficient has a value higher than 1, it is considered that in the area of long-term financing liquidity is endangered, and that this vulnerability is strongly expressed as a financial stability coefficient more than 1. In the field of long-term financing, the company has created conditions for maintaining liquidity when the financial stability coefficient is 1. If the given coefficient is less than 1, the security for maintaining liquidity is created, which is more so since this coefficient is closer to zero.

Description		2011	2012.	2013	2014
1.	Fixed assets	79.414.790	78.240.400	75.846.061	73.448.622
2.	Inventories and fixed assets intended for sale	28.799.573	32.904.852	39.218.608	41.551.489
3.	Loss above capital	/	/		
I	Long-term bonded and lost assets (1 to 3)	108.214.363	111.145.252	115.064.669	115.000.111
4.	Capital less losses	95.585.578	97.868.194	98.981.042	100.303.152
5.	Long-term provisions	251.033	266.229	523.455	419.053
6.	Long-term liabilities	996.337	11.298.897	5.328.852	3.051.243
II	Permanent and long-term capital (4 do 6)	96.832.948	109.433.320	104.833.349	103.773.448
III	Financial stability coefficient (I/II)	1,12	1,02	1,20	1,12

Table 1: Coefficient of financial stability and free capital "13.jul-Plantaže", a.d. Podgorica in EUR

¹⁷²Rodić J., Vukelić G., Andrić M., Teorija, politika i analiza bilansa, Poljoprivredni fakultet, Beograd 2007, str. 283

Taking into account the rule that, if the given coefficient is less than 1, security for maintaining liquidity is created, which is more so because this coefficient is closer to zero.

When the coefficient of financial stability is higher than one, then the long-term financial equilibrium is shifted towards long-term related assets, in which case there is a lack of capital for establishing a long-term financial balance (financial rehabilitation). As the coefficient of financial stability goes from one to the other, that is the lack of capital is higher, and therefore the liquidity in the field of long-term financing is more endangered. In this situation, the short-term financial equilibrium was shifted in favor of short-term liabilities, and illiquidity must come to light.

b) Analysis of long-term financial equilibrium based on a working capital fund

The analysis of the long-term financial equilibrium on the basis of the working capital is carried out by putting in relation to the net working capital and constant stock of enterprises. If the ratio is equal to 1, it is concluded that the level of coverage of the constant stock is 100%, and that the balance in the field of long-term financing has been established. In circumstances where this ratio is lower than 1, it is concluded that there are no real conditions for maintaining a permanent liquidity. The current working capital is part of the quality sources of financing that are used for working capital, that is, part of working capital that is financed by permanent and long-term sources of financing. Consequently, it can be concluded that there are two ways of determining the net working capital, ie net working capital.¹⁷³

Net working capital = Current assets - Short-term liabilities

On the other hand, if this category is viewed from the balance sheet side, the term net working capital is used.

Net working capital = (quality sources) - (fixed assets + long-term placements + loss)

Long-term financial equilibrium can be determined by the state of the traded fund and its relation to stocks that have a fixed-asset treatment. In the field of stock we distinguish permanent and seasonal stocks.¹⁷⁴

No.	Description		Amount in €
	Year	Net working capital	Supplies
1.	2011	19.832.980	28.799.573
2.	2012	33.510.764	32.904.852
3.	2013	31.294.125	39.218.608
4	2014	32.582.336	41.551.489

Table 2: Net working capital in EUR

If the ratio of the net working capital, that is, the net working capital and inventory to the same unit, it is concluded that the level of coverage of constant reserves is 100%, and that there is a long-term financial balance, thus creating security for maintaining liquidity in the field of long-term financing.

¹⁷³Rodić J., Vukelić G., Andrić M., Teorija, politika i analiza bilansa, Poljoprivredni fakultet, Beograd 2007, str. 287

¹⁷⁴Ruth G.E., Analiziranje finansijskih izvještaja, Daily Press, Podgorica 2006, str.107

Looking at the data from the Balance Sheet of "13.Jul Plantaže", it is concluded that the company had the security of maintaining liquidity in the field of long-term financing only in 2012, while in 2011, 2013 and 2014 the ratio of net working capital and stock was below the unit and amounted to 0.68, 079, and 0.78.

Solvency

The solvency of a company is the ability to pay the obligations in the long run (when then, even from the bankruptcy estate). Solvency exists as long as property is greater than liabilities. Often, solvency is also called liquidity in the long run.

Description		2011	2012	2013	2014
1.	Business assets	121.799.392	126.565.483	128.556.008	129.641.621
2.	Debts	3.662.192	13.882.970	8.159.144	5.727.806
3.	Solvency coefficient (1/2)	33,25	9,12	15,75	22,63

Table 3: Solvency coefficient "13.jul-Plantaže", a.d. Podgorica is in EUR

Source: Based on the company's official financial statements.

The company is highly solvent in all three years observed.

Business assets are higher than debt in 2011 33.25 times, in 2012, 9.12 times, in 2013, 15.75 times, and in 2014, 22.63 times.

Indebtedness / Capital Adequacy

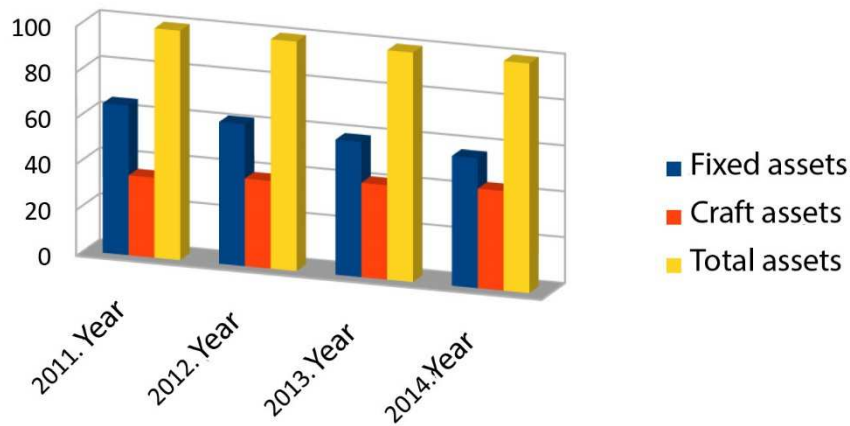
Capital adequacy is identified with the concept of indebtedness, and is expressed by the structure of liabilities, which is without transitory positions (unallocated profit for the current year, long-term provisions and passive time delimitation). It shows how much euro debt goes to the euro capital.

3. PROPERTY POLICY OF THE COMPANY

No.	Position	2011		2012.	
		Amount	Participation in %	Amount	Participation in %
1.	Fixed assets	79.414.790	65,2%	78.240.400	61,8%
2.	Craft property	42.384.602	34,8%	48.325.083	38,2%
3.	Total assets (1+2)	121.799.392	100%	126.565.483	100%
No.	Position	2013.		2014	
		Amount	Participation in %	Amount	participation in %
1.	Fixed assets	75.846.061	58,9%	73.448.622	56,6%
2.	Craft property	52.709.947	41,1%	56.192.999	43,4%
3.	Total assets (1+2)	128.556.008	100%	129.641.621	100%

Table 4: Structure of property of July-July Plantation, a.d. Podgorica in EUR

The shown structure shows that 65.2% of the company's assets are in permanent assets (mainly fixed assets for performing activities), and 34.8% in working capital.



From the attached graph we can conclude that in the structure of assets the share of fixed assets prevails over the entire observed period.

4. ASSESSMENT OF THE CREDIT BONITET OF ENTERPRISE MODERN PRINCIPLES - SWOT ANALYSIS

Strenghts	Weaknesses
<ul style="list-style-type: none"> - A quality product of red wine - Good reputation among users - Integrated standards - Possession of a cellar near the vineyard - State property - Care for people and the environment - Clear vision, mission and goals - Suitable climate and proximity to the seaa 	<ul style="list-style-type: none"> - Dependence on the markets of China and Russia - A relatively small number of bottled products - The overwhelming influence of political decisions and the direct dependence on the political situation in Montenegro - Poor regional distribution of stores - Difficulties in protecting property - Corruption
Opportunities	Threats
<ul style="list-style-type: none"> - Harmonization of production regulations Montenegro with the EU - An easy access to the EU market - Ecological reputation and access to EU funds - Building Brand Identity on a Global Level - Increase in number of plantings 	<ul style="list-style-type: none"> - Risk of privatization - Poor legal regulations - Climate change conditions

The red wine is the biggest trump of the company that has been made according to world standards and is already recognizable due to the ideal climate for cultivating black grapes, the Vranac variety, as well as the immediate vicinity of the sea for the development of wine tourism, as well as the possibilities for producing better quality wines. The own basement represents a

great advantage with ideal conditions near the vineyards, and therefore the costs of transporting and keeping grapes and grape milling are reduced to a minimum-

5. BALANCE OF ANALYSIS UNDER REGULATIONS OF THE CENTRAL BANK OF MNE

Analysts will usually use a larger number of coefficients to have a complete picture, although according to the instructions of the Central Bank of Montenegro ¹⁷⁵, there are clearly defined parameters for assessing the credit rating. The basic techniques used for this purpose are different groups of related financial coefficients that should indicate how the management works and achieves results in different areas of business and management.¹⁷⁶

13. JUL PANTAŽE	Description and formula	31.12.2011.	31.12.2012.	31.12.2013.	31.12.2014.
LIQUIDITY	Current liquidity	1.88	3.26	2.46	2.38
	Quick liquidit	0.60	1.04	0.63	0.62
	Net working capital	19,832,98 0	33,510,76 4	31,294,12 5	32,582,33 6
INDEBTED NESS	Total capital / total liabilities * 100	78%	77%	77%	77%
	Long-term liabilities ratio / Capital and reserve	0.04	0.14	0.08	0.06
	Liabilities / Capital & Reserves	0.27	0.29	0.30	0.29
	Ratio Total earnings / Net profit + Depreciation	3.58	3.79	4.76	5.94
	% of obligations in Total income	66.05%	74.51%	88.05%	95.99%
CRAFT	Active craft	0.33	0.30	0.26	0.24
	craft inventory	0.35	0.32	0.24	0.21
	Days of keeping evil	1,057	1,154	1,507	1,739
	Coefficient of turnover receivables	2.78	2.54	2.12	1.99
	Debt collection days	131	144	172	183
	Coefficient craft supplier	1.40	1.57	1.37	1.74
	Days of payment	260	233	267	210
PROFITABILITY	ROA	2.23%	2.43%	1.52%	0.96%
	ROE	2.84%	3.15%	1.98%	1.24%
	Ratio covered interest	1.91	1.50	1.44	1.40
	EBIT Margin	13.20%	10.99%	10.07%	10.24%
	EBITDA Margin	1.58%	-0.65%	-2.58%	-1.86%
	GCF Margin	72.07%	69.94%	65.29%	68.84%

¹⁷⁵ODLUKU o minimalnim standardima za upravljanje kreditnim rizikom u bankama, Savjet Centralne banke Crne Gore, 12. april 2012. godina

¹⁷⁶ Zoran Todorović (2014), *Racio analiza, finansijsko-računovodstveni i revizijski aspekt*, Univerzitet Mediteran, Podgorica. str. 105

	Total income	39,689,284	38,516,181	33,590,681	30,564,006
	Average income	3,307,440	3,209,682	2,799,223	2,547,001
	Net profit	2,716,493	3,078,308	1,960,054	1,244,315

In addition to several indicators of liquidity, indebtedness and profitability, analysts will use more indicators to look at the overall picture, but will usually be guided by a single indicator, commenting on other parameters when making the final assessment.

In the opinion of a large number of credit analysts, it is considered that the analysis of cash flows is a true indicator of the company's success in controlling and managing cash flows with the aim of providing inflows to the normal financial reproduction of spent business assets and the payment of due liabilities. In the period from 2011 to 2014, the analyzed legal entity financed the increase in inventories, which are at a high level and have a tendency to increase from year to year. Cash flows are positive in the observed period, although they tend to fall.

CONCLUSION

The assessment of the borrower's creditworthiness is based on an assessment of the ability and willingness of the debtor to settle liabilities from the primary sources of debt repayment in a timely manner and fully.

In assessing the creditworthiness of the debtor, the bank shall in particular perform an analysis of the debtors' performance indicators relating to:

1. the manual structure of certain elements of assets and liabilities, which shows the level of liquidity of the borrower, the compliance of sources of financing and placements and net working capital, including data on turnover on the client's account with the bank and in the system and information on account blockages; In the current case, the manual structure is generally harmonized and it can be said that this legal entity gives a picture of stability.
2. cash flows from the aspect of settlement of liabilities, cash flows realized in the previous period, as well as the adequacy of projected cash flows; Liabilities towards creditors recorded a slight increase in the observed period, but the sum was stable at a level without major oscillations.
3. the level of indebtedness of the borrower, the maturity of the loan, the impact of the newly approved loan on the maturity structure, cash flows, interest costs, as well as the indicators of capitalization;
4. total operating income, as well as extraordinary income and expenses of the loan beneficiaries, which affect the profitability and realization of the financial result. The legal entity is profitable in all observed periods, but has a decreasing trend and ROA and ROE could be at a somewhat higher level.

On the basis of the above, it can be concluded that the observed indicators indicate that this is a good asset, so that the entity in question can be rated by rating group A, but taking into account the fact that banks, in addition to the minimum requirements by the Central Bank of Montenegro, may require by the internal act the analysis of additional indicators, which would quite possibly also in some cases lead to the classification of the client in the rating group B.

LITERATURE

- [1] Zoran Todorović (2014), *Racio analiza, finansijsko-računovodstveni i revizijski aspekt*, Univerzitet Mediteran, Podgorica.
- [2] Milićević B. (2009), *Metodološki pristup oceni finansijskog stanja preduzeća*, Zadužbina „Andrejević“, Beograd.
- [3] Andrić M., Vukelić G., Rodić J. (2011): *Analiza finansijskih izveštaja*, Proleter, Bečej.
- [4] Van Horne J.C., Wachowicz, JR J.M., *Osnovi finansijskog menadžmenta*, Data status, Beograd 2007.
- [5] Rodić J., Vukelić G., Andrić M., *Teorija, politika i analiza bilansa*, Poljoprivredni fakultet, Beograd 2007.
- [6] Ruth G.E., *Analiziranje finansijskih izvještaja*, Daily Press, Podgorica 2006.
- [7] Odluka o minimalnim standardima za upravljanje kreditnim rizikom u bankama, Savjet Centralne banke Crne Gore, 12. april 2012. godina.
- [8] Odluka o minimalnim standardima za upravljanje kreditnim rizikom u bankama ("Sl. list Crne Gore", 22/12 od 23. 04.2012, 55/12 od 02.11. 2012. i 57/13 od 16.12.2013.).

Contributions

- [1] Bilansi stanja, bilansi uspijeha „13. Jul Plantaže“ za period 2011. 2012. 2013. i 2014. godinu.

INFLATION INFLUENCE ON ECONOMIC DEVELOPMENT OF THE COUNTRY AND MAIN DIRECTIONS OF OVERCOMING IT

George Abuselidze¹⁷⁷

Abstract. *The article discusses causes and socio-economic peculiarities of one of the most difficult and undesirable condition for the economy – inflation. The purpose of the research is to analyze the socio-economic results of inflation in Georgia and to determine the main directions to overcome it. Due to study purposes was investigated the causes of inflation, as well as was examined its influence on economic development of the country and its influence on welfare of each citizen. In the article is discussed main models of anti-inflation regulation, as well as foreign experience of monetary regulation of inflationary processes and is evaluated possibilities of their use in Georgia. The National Bank monetary regulation effectiveness is assessed and recommendations have been developed.*

Key words: *Inflation, monetary policy, welfare, economical activity, production volume.*

1. INTRODUCTION

Because of recent developments in the world, we can say that today the main players are not the governments of the countries, but the national banks and action programs developed by them. Starting from the beginning of current year, the monetary policy carried out among important trade partners by central bank of Georgia, served two main purposes: on the one hand, to encourage activities of weakened economy and on the other hand, to prevent the inflationary processes caused by depreciation of the local currency.

The molded approach is kept in the world's leading development economies to support economic activity and to increase the level of inflation to the targeted index. There is a different situation in most of developing countries, where local currency depreciation causes inflationary pressure and generates necessity of strict policy. It is phenomenon that we are fighting against inflation and at the same time we are cautious, since its opposite occurrence deflation has no less destructive effect for the economy. This is a bit paradoxical, but that is exactly the difficulty of monetary policy. Perhaps the way out of this difficult situation would be a golden midpoint, but finding it is very difficult, as well as maintaining.

If we agree to 1996 Nobel Prize laureate in economics, Robert Lucas, we should say that this phenomenon is much more trouble for society than unemployment, since unemployment is harmful for those who do not work when the inflation affects whole society (source: Forbs S., Bankruptcy of Modern Economy'' <http://forbes.ge/> - 2014)

It is natural that inflation, due to its negative outcome, is causing negative emotions in society. Negative aspects of high inflation are: expenditure increases, that has strong influence on whole society and especially low-income families; Decrease of purchasing power of national currency; Real profit decrease in business; Production volume decrease; Unemployment increase;

¹⁷⁷ Batumi Shota Rustaveli State University, Ninoshvili Street 35, index 6010, Batumi, Georgia

Increase of interest rates, which increases the credit, which results in disability of small farmers getting loans. All of these increases the number of bankrupt enterprises and exacerbates economic crisis; At the same time, if the level of inflation is higher in the country, than in its trade partner countries, the product competitiveness is falling, that hinders the growth of the economy.

The necessity of regulating the inflation process has led to an interest in this issue.

The research methodology includes the following stages: theoretical discussion – reviewing the theories about inflation processes, analysis of the practice – inflational processes’ review in dynamics, approval of hypothesis – justification of the conclusions by practical examples and statistical data.

We have used opinions of Georgian scientist and economists about inflational processes, as well as annual reports of central banks, annual reports of various regulatory bodies and statistics services, economic periodicals, newspaper articles, economists’ reports, etc.

2. SURVEY

Georgia’s economy, as a small open economy is sensitive to regional and global challenges. On background of evolving integration and tough economic ties, negative impacts of foreign shocks are continuing, that besides global factors was caused by unfavorable economic situation in trade partner countries, euro’s global sustainability trend, dollar’s instability and the depreciation of national currency in the region countries.

The economic development problems of Georgia are reflected in the Lari devaluation, rising prices and decrease in economic growth. It is obvious that in case of currency crisis and inertness, it possibly convert into financial crisis and especially in the collapse of currency.

Before fall, 2016 the government predicted, that the annual economic growth would be 3%, but in the end this forecast was reduced to 2.7% and according to the results published by the Nationa Statistics Office of Georgia, this forecast was completed by the end of the year.

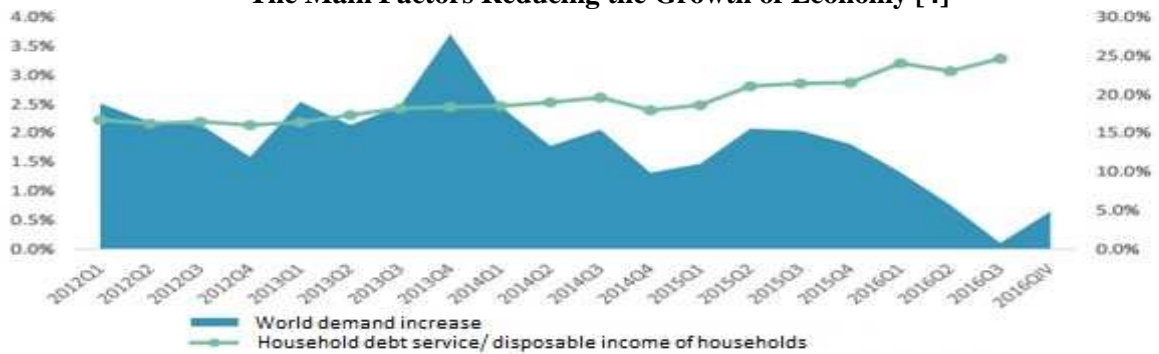
Economic Growth Rate [2]



2.7% is the low rate for the developing country – at this speed the country’s economy will double in about 25 years. The government considers that objective reasons for low rate are: difficult situation in region (weakening foreign demand) and strengthening euro, reduction of disposable income due to increased cost of loans resulting from dollar instability.

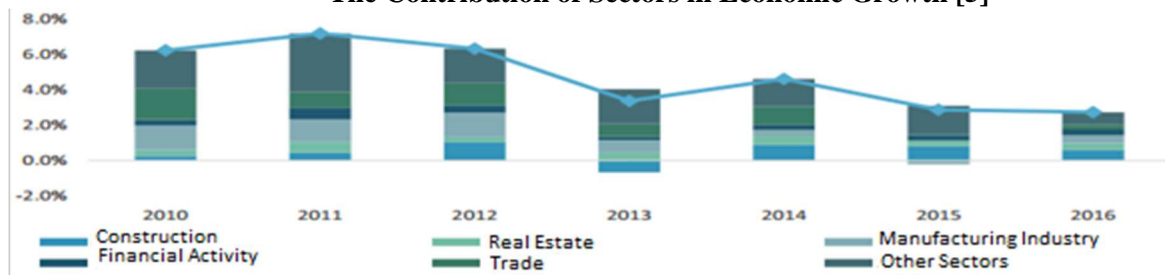
The international Monetary Fund estimates that Russian economy in 2016 decreased by 0.2 %, and Azerbaijan’s 3.8%, that had negative impact on Georgia. There were slowdowns in other neighbouring countries’ economic growth as well, in Armenia growth 0.2 %, Turkey 2.9%. During last year Ukraine’s economy started growing and reached 1.5 %. It is noteworthy that Turkey achieves higher economic growth than Georgia despite various political problems and frequent terroristic acts. [3]

The Main Factors Reducing the Growth of Economy [4]



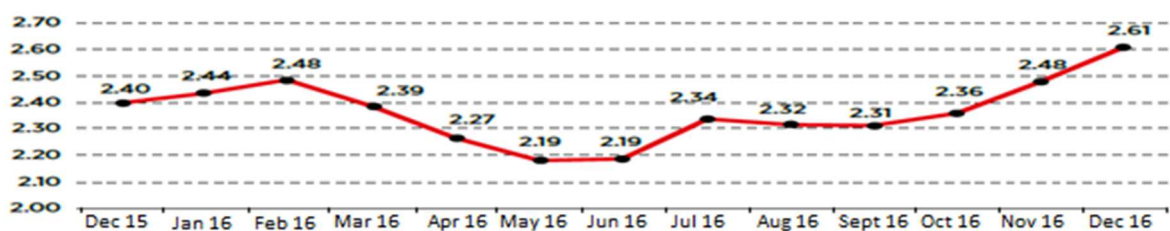
The growth of Georgian economy up to 2.7 % was provided by the following sectors: construction (growth 25 %), real estate (18%), manufacturing industry (growth 17%), ginancia activity (11%) and trade (9%). In 2016 compared to previous years the share of the manufacturing industry in economic growth increased, while transport and agriculture sectors were reduced. Economic growth was also hindered by the decrease in export of goods.

The Contribution of Sectors in Economic Growth [5]

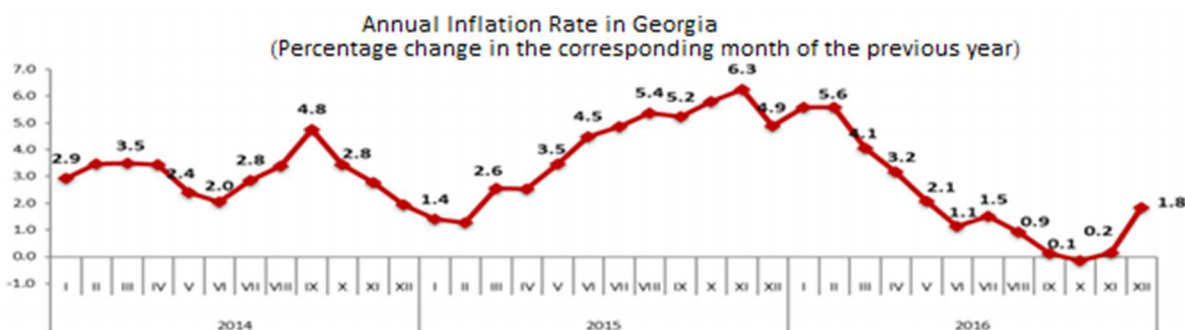


Already for several years, along with decreasing economic growth, the depreciation of the Lari is one of the most important problems for the Georgian economy. Depreciation of Lari started in November, 2014 and reached all-time depreciation by the end of 2016. At the beginning 2016 rate of Lari to dollar was 2.40. It reached 2.50 at the end of January, and during spring and summer was firming up and starting end of August kept to depreciate again. In autumn, the National Bank sold 180 mln dollars to stop rate drop [6], but Lari depreciation did not stop and got away from 2.7.

Lari Exchange Rate to Dollar (Average, monthly)



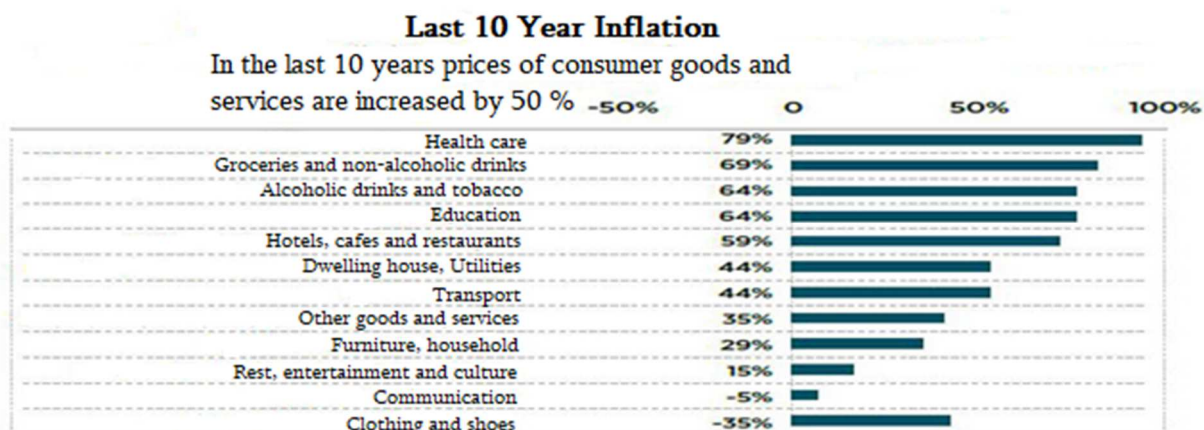
It should be noted that despite the above mentioned factors, the level of inflation was not the highest in 2016. According to Geostat, the annual inflation rate was 1.8% and was kept below the target of the National Bank, [7] that largely was caused by weak aggregate demand, decreased prices on commodity groups on international markets and in some trade partner countries due to depreciation of currency, weak import. From the beginning of the year sharp decrease of inflation was partially caused by Lari depreciation to US dollars in 2015, as a result the burden of service of foreign currency loans to companies and the occasional increase in prices has been gradually expired in annual inflation.



Source: www.geostat.ge

However, it should be noted that in the last few months since the beginning of 2017, the Consumer Price Index has grown significantly and the annual inflation rate as of May 2017 compared to previous year was 6.6%. Growth of inflation was mainly caused by single-time factors. Excise tax increase, as well as oil and food commodity price increase, affected reflected in the consumer prices. However, consumer price increase was partially balanced by Lari exchange rate firming. [8]

We discussed inflation for last one year (from May 2016 to May 2017). If we compare few years' indexes, prices are significantly increased. During last ten years, from the end of 2006 to the end of 2016, consumer good and service prices are increased by 50%. Most of all is increased health-care related goods and services by 79%. Groceries are increased by 69%, education by 64%. Clothing and shoes prices have been reduced by 35% and communications by 5%. [9]



Source: www.geostat.ge

Since the dollarization rate of Georgia's economy is high, accordingly depreciation of Laro to dollar has huge influence on different economical processes and on population welfare.

It is widely known that regulation inflation level is one of the most important problems for macroeconomic stabilization. The tools used by western countries are different from each other depending on the level of inflation, the economic situation and the economic mechanism in the country.

There is a logical question, how does orientation of the National Bank Of Georgia on stability of target inflation rate, respond to the demands of the society on the background of this economic situation instead of the stability of the Lari rate? A positive outcome of inflation targeting is more or negative result due to currency devaluation? Different countries effectively use the method of inflation targeting, but the question is whether it is acceptable for Georgian reality? There are no substantiated answers to these questions. The challenges that Georgian economy faces today are: the high dollarization of the economy, the dependence on import and pure production potential, as well as the denomination of the state and domestic debt in foreign currency. These are the factors that limit the maximum benefit by the inflation targeting. The loss caused by named factors is much higher compared to the benefits from inflation targeting.

The impact of monetary policy instruments on economic variables can be expressed with a scheme. (see Annex 5).

One of the key instruments of the National Bank's monetary credit policy is the monetary policy rate (refinancing rate), which is kind of indicator for market rates.

The dynamics of the monetary policy rate (refinancing rate) over the years (2008-2017) is as follows:

George Abuselidze
Head Department of Finance, Banking and Insurance, Batumi Shota Rustaveli State University, Georgia



Education: Ph.D and D.Sc. Finance, Money

Circulation, Credit (Fiscal Policy) from Ivane Javakhishvili Tbilisi State University.

Experience: *he has wide experience in Business Administration fields, namely: Finance, Banking, taxation, budget, accounting, macroeconomics, etc.*

Publication: *The author of more than sixty works published in the last three years. papers published in Georgian national and international peer-reviewed journals, etc*

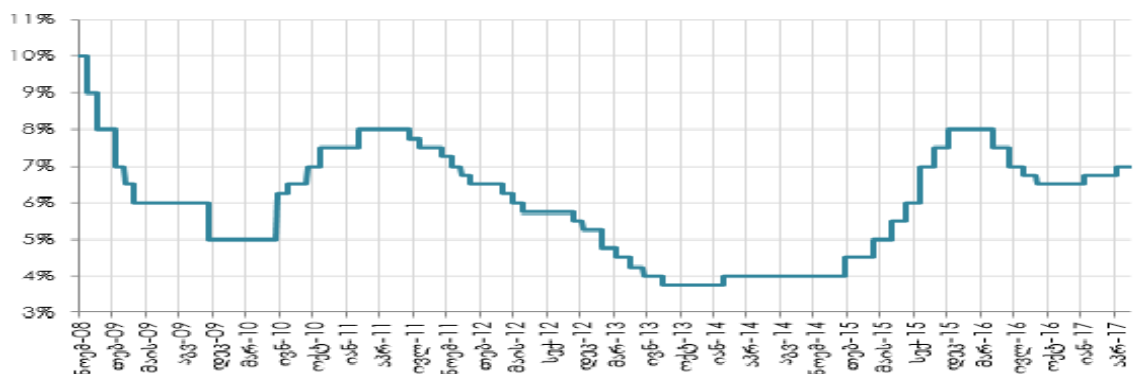
International collaboration: *Dr. Abuselidze also played instrumental role in different prestigious internal collaborative research project with USA, Canada, Ukraine, Lithuania, Poland, Turkey, Pakistan, etc.*

Editorial Experience: *He is editorial board member of twenty International Journal and member of board reviewers four Journal*

Number of Doctoral Students: 10

Specialization Keywords: *Finance and Banking; Financial statistics; Theory and Practice of Optimal tax burden; Fiscal policy; Problems of Macroeconomic stabilization,*

Scheme 1
Monetary Policy Rate (Refinancing Rate) 2008-2017 years [10]



Source: www.nbg.gov.ge

As the graph shows, the monetary policy rate is 10 % in the last month of 2008, but it reached its maximum in April 2008 and amounted 12 %, while the minimum value was 3.75 % in 2013. Nowadays it is 7 %.

In 2016 the National Bank of Georgia started to withdraw from the strict monetary policy. From April 2016 until the end of the year, the National Bank held toned down monetary policy. This was due to reduced inflation expectation and joining demand. During the year, inflation remained at the bottom of the target, which allowed the National Bank to gradually reduce the refinancing rate. However, it should be noted that in the end of 2016 and the beginning of 2017 inflation expectations have changed and in January 2017 the National Bank increased the rate of monetary policy.

It is noteworthy that according to Geostat data, the growth rate of Georgia's economy has started to decline since September 2016. In particular, the average economic growth rate of the third quarter was 3% and in the fourth quarter – 1.2%. Against this background, monetary policy tightening was no desirable, but the country had to face financial stability. The step towards stability is the right choice, because if country loses financial stability, instead of economic growth, the recession will start.

The tightening of monetary policy makes it difficult to achieve high economic growth rates, but does not exclude. Economic growth depends on many other factors as well.

Scheme №1
Monetary Policy and Economic Growth Dynamics in 2009-2016 years [11]

	2009	2010	2011	2012	2013	2014	2015	2016
Monetary policy rate	6.00%	6.25%	7.50%	5.25%	3.75%	4.00%	6.00%	7.09%
Economic growth	-3.80%	6.30%	7.20%	6.20%	3.30%	4.80%	2.90%	2.70%

As we can see, there is a direct proportional attitude between the monetary policy and the economic growth rate. It is interesting why it is so, when the monetary policy tightening generally follows hindering of economic growth?

We often talk about different economic processes and events, but rarely consider the country's economic model and structure. For example, we say and are taught that lari devaluation is good

for export competitiveness, we say, that floating exchange rate is good, but we do not consider the most important factor – dollarization of the country’s economy. Due to the high dollarization, the increase in export competitiveness by falling in the rate of lari is insignificant compare to losses, that for example is caused by foreign currency loan service. The dollarization is the key factor, why toughening the monetary policy, does not influence or impact economic growth in Georgia.

The higher the level of dollarization, the lower the effectiveness of the monetary policy, i.e. its impact on economic processes. By monetary policy the National Bank of Georgia affects on amount of money supply, but its impact is “limited” only on the lari supply, because of high dollarization National Bank affects only on small portion of money supply (including foreign currency) and accordingly, its policy impact on entire economy is lowers.

Thus, despite the tightening of the monetary policy by the National Bank has negative influence for certain amount people’s pockets, it is necessary. According to economist expert, otherwise the country will face serious inflation risk.

It also should be noted that the fiscal policies held by government should mitigate monetary policy strengthening effect. In particular, when National Bank tightened monetary policy to ensure the stability of the currency and the exchange rate, the government must significantly stimulate business development, i.e. promotion of goods and services. In order to achieve this goal, the government can reduce taxes and regulations, that will reduce production costs and will not allow decrease of production output. It is also necessary to stimulate internal investments and attract as more foreign investments as possible, that will help not only increase the growth rate of economic growth but also will help to strengthen the rate of lari.

In addition, we should not forget that the use of official reserves of National Bank is not desirable, as the reserves are guarantee of country’s financial stability and they should be spent only in extreme cases.

CONCLUSION

In order for the Lari course to withstand small shocks and in the longterm to stabilize, Georgia needs as high economic growth as possible, increase productivity and investments. The high economic growth increases the trust of population to national currency, which is the prerequisite for long-term stability of the Lari course. This requires a better business environment, production of competitive products and stable political environment.

The fastest way to stabilize is to maintain a strict monetary policy by the National Bank and simultaneously implement the government’s correct fiscal policy – “non-production” cost decrease, attract foreign investments and stimulate internal investments by reducing taxes and regulations.

REFERENCES

- [1] Abashidze, Z., (2016) <http://forbes.ge>, „Depreciated Top Five“.
- [2] Abzalava, A., (2003) «The Impact of Global Space on Georgia’s Economy», periodical «Moambe».
- [3] Archvadze, I. (2010) „New Focus of Monetary Policy – Inflation Targeting“.

- [4] Baqradze, G., Milmyer A., (2010) „Inflation Targeting in Georgia: are we ready? Periodical «Economics»“.
- [5] Bakhtadze, L., (2006) „Transition Economy”.
- [6] Gelantia, T., (2016) <http://forbes.ge>, „What is wrong with GEL”.
- [7] Economic Policy Research Center. (2011) „Inflation in Georgia – Causes and Ways of Overcoming”. Annual report.
- [8] Tavkheldze, M., (2011) Inflation – Inherited Sin of Government “, periodical „Tabula”.
- [9] Kakulia, M., (2011) „Anatomy of Inflation”
- [10] Namchavadze, B., (2016) bnp.ge/ekonomika, „What happened and what is up to GEL”.
- [11] Namchavadze, B., (2016) <http://forbes.ge>, „How much and why cost of life has increased in Georgia”.
- [12] Pavliashvili, S., (2015) „Inflation and Expensive Life”, newspaper „Speqtri”.
- [13] Ministry of Economy and Sustainable Development of Georgia, (2016) www.economy.ge. “Overview of Georgian Economy”.
- [14] National Bank of Georgia: (2015) www.nbg.ge. „Overview of Inflation”.
- [15] National Bank of Georgia: (2016) www.nbg.ge. „Monetary Policy Report”.
- [16] National Bank of Georgia: (2016) www.nbg.ge. „Annual Report”.
- [17] National Statistics office of Georgia: www.geostat.ge
- [18] Fund “European Initiative – Liberal Academy Tbilisi “, (2012) „Transformation of Georgian Economy – 20 Years of Independence”. Interim Report.
- [19] Forbs, S., (2014) Bankruptcy of Modern Economy” <http://forbes.ge>
- [20] Ghaniashvili, M., (2016) „Challenges for Central Banks”, periodical „Georgian Economy”.
- [21] World Economic Outlook, (2017) International Currency Funds.

PROCESS OF LEGALIZATION OF THE CRIMINAL PROCEEDS IN THE LEGAL FINANCIAL SYSTEM OF THE REPUBLIC OF MACEDONIA

Svetlana Nikoloska¹⁷⁸

Jovche Angjeleski¹⁷⁹

Nikola Nikoloski¹⁸⁰

Abstract: *The international community is more and more active in creating measures and actions for protection of the national financial systems from entering of financial incomes that originate from criminal activities. As the system of protection strengthens, the criminals create methods and schemes of input and flow of financial incomes in the legal financial systems in national and international frames. The legalization of criminal proceeds is a criminal activity and punishable for natural and legal entities under the criminal act "Money laundering and other proceeds of crime". The money laundering is a three-phase process: placement, transfer and conversion of the criminal money and the goal is to legalize and to protect the criminal money from the law enforcement forces reach and from confiscation. Therefore, the perpetrators use different methods and they create money laundering schemes in order to hide the criminal origin of the money and to enable the conversion of the criminal money or to show them as legally acquired money. The subject of this scientific work is a study of the process of legalization or money laundering by analyzing of several cases from Macedonian practice, analyzing the schemes that are most commonly used and studying the measures and actions applied by the financial entities, most often the banks, for detecting suspicious transactions and suspicious clients and detect cases with money laundering elements. The aim is to obtain indicators on the efficiency of the financial institutions in detecting the legalization of criminal proceeds and the means of informing about detected cases as well as the cooperation with financial intelligence and law enforcement agencies for combating money laundering as a crime directed against the security of the financial system.*

Key words: *legalization of criminal proceeds, money laundering, financial institutions, measures and actions, financial intelligence.*

INTRODUCTION

The globalization of the phenomenon of "money laundering" is expressed through the activities of organized criminal groups, which cover the origin and ownership of the proceeds and to avoid control, use the present short comings in national legislations regulatory schemes, flexibility and opportunities for rapid transfers of profits across national borders, inequality regulation on management of national systems, particularly the numerous banking, insurance and other branches in different countries.

Today money laundering is one of the most important links between the criminal world and legal society, by what criminals on a very easy way interfere in the legal economy and according to some estimates are considered to be laundered about 1.5 trillion dollars per year worldwide.

¹⁷⁸ St. Clement of Ohrid University of Bitola, Faculty of security of Skopje –Republic of Macedonia

¹⁷⁹ St. Clement of Ohrid University of Bitola, Faculty of security of Skopje –Republic of Macedonia

¹⁸⁰ Ss Cyril and Methodius University in Skopje, Faculty of Law in Skopje-Macedonia

In this process are often involved officials, responsible persons or entities that perform activities of public interest such as bankers, lawyers, notaries, accountants and others which considers that money laundering will upset the confidence and efficiency of financial and non-financial institutions in general, and is a serious threat to public confidence, reduces the credibility of the markets and causing enormous damage to the national economy. It would be good if these people respect the laws for reporting suspicious transactions, but corruption of government officials and law enforcement agencies is an important and integral factor for the existence of money laundering, so these people are a key link in the prevention, detection, clarification and proof of this crime.

The problem of money laundering has global dimensions of economic and security character because of what the United Nations (UN) include it among the types of dangerous criminal forms to which the International Community pays huge attention and it has brought a global anti-money laundering program assistance to the member states in harmonizing the national legislation with international documents, as well as empowering law enforcement authorities and creating a financial intelligence analysis unit for financial transactions and finding new methods and tools for successfully opposing the sophisticated criminal performance of modern money launderers.[1] It is important that states adopt the recommendations and create preconditions for enabling and encouraging institutional co-operation between law enforcement agencies, as well as to introduce the private sector and ordinary citizens to the dangers of money laundering.[2]

In the fight against the legalization of the criminal incomes or the money laundering, the international community has three goals:[3]

1. Protection of the international financial system.
2. Preventing criminal groups from enjoying the proceeds of their activities.

Svetlana Nikoloska

WORK EXPERIENCE

03/1992–01/2008: Ministry of Interior, Republic of Macedonia, Department of the Interior Kicevo

01/2008–11/2008: Ministry of Interior, Republic of Macedonia, PSB Skopje

04/2009–Present: College / university teaching professional

Faculty of Security, Skopje

Deputy Head in direction of Security and financial control Skopje and Ohrid

Organization of instruction and training, organization of work on Direction safety and financial control in Skopje and Ohrid



EDUCATION AND TRAINING

1987–1992: Faculty of Security

1992–2002: Postgraduate studies at the Faculty of Security, Skopje

dissertation topic, Criminological and criminalistic Characteristics of juvenile crime in the southwestern part of the Republic of Macedonia

2006–2008: Assistant Professor in the field of security Scientific field / Humanities, Field / Security, Area / Criminalistic

PhD of Faculty of Security in Skopje

April 2008, defending her doctoral dissertation of topic, crimes against official duty

Subject of research and scientific interest:

- *Juvenile crime in the Republic of Macedonia - theme for Masters*
- *Economic crime - issues of professional work as an inspector and as a researcher, especially crime against the office and financial crime*
- *Criminal legal aspects of economic and financial crimes, cybercrime and money laundering*
- *Law enforcement features of economic and financial crimes, cybercrime and money laundering related crime*
- *Criminal and financial investigations*
- *Forensics of economic and financial documentation*
- *Computer forensics*
- *Research methodology of general criminality.*

3. Preventing criminal groups from misusing their financial power in the function of influencing the stability of the institutions of the system.

The achievement of the stated goals is made through harmonization of the national legislation and anticipation of the ways of cooperation at national and international level. In this respect, the Republic of Macedonia, as a country that joins the international action in the fight against money laundering, has accepted and implemented in the national legislation most international conventions, declarations and directives: the Vienna Convention; Basel declaration; The Strasbourg Convention; The Palermo Convention, the FATF Recommendations, the EU Directives and reform the penal procedural and criminal material legislation.[4] A special criminal act "Money laundering and other proceeds of crime" is envisaged in Art. 273 of the Criminal Code of the Republic of Macedonia,[5] a work that has been completely redefined since the initial incrimination of 1996.[6] Redefining refers to the involvement of several criminal activities, the removal of the necessity of a predicate offense, the introduction of criminal responsibility for money-laundering misconduct by financial officers directly involved in money laundering, or giving out secret data for a financial investigation. The money laundering increases the likelihood that the clients or the bank will be cheated by corrupt officials in the financial institution, thereby increasing the likelihood that the entire institution will become corrupted and ran by criminal networks and that will increase the reputational risk to the institution. From the foregoing, money laundering increases the operational risk for the financial institution, which inevitably leads to an increase in reputational risk.

1. TERM AND PHASES OF MONEY LAUNDERING

Money laundering is defined as, using money derived from illegal activities by hiding the identity of the individuals who received the money and their transformation into assets that appear to come from legitimate sources. "Things we can simplify by saying that money laundering is a process through which dirty money look like clean. According to US laws dirty money never "clean", no matter how many times I have gone the cycle "rinse and spin".[7] Money laundering is a process where the criminal assets are presented as if they were coming from a legitimate source. Research activities related to the money laundering have double-side approach according to Layman and Potter.[8]

Money laundering is the process by which the gains that reasonable thought to originate from criminal activity are transported, transferred, transformed, converted or built into legal funds in order to conceal their origin, plowed, movement or ownership in order illegal origin display such as legal or legitimate. While this definition includes the wish to conceal the ownership of the money due to the provisions for taxes and because ownership can cause questions about the origin, it is not explicit in terms of the most basic component of money laundering, and that is: profits that were acquired through criminal activity be placed beyond the reach of the law enforcement agencies. However in good part the importance of money laundering can be understood simply as a movement of money away from the place where it is vulnerable to seizure in areas where secure.[9]

There are numerous definitions of the concept and the procedures of money laundering and almost all of them involve the placement, transfer and integration process through the national and global financial system. According to Philip Rejkel,[10] "money laundering is characterized as a three-stage process requiring: (1) transferring funds from (place of) direct association with crime, (2) masking the trail to fend off prosecution and (3) their re-availability to the criminal after hiding their professional and geographical background.

As the most comprehensive definition of money laundering that is accepted in the Republic of Macedonia is Taseva's that money laundering defines as "the process by which the gains that reasonable thought to originate from criminal activity are transported, transferred, transformed, converted or incorporated into the legal financial flows in order to conceal their origin, source, movement or ownership, to enable these resources to appear as legitimate, and persons involved in criminal activities to avoid the legal consequences of such action.[11]

2. SYSTEM FOR PREVENTION OF MONEY LAUNDERING IN REPUBLIC OF MACEDONIA

The system for prevention of money laundering in the Republic of Macedonia is in development, it is founded in 2001 and in recent years it's been developed and in 2008 there were significant results in the area of detecting suspicious transactions and clients as well as in the area of financial investigation and allowing confiscation of criminal revenues and property in and out of the country. The system is set to identify suspicious transactions by implementing indicators, indicators that the entities that are "at the lane of fire" when criminal assets enter the legal financial system and in that system the Financial Intelligence Office or the state authority that follows suspicious transactions and last in the system are the prosecution authorities that need to detect and prosecute the perpetrators that obtained high criminal incomes that either have been entered or "are trying" to invade the legal financial system.

According to Tupanchevski there are several reasons why it is necessary to establish a system to prevent money laundering and the uptake of laundered money into the legitimate financial system: "First, seeing it from point of view in the interest of the national governments, the absence of prevention of money laundering results in increasing the criminal rate in a way that enables the criminals to have benefit from their actions which makes the crime even more attractive and enables the criminal organizations to finance further criminal activity. Second, the uncontrolled use of the financial system for money laundering can jeopardize the individual financial institutions and as a result of that the whole financial sector. The reasons that motivate the financial sector for more organized approach in the prevention of money laundering can appear as the result of the awareness of the long-term success in the functioning and the financial sector and depends on the ability to attract and keep legal and legitimate funds. Those

Jovche ANGJELESKI **WORK EXPERIENCE**

2012 – present: *Regional manager for MKD, tender specialist; SBC Kompjuteri Dooel Skopje (www.sbc.mk)*
2008 – 2012: *Key account manager, tender specialist; SET Kompjuteri Doo Skopje – SETEC (www.set.mk)*
2007 – 2008: *Sales manager assistant MAKKAR Balfinko Makfin – BMW Macedonia (www.bmw.com.mk)*
1998 – 2007: *Operation manager AOP Biro Doo Skopje*



EDUCATION AND TRAINING

2014 – present: *Master Study at Faculty of security – Skopje, University "St. Kliment Ohridski" – Bitola*
2010 – 2014: *Bachelor in Economics at Faculty of Economics, University of Tourism and management – Skopje*
1995 – 1999: *- Electro technician Electro technical school centre*

Publications & Conferences:

- *Suppression of computer criminal acts against the property in the Republic of Macedonia*
- *Security of the computer data and information in the electronic traffic*
- *Transnational organized crime as a factor endangering security*
- *Confiscation of criminal proceeds from the perpetrators of the of white-collar crime in Macedonia*

funds can be attracted and kept via legal origin and the nature of the goods and services, the quality and safety of the service, the reputation of the institution. The dirty money can harm their reputation and scare honest investors”.[12]

The system for prevention of money laundering consists of three pillars:

- The first pillar consists of entities that have a legal obligation to take measures and actions to prevent money laundering and terrorist financing.
- The second pillar is the Financial Intelligence Unit which is the administrative authority for financial intelligence which acts as an intermediary between entities, on the one hand, and the investigating authorities on the other.
- The third pillar consists of the prosecution - the Public Prosecutor's Office (Department for Organized Crime and Corruption), Ministry of Interior (Department for organized crime and all organizational units for suppression of organized crime) and the Ministry of Finance (Financial Police and Customs Administration), but it cooperates with the Public Revenue Office, although it is not a body which is directly involved in the investigation of crime, but indirectly participates in many cases to identify reported or unreported income, money and property of suspected legal entities and individuals.



Picture 1: Positioning of the system for prevention of money laundering and financing of terrorism in the Republic of Macedonia

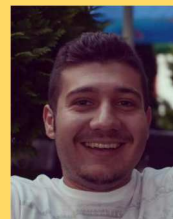
3. MONEY LAUNDERING SCHEMES

The money launderers make their own schemes that can be simple and complex. The money laundering schemes are constantly improving, money launderers seek sanctuaries for their money and a safe way to legalize the criminal money, but the investigating authorities have a legal obligation to identify knowledges, collect, investigate and prove the crime that has generated new crime with elements of money laundering, but also the obligation to provide security, seizure of criminal revenues, money and property for the purpose of confiscation.[13]

Nikola Nikoloski

WORK EXPERIENCE

*Primary Court, Skopje
(Republic of Macedonia)
Intern in area of criminal
proceedings in primary court of
Skopje*



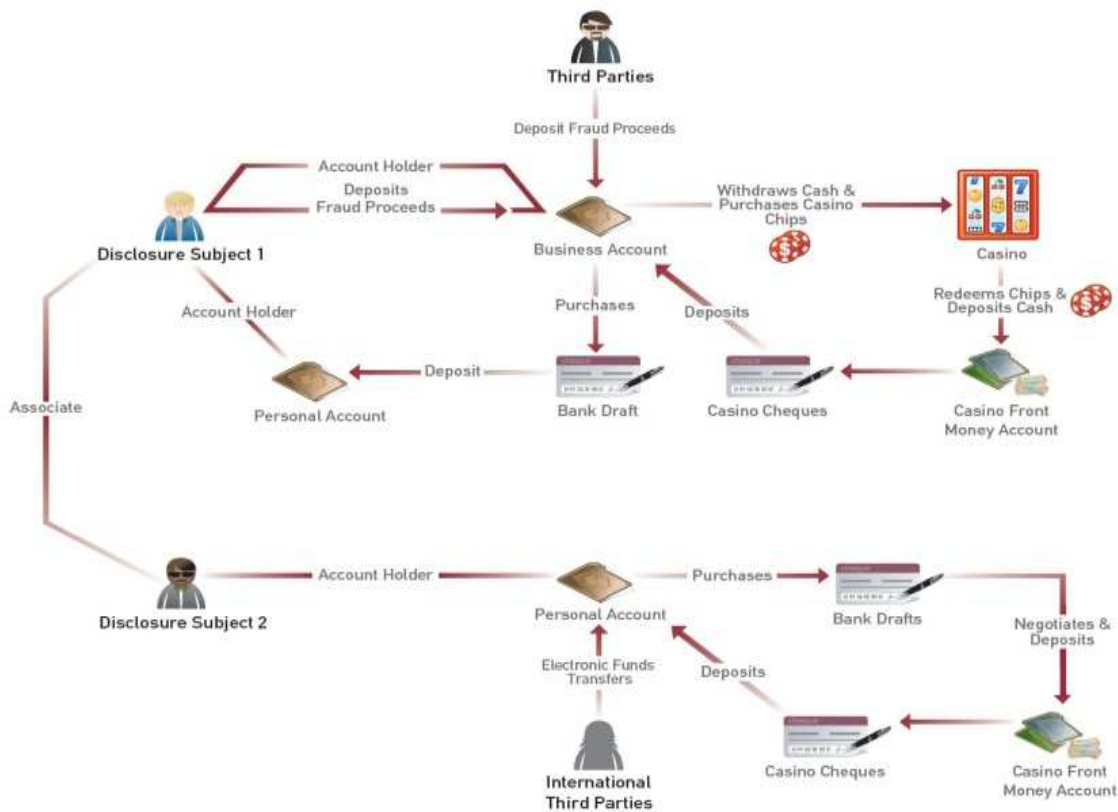
EDUCATION AND TRAINING

*Iustinianus Primus Faculty of Law, Skopje
(Republic of Macedonia)
Last year student*

According to the analyzes of data and documentation from the practical examples of money laundering in the Republic of Macedonia, the experts from the Financial Intelligence Directorate (FID) have detected several typologies, trends, techniques and money laundering

schemes. As more characteristic that contain the elements of simpler and more complex money laundering schemes, are the following:[14]

- More natural persons pay to the account of a legal entity for realized services (fictitious).
- A natural person appears as an authorized person in accounts owned by several natural persons. The accounts of natural persons arrive at inflows based on salary from a legal entity owned by the authorized person in the accounts and they are raised by the authorized person in the accounts.
- Assets from a non-resident legal entity (offshore country) are transferred to the account of a domestic legal entity, closing them on a previously raised revolving loan, then a new revolving loan is raised in the same amount and fully the loan funds shall be transferred to the account of another non-resident legal entity seated in an offshore country.
- A non-resident legal entity (usually offshore country) opens a non-resident account in a domestic bank and transfers funds from accounts opened in foreign banks, owned by legal entities that also have headquarters in offshore countries, after basis of remittances. The same day the funds in approximately the same amount are transferred to accounts opened with other foreign banks owned by other foreign legal entities on the same basis (remittances).
- Domestic natural persons are established by legal entities in neighboring countries and are identified with ID cards issued by other countries. In the Republic of Macedonia, they open non-resident accounts owned by the legal entity and accounts in a personal name, as residents. On the account of the legal entity, inflows from several legal entities from abroad are realized and the authorized persons withdraw the same inflows from the account. The legal entity is a non-resident, and the natural person is a resident.
- Inflows of large amounts of funds on the basis of donations to accounts of non-governmental organizations. Inflows are made by natural or legal persons originating from risky countries. The funds are further raised in cash from natural persons who appear as authorized persons in the accounts of a non-governmental organization or are transferred on the basis of loans on accounts of other legal entities to which the same authorized persons and non-governmental organizations appear as authorized.
- A natural person who appears as an owner or authorized person of several different legal entities carries out a cash payment on the account of one legal entity on the basis of a loan, then transfers the funds to the accounts of the other legal entities on the basis of borrowings, in the end, return with the legal entity to which they are paid and the natural person is re-raised in cash.
- A natural person for whom there is certain information that he is involved in illicit drug trafficking is making a cash payment on his own account and transfers the same funds on a loan basis to the account of the legal entity to which he appears as owner. The same funds from the account of the legal entity shall be converted into foreign currencies and transferred to the account of a natural person opened abroad. No significant transactions were registered on the account of the legal entity that correspond to the activity for which it is registered in the Central Registry of the Republic of Macedonia.
- A natural person converts foreign currencies into Denars and pays them to the account of a legal entity on the basis of payment of the turnover, the same funds are re-converted into foreign currencies and are transferred to a non-resident account of a foreign legal entity from whose account they are withdrawn in cash non-resident natural person.
- More natural persons in their accounts pay foreign currency in approximately the same amount and transfer them to one same person abroad based on remittances abroad. Natural persons receive monthly incomes as salary from the same legal entity.



Picture 2: Money Laundering scheme

4. ANALYSIS OF DATA ON THE ACTIVITIES OF THE INSTITUTIONS IN THE SYSTEM FOR PREVENTION OF MONEY LAUNDERING IN THE REPUBLIC OF MACEDONIA FOR THE RESEARCH PERIOD 2012-2016

In the Money Laundering Prevention System, a central role has the Financial Intelligence Directorate where the information and data from the entities that are the most numerous are collected and processed, and based on the selection and processing, reports are prepared for the prosecutions in case of existence of grounds for suspicion of money laundering, terrorist financing or other criminal offenses.

The Financial Intelligence Directorate makes a comprehensive analysis of the received information, data and documents as well as analysis of the manner and of the techniques used for money laundering, performs financial intelligence on the course of money and on the basis of the overall data and documents if there are suspicions of any criminal offense and money laundering shall submit a report to the prosecuting authorities for further prosecution of the perpetrators of criminal offenses ex officio. Research on the list of registered entities, their activity and cooperation with the prosecuting authorities in the direction of submitting reports on the findings of the competent persons from the UFR, as well as the actions upon submitted requests from the prosecution authorities and other legal entities, enable the perception of the situation and the giving recommendations for improving work in the area of prevention and repression of money launderers.

During the research period 2012-2016, data from the Annual reports of the Financial Intelligence Directorate were provided i.e. three types of data such as: data for registered entities, data for submitted PTRs from the registered entities; data on submitted reports to the

prosecuting authorities and other state bodies and institutions in accordance with the law on existence of grounds for suspicion of criminal offenses with elements of money laundering and financing of terrorism and data for received requests and actions from state bodies and institutions in accordance with the law for realization of financial research.

No.	SUBJECTS	2012	2013	2014	2015	2016
☒	Banks	16	16	15	15	15
☒	Legal entities whose business is the purchase of vehicles	277	280	/	/	/
☒	notaries	173	174	182	172	169
☒	lawyers	1925	2552	1733	2388	2359
☒	casinos	6	6	6	6	6
☒	internet casinos	/	/	/	1	1
☒	Providers of fast money transfer and the subagents	84	96	101	127	156
☒	Insurance companies	4	4	4	4	4
☒	Company for an investment funds managing	4	4	5	5	5
☒	Audit Company	39	35	38	38	38
☒	Companies for management of voluntary pension funds	2	2	/	/	/
☒	Companies for management of mandatory and voluntary pension funds	/	/	2	2	2
☒	post	1	1	1	1	1
☒	Legal entities that perform financial transactions, telegraphic money transfer or delivery of valuable items	20	20	12	22	24
☒	Provider of Financial Leasing	/	/	8	8	8
☒	Company Accounting	1397	1629	1791	1930	1908
☒	Insurance representative insurance	/	/	/	/	/
☒	Exchange offices	207	208	213	220	233
☒	Leasing companies	9	10	/	/	/
☒	Real estate agents	202	210	225	240	188
☒	Legal entities that perform activities related to the issuance and administration of credit cards	1	/	/	/	/
☒	Other legal or physical entities that under law perform one or more activities related to granting loans, issuing electronic money issuance and administration of credit cards and other financial services	/	6	6	10	12
☒	Legal entities receiving in pledge movables and real estate	/	2	24	24	24
☒	Legal entities that mediate micropayment	/	/	1	1	1
☒	Central Depository of Securities	/	1	1	1	1
☒	Associations and foundations	12061	10487	/	/	/
☒	Savings banks	8	4	4	3	3
☒	Brokerage houses	13	9	6	6	5
☒	Insurance brokerages	/	/	/	/	/
☒	Providers of services for legal entities	/	/	/	1256	1286
Total		16449	15756	4378	6480	6449

Table 1: Registered subjects

Based on the data in the table, it can be noted that in the first two years of the survey period, 16,449 entities were registered in 2012, 15,756 entities were registered in 2013, in the next 2014, 2015 and 2016 the number of registered entities significantly decreases to 4,378, 6,480 and 6,449, that was as a result of legal abolition of obligations towards certain types of entities (associations and foundations). Such registered entities were in the largest number in 2012 (12,061), that is 73.3% of the total registered entities and 2013 (10,487) with 66.6% participation. The most numerous subjects are accountants, lawyers, and these are the professions that are most often involved in money laundering, but also the number of persons who have licenses to perform those activities as individuals or in companies are big. Banks are the fewest registered entities, but their activity is most significant and their reports are the most numerous and require the need for more detailed analysis of the employees in the Office, because all the other entities work end up with placing financial assets in the financial institutions - banks.

No.	SUBJECTS	2012	2013	2014	2015	2016	Total
☒	Banks	145	136	111	125	124	641
☒	Legal entities whose business is the purchase of vehicles	/	/	2	1	8	11
☒	notaries	77	8	29	19	25	158
☒	lawyers	1	4	1	2	3	11
☒	casinos	1	3	2	3	2	11
☒	Providers of fast money transfer and the subagents	1	5	3	22	24	55
☒	Insurance companies	/	/	/	1	/	1
☒	Company for an investment funds managing	/	/	1	/	/	1
☒	Audit Company	/	/	1	/	/	1
☒	Company Accounting	/	/	1	/	1	2
☒	leasing companies	2	12	1	/	/	15
☒	financial companies	/	/	1	/	/	1
☒	Associations and foundations	1	1	/	/	/	2
☒	Pension fond	1	/	/	/	/	1
☒	Real estate agents	/	/	/	/	1	1
☒	Total 15 subjects	229	169	153	174	228	952

Table 2: Submitted PTR for suspicious transactions and suspicious clients from the Entities to the Financial Intelligence Directorate

According to annual reports from 2012 to 2016 of the Financial Intelligence Unit of the Republic of Macedonia, a part of The Ministry of Finance of the Republic of Macedonia under Law on Prevention of Money Laundering and Other Proceeds from Crime and Terrorist Financing a total of 952 reports suspicious transactions of these banks have made up a total of 641 or that is 67,3 %. This confirms the active role of banks in the system to prevent money laundering in the country, compared to other subjects.

Serial Number	Authorities	2012		2013		2014		2015		2016		Sum	
		M L and FT	Other Crimes	M L and FT	Other Crimes	M L and FT	Other Crimes	M L and FT	Other Crimes	M L and FT	Other Crimes	M L and FT	Other Crimes
1.	MFA	30	56	19	105	25	128	17	131	13	148	104	568
2.	FPD	6	19	1	27	4	22	12	36	13	17	36	121
3.	BPPO	/	1	2	/	2	2	1	6	2	15	7	24
4.	PRO	/	20	/	13	/	19	/	15	/	23	/	90
5.	CA	/	7	/	1	/	2	/	8	/	4	/	22
6.	SEC	/	2	/	/	/	/	/	/	/	1	/	3
7.	AMCP	/	1	/	/	/	/	/	/	/	/	/	1
8.	Primary Court Skopje 1	/	1	/	1	/	/	/	/	/	/	/	2
9.	SCPC	/	/	/	/	/	/	/	1	/	/	/	1
10.	IA	/	/	/	5	/	/	/	1	/	1	/	7
11.	MIA and PPPO	/	/	3	/	/	/	/	/	/	/	3	/
12.	MIA and PRO	/	/	/	1	/	/	/	/	/	/	/	1
13.	PRO and FPD	/	/	/	1	/	/	/	/	/	/	/	1
14.	SPP	/	/	/	/	/	/	/	/	/	2	/	2
15.	MFA	/	/	/	/	/	/	/	/	/	1	/	1
16.	Foreign FIU	/	15	/	3	/	/	/	/	/	/	/	18
17.	Total	36	121	25	157	31	173	30	198	28	212	150	862

Table 3: Reports submitted to prosecuting authorities and other competent authorities

The Financial Intelligence Directorate based on the received data from the Entities prepared reports on the existence of grounds for suspicion of committed criminal acts with elements of money laundering and terrorist financing, but also for other criminal acts, mostly of a financial nature, and submitted them to the bodies of the persecution. Reports have been submitted to 15 bodies and to foreign FIUs. Reports from the national authorities were submitted to: Ministry of Internal Affairs (MoI); Financial Police Directorate (FPD); The Basic Public Prosecutor's Office (BPPO); Public Revenue Office (PRO); Customs Administration (CA); Securities and Exchange Commission (SEC); The Agency for Management of Confiscated Property (AMCP); Basic Court Skopje 1; The State Commission for the Prevention of Corruption (SCPC); Intelligence Agency (IA); The Special Public Prosecutor's Office (SPP), the Ministry of Foreign Affairs (MFA) and the foreign FIU. A small number of reports are sent to two organs of the

same jurisdiction. According to the data, most of the reports were submitted to the Ministry of Internal Affairs as the oldest institution competent to prosecute perpetrators of offenses *ex officio*. From the total number of reports on money laundering and financing of terrorism (150), 104 were submitted to the Ministry of Interior, 36 to the Financial Police Directorate, 7 to the Basic Public Prosecutor's Office, 3 reports were submitted to the Ministry of Interior and the Basic Public Prosecutor's Office. Or it would mean that 69.3% of the UFR reports submit further action. Also, when it comes to other crimes, most of the reports were submitted to the Ministry of Interior, 568 of the total 862, which is 65.9%. The number of reports submitted to the FPD - 121 and the PRO - 90 is significant, and they are most often for tax evasion.

Serial number	Authority	2012	2013	2014	2015	2016	Sum
1.	MIA	107	95	121	101	112	536
2.	FPD	13	11	18	9	5	56
3.	BPPO	2	3	7	10	19	41
4.	CA	2	1	4	4	6	17
5.	PRO	/	/	/	1	5	6
6.	SCPC	1	1	1	1	1	5
7.	DP	1	/	/	/	/	1
8.	IA	/	2	/	/	2	4
9.	SEC	/	/	/	3	1	4
10.	BC	/	1	1	/	/	2
11.	SPPO	/	/	/	/	6	6
12.	NBRM	/	/	/	2	/	2
Total		127	114	152	131	157	680

Table 4: Received requests from the Prosecuting authorities and other state bodies to the Financial Intelligence Directorate

The Financial Intelligence Directorate also acts upon requests from the competent institutions to prosecute offenders for *ex officio* and other institutions in accordance with the laws. Requests were received and actions were taken in the following cases: Ministry of Internal Affairs (MIA); Financial Police Directorate (FPD); The Basic Public Prosecutor's Office (BPPO); Customs Administration (CA); Public Revenue Office (PRO); The State Commission for the Prevention of Corruption (SCPC); The State Attorney's Office (SAO); Intelligence Agency (IA); Securities and Exchange Commission (SEC); The Agency for Management of Confiscated Property (AMCP); Basic Court (BC); The Special Public Prosecutor's Office (SPPO), the National Bank of the Republic of Macedonia (NBRM). Out of the total number of requests 680, 536 were submitted from the Ministry of the Interior, or 78.8%. According to the dynamics by years, the largest numbers of requests are from 2016, that is 157, and of which 112 are submitted by the Ministry of Interior.

MIA is an institution that has its own units throughout the country and has long experience in the fight against crime and this is the reason for the biggest activity in the area of prevention of money laundering and financing of terrorism. But reforms in the concept of conducting a criminal and financial investigation where the central role of the Public Prosecutor's Office is in the phase of implementation and creation of new habits in the operation. It is important to emphasize that the spectrum of entities that cooperate and contribute to the functioning of the Money Laundering Prevention and Financing Terrorism System in the Republic of Macedonia is broad.

CONCLUSIONS

The money laundering is a crime that is associated with other criminal activities as a secondary crime, most often with an organized way of committing criminal acts from which the perpetrators acquire high criminal proceeds. The international community constantly reacts with recommendations contained in international legal acts for the harmonization of national legislation, thus enabling international cooperation of competent authorities and institutions. In 2001, a Directorate for the prevention of money laundering was established in the Republic of Macedonia, which changed its name to the Financial Intelligence Directorate. The system for prevention of money laundering and financing of terrorism in the Republic of Macedonia has been established. The system for the prevention of money laundering functions with gradual development that can be seen from the data for registered entities, their activity in providing and delivering data and information, as well as according to the reports prepared on the basis of the documents, and the recognized bases suspicions of money laundering and financing of terrorism, but also other crimes. It can be concluded that in their actions the competent authorities perceive the need for financial research and therefore submit requests to the UFR for financial research or search for financial assets of a criminal nature. According to the data on trends, techniques and money laundering schemes, several simple and complex combinations have been identified in the Republic of Macedonia. The Macedonian authorities act with the relevant foreign authorities, which is made possible by the harmonization of the Macedonian legislation in the area of providing an international response to suppress this security phenomenon.

REFERENCES

- [1] Ignjatović Dj. , (2004) Suzbijanje najtežih oblika kriminaliteta u uslovima tranzicije i nesigurnosti, Teški oblici kriminala, XVI Seminar prava, Budva
- [2] Schot A. P. , Money Laundering and Terrorist Financing, Money laundering impact development, II-3,p.<https://books.google.mk/books>
- [3] Thony J. F. (2000) "Money laundering and terrorism financing: an overview", report to the United Nations General Assembly p. 5
- [4] Nikoloska S., (2015) Perenje pari – kriminološki, kriminalistički i krivično – pravni aspekti, Van Gog, Skopje
- [5] Official Gazette of the Republic of Macedonia No. 114/09, (2009)
- [6] Official Gazette of the Republic of Macedonia No. 37/09, (1996)
- [7] Medinger Đ. ,(2009), Perenje pari - vodič za kriminalni islednici, Data Pons, Skopje
- [8] Lajman D. M. i Poter V. G., (2009), Organziran kriminal, IV izdanje, Magor, Skopje
- [9] Vilijams F. (1997), Transnacionalniot i nacionalniot organiziran criminal i međunarodnata bezbednost, Bezbednost br. 3 , Skopje
- [10] Rejkel F. (2009) Transnacionalen criminal i Pravda, Data Pons, Skopje
- [11] Taseva S., (2003) Perenje pari, data Pons, Skopje
- [12] Tupančeski N., (2015) Ekonomsko kazneno pravo, Stobi TREJD DOOEL, Skopje
- [13] Nikoloska S., (2015) Perenje pari – kriminološki, kriminalistički i krivično – pravni aspekti, Van Gog, Skopje
- [14] Finansial Intelligence Directorate - Annual Report 2011-2016 (<http://www.ufr.gov.mk/?q=node/19>)

THE GROWTH ACCOUNTING FOR AGRICULTURE, INDUSTRY AND SERVICES OF SLOVENIA

Manuela Raisová¹⁸¹

Abstract: *The last economic crisis has shown how economies are internally vulnerable to external factors. Internal vulnerability is also attributed to the use of available resources in the economy. The aim of the article was to find out how the individual factors of agriculture, services and industry contribute to total production and economic growth. The aim of this article was to examine the economic growth of Slovenia. We used the method of growth accounting: a dual approach that allowed us to track the contribution of individual inputs to production and economic growth. We wanted to prove that if one factor had at least a 5% greater share of overall growth than other factors for the whole economy, then this factor would be the main one for the individual sectors of the economy as well. Verification was carried out in two periods: the pre-crisis (1994-2007) and the crisis and the post-crisis period (2008-2016). We note that, in any of the periods, the assumption of the same primary factor for all three sectors as well as the economy as a whole has not been confirmed. In the first period, the capital was the main factor, with the exception of the industry where TFP was the main factor. In the second period, the TFP was the main factor, with the exception of the industry, where capital was the main factor. Labour was not the main factor in any of the survey periods.*

Key words: *economic growth, TFP, growth accounting*

1. INTRODUCTION

Many researchers analysed empirically the patterns of economic growth in the world. A major wave of the literature was inspired by the seminal works of Abramowitz, Solow, Krugman... [1], [2], [3], [4], [5], [6], [7], [8] to mention a few. The growth accounting is one of the methods used to analyse and quantification of economic growth. The pioneers of this method were [1] and [3]. The original idea was later elaborated and supplemented by [9] on primal and dual approach. Further adjustments brought e.g. [10, 11]. In this analyses we use a standard Cobb-Douglas production function approach (as in [12]; [13]). We mainly follow the explanation provided by [11], [14] or [15].

The aim of this article was to examine the economic growth of Slovenia. We used the method of growth accounting: a dual approach that allowed us to track the contribution of individual inputs to production and economic growth. We wanted to prove that if one factor had at least a 5% greater share of overall growth than other factors for the whole economy, then this factor would be the main one for the individual sectors of the economy as well. Verification was carried out in two periods: the pre-crisis (1994-2007) and the crisis and the post-crisis period (2008-2016). The secondary goal of the article was to find out whether the achieved economic growth has been extensive or intensive.

Slovenia as a country is similar to the Czech Republic or Slovakia. In 2004, all three joined the EU and are also part of other groupings (OECD, NATO). Slovakia and Slovenia are part of the

¹⁸¹ Faculty of Economics TUKE, Nemcovej 32, 040 01 Košice, Slovakia

EMU. We can also talk about their economic similarity. The average unemployment rate was 8% (Slovenia) and 6.5% (Czechia) – in Slovakia 14.2% over the last 24 years. Slovenian inflation was 4.6% on average, in Slovakia it was the same and in Czechia it was less 1% over the last 24 years. Speaking about the economic growth Slovenia maintained a relatively stable level of economic growth (3-7%) in the pre-crisis period. However, Slovenia had trouble to stabilize the economy in the post-crisis period.

Our goal is to find out the character of the economic growth achieved in the country. We followed development in Slovenia in the period 1993-2016, which we divided into the pre-crisis period (1993-2007) and the crisis and post-crisis period (2008-2016). In the first part we have compiled a brief overview of the literature from the field of our problems. In the second part we briefly describe the used methodology and the data we used. In the third part we discussed our findings about the influence of individual factors on the total production of the sectors. In the fourth part we summarized the achieved results.

2. METHODOLOGY AND DATA

2.1. Methodology

We used the basic form of the Cobb-Douglas production function. Aggregate output (Y) consists of consumption goods (C) and investment goods (I). These goods are produced from labour services (L) and capital (K). [16] Productivity is usually represented as a Hicks-neutral augmentation (A) of aggregate inputs:

$$Y_t(C_t, I_t) = A_t F(L_t, K_t) \quad (1)$$

The first step is derivation of the equation. The next one in this derivation is to express the production function in growth rate form.

$$\frac{\hat{Y}_t}{Y_t} = \frac{\partial Y}{\partial K} \frac{K_t}{Y_t} \frac{\hat{K}_t}{K_t} + \frac{\partial Y}{\partial L} \frac{L_t}{Y_t} \frac{\hat{L}_t}{L_t} + \frac{\hat{A}_t}{A_t} \quad (2)$$

That is denoting time derivatives. The corresponding ratios are rates of change. This form of calculation means that the rate of output growth equals the growth rate of capital and labour weighted by their output elasticities plus the growth rate of the Hicksian shift parameter. These elasticities represent factor-income shares $s_{K_t}; s_{L_t}$ when inputs are paid the value of their

marginal products $\frac{\partial Y}{\partial K} = \frac{r}{p}; \frac{\partial Y}{\partial L} = \frac{w}{p}$ Then:

$$TFP = \frac{\hat{Y}_t}{Y_t} - s_{K_t} \frac{\hat{K}_t}{K_t} - s_{L_t} \frac{\hat{L}_t}{L_t} = \frac{\hat{A}_t}{A_t} \quad (3)$$

TFP defines the „residual“ as the growth rate of output is not explained by the share-weighted growth rates of the inputs. [11]

We want to examine the changes in the input prices so we use the dual approach provided by [14] or [15]. We start with:

$$Y = rK + wL \quad (4)$$

After the differentiation of (1) and dividing by Y we have

$$Y' = r'K + rK' + w'L + wL' \quad (4a)$$

$$\frac{Y'}{Y} = r' \frac{K}{Y} + \frac{r}{Y} K' + w' \frac{L}{Y} + \frac{w}{Y} L' \quad (4b)$$

$$\frac{Y'}{Y} = r' \frac{K}{Y} \left(\frac{r'}{r} + \frac{K'}{K} \right) + w' \frac{L}{Y} \left(\frac{w'}{w} + \frac{L'}{L} \right) \quad (4c)$$

We use the substitution and it brings us:

$$Y' = s_K (\hat{r} + \hat{K})' + s_L (\hat{w} + \hat{L}) \quad (5)$$

where the identities s_K and s_L represent the factor-income share and the sum of factor-shares is equal to unit ($s_K + s_L = 1$). Variables \hat{r} , \hat{w} , \hat{K} , \hat{L} “represents growth rates. [15]

2.2. Data

All the necessary data for the calculation were available from OECD Database. We used the data on an annual basis, sample period was from 1993 to 2016. In particular, the real interest rate used to measure the rental price of capital is represented by the 3-month nominal interbank offered rate deflated by CPI inflation. The real wage is calculated as the ratio of the nominal wage rate to the consumer price index. The aggregate output is represented by GDP. The labour share was calculated as a ratio of total labour costs (economy or sector) and gross value added

<i>Country</i>	<i>Slovenia</i>		
	<i>Industry</i>	<i>Services</i>	<i>Agriculture</i>
Labour share in % (1994-2007)	62.42	58.54	23.54
Capital share in % (1994-2007)	37.58	41.46	76.46
Labour share in % (2008-2016)	58.80	59.57	16.76
Capital share in % (2008-2016)	41.20	40.44	83.24

Table 6 Capital and Labour Shares

Slovenia has a relatively high labor-income share in the industry and services sector. Compared to Slovakia (46, 25%) and the Czech Republic (49, 43%), the labor-income share is low in agriculture (23.54,16.76). (Table 1)

3. ANALYSIS

3.1 Pre-Crisis Period (1994–2007)

In Slovenia, capital is the dominant engine of economic growth. Average annual real GDP growth is around 10% with capital shifts by 7%. We note that economic growth was particularly

extensive when in 64 percent was achieved due to changes in capital. Significant capital inflows have been achieved notably through the structural reforms implemented in the tax area, the banking sector and foreign-trade policy at the turn of the millennium. The subsequent inflow of FDI allowed them to achieve economic development and growth. [17]

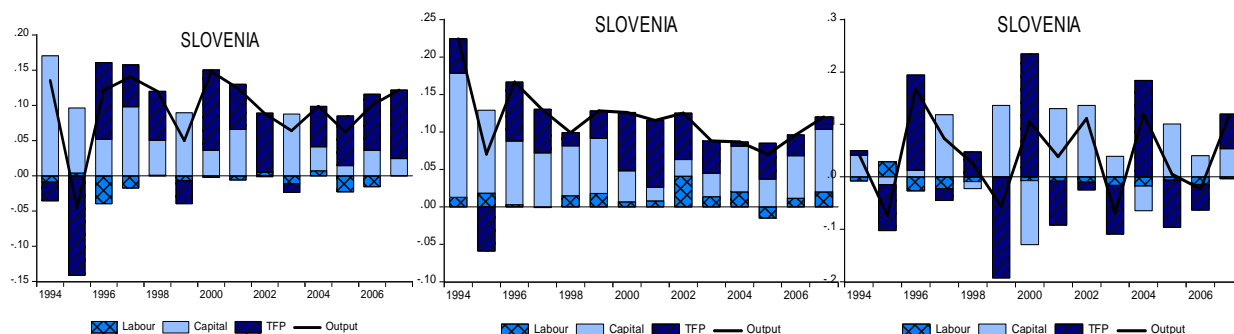


Figure 17 Industry - Input Shares on Output, 1994-2007

Figure 18 Services - Input Shares on Output, 1994-2007

Figure 19 Agriculture - Input Shares on Output, 1994-2007

The period 2000-2007 brought economic growth, which was supported mainly by growth in production, expansion and improvement of industry and the rapid development of services, especially in the field of tourism. Strong growth reflected a favourable business environment and significant structural reforms that paved the way to European Union (EU) accession in 2004. Since 2002, Slovenia has followed prudent fiscal policies, leading to a significant improvement in both the actual and structural deficits. The improvement in the fiscal position also reflected a build-up of contingent liabilities in the area of highway construction. Their construction was another impetus for tourism and economic growth.

	<i>Industry</i>	<i>Services</i>	<i>Agriculture</i>
<i>average share on GDP (1994-2007)</i>			
Labour	(-0.0963)	0.1092	(-0.1744)
Capital	0.4161	0.5822	1.585
TFP	0.6802	0.3086	(-0.4107)
<i>average change (1994 - 2007)</i>			
Labour	(-0.0080)	0.0123	(-0.0087)
Real Wage	0.0801	0.0526	0.0122
Capital	0.0607	0.066	0.0437
Rental price of Capital	(-0.0458)	(-0.0649)	(-0.0703)

Table 7 Industry, Services, Agriculture - Average Changes and Shares, (1994-2007)

Investments brought new technologies and changed the character of production to more modern and more efficient. As a result, the TFP was the major contributor to economic growth, and consequently the capital in the industry sector. (Table 2, Figure1) From the point of view of our results, we note that our assumption of the main input has not been confirmed here. TFP was the most important for industry in Slovenia, but for the economy it was capital.

In the industry and services it is evident that the most significant share of capital is reflected mainly in the 90s. We associate it with the fact that country had to go through the transition to a market economy first. Since the service sector was not built in the way that the market

demanded it before the transformation, large investments were needed. We are inclined to the opinion of [18] that under the former system countries did not pay much attention to the development of services, in line with the ideological perception of that time that services were not vital to growth and development. As a result some services were either rarely provided on the market or simply non-existent. Many modern services that play an important role in market economies (such as financial, real estate,...) were simply not needed under socialism. [18] The process of transformation has resulted in extensive privatization and deregulation of the service sector. Those services that were previously provided by large industrial enterprises as part of employee care (such as child care, ...) have now become the subject of many small or medium-sized businesses. The inflow of FDI was also beneficial. As stated by the OECD [19] at that time, the share of services in the FDI stock was higher than that in manufacturing in countries such as Czechia and Slovenia. For the Slovenia, it was primarily in the areas of real estate, the telecommunication and the financial sector. In Slovenia, transport and telecommunications absorb a significant proportion of FDI services. This development was reflected in a 9-11% increase in service sector production and a 6% change in capital in the country. (Table 2, Figure 2) In this case was our assumption confirmed. The impact of capital prevailed in services as well as in the case of the whole economy.

Agriculture experienced a relatively turbulent period. According to our results, the main factor of growth was capital, while TFP and work were negative for growth. The strong impact of capital was also reflected in its average 4.4% change over the reporting period. In this case was our assumption confirmed. (Table 2, Figure 3)

3.2 Crisis and Post-Crisis Period (2008-2016)

In the crisis, the situation has changed mainly in the field of labour and capital. In the country, the number of hours worked decreased and the labour share of economic growth decreased significantly in the services and agriculture sector compared to the previous period. There is also the change of the main factor. The TFP became the main factor for the economy as a whole.

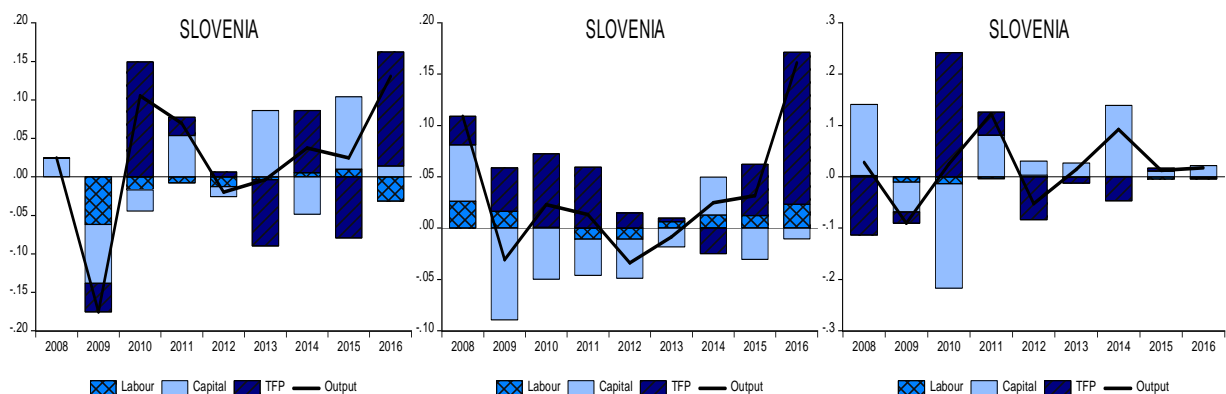


Figure 20 Industry - Input Shares on Output, 2008 - 2016

Figure 21 Services - Input Shares on Output, 2008-2016

Figure 22 Agriculture - Input Shares on Output, 2008-2016

As the OECD report shows [20], since the beginning of recovery investment in industry has been weaker than expected. Public investment is expected to recover with faster EU structural funds disbursement. Business investment should also pick up further on the back of external and domestic demand, favourable financing conditions and emerging capacity constraints, although remaining low as a share of GDP.

	<i>Industry</i>	<i>Services</i>	<i>Agriculture</i>
<i>average share on GDP (2008 - 2016)</i>			
Labour	(-0.095)	(-0.0478)	(-0.1058)
Capital	0.6978	0.3456	0.3399
TFP	0.3972	0.7913	0.7659
<i>average change (2008 - 2016)</i>			
Labour	(-0.0132)	0.0085	(-0.0033)
Real Wage	0.0256	0.0194	0.003
Capital	0.0119	(-0.0199)	0.0205
Rental price of Capital	(-0.2406)	(-0.2497)	(-0.1178)

Table 8 Industry, Services, Agriculture - Average Changes and Shares, (2008-2016)

The problem, however, is that skilled workers are not available on the market. The recovery has led to tighter labour market conditions, as employment has risen, while fewer people are in the labour market. Unemployment has fallen below OECD's estimate for structural unemployment, which has increased since the late 2010s as the shares of low-skilled and older workers in unemployment has increased. Accordingly, wage growth has picked up and was around 2% year-on-year in early 2017, as private-sector wages (particularly in market services) started again growing faster than in the public sector, where wages in 2016 were boosted by the lifting of the crisis-related wage freeze. Shortages are emerging, particularly in the manufacturing sector, across a range of vocational occupations and for ICT specialists. In the case of Slovenia, the impact of capital was decisive for industry, but TFP was the most important for the overall economy. (Table 3, Figure 4)

Manuela Raisová, PhD,
Assistant Professor

Her research and scientific publications are focused on fiscal policy and sovereign debt issues, problems of economic growth, the business environment of the Slovak Republic and micro- and macro-economic problems of EU countries. At present, she is involved in the research project: Economic Implications and Perspectives of the Participation of the Slovak Republic in the Process of Production Activities Fragmentation within Global Value Chains.

For almost 13 years he has been working as an assistant professor at the Faculty of Economics at the Technical University in Košice.



In both the agricultural and services sectors, the share of capital in economic growth has sharply declined. On the contrary, a significant increase in the share is evident in the TFP in both sectors. In the case of agriculture, we see an increase in the share of labor in economic growth,

but this share remains negative. For both sectors, our original assumption has been confirmed. (Table3, Figure 4,5)

CONCLUSION

Based on the comparison of both periods, we can say that the crisis has significantly affected development in the country. On the other hand, the crisis has changed the share of individual inputs, contributing to the creation of economic growth in the country. The impact of labour is in fact negligible in the pre-crisis period - both in terms of hours worked and in terms of wages. However, capital prices declined throughout the period. Prices have changed much faster than the volume of capital has changed. The development of the real capital did not reflect the development of market prices.

Our assumption of the same major factor for the whole economy as well as the sectors has been only partially fulfilled. There was not the complete agreement - the whole economy + all three sectors. In all other cases, the whole economy + 2 sectors is the only match. There has never been a case that the main factor has been labour.

However, we can not fully explain the reasons that led to such results. We believe that in order to better understand the overall situation of these economies and their economic growth, it is necessary to further analyse the concrete contribution of individual sectors to economic growth.

ACKNOWLEDGEMENTS

This paper was written in connection with scientific project VEGA no. 1/0961/16. Financial support from this Ministry of Education`s scheme is also gratefully acknowledged.

REFERENCES

- [1] Abramovitz, M.: Resource and Output Trends in the United States Since 1870. NBER Occasional Paper 52. (1956)
- [2] Abramovitz, M.: Catching Up, Forging Ahead, and Falling Behind. *Journal of Economic History*, 46(2), pp. 385–406.(1986)
- [3] Solow, R.M.: Technical Change and the Aggregate Production Function. *The Review of Economics and Statistics*, 39(3), pp. 312–320, (1957)
- [4] Barro, R.J.: Economic Growth in a Cross Section of Countries. *Quarterly Journal of Economics*, 106(2), pp. 407–443. (1991)
- [5] Barro, R.J.: Human Capital and Growth. *American Economic Review*, 91(2), 12–17. (2001), DOI: 10.1257/aer.91.2.12.
- [6] Baumol, W. J.: Productivity Growth, Convergence, and Welfare: What the Long-Run Data Show. *The American Economic Review*, 76(5), pp. 1072–1085. (1986)
- [7] Mankiw, N.G., Romer, D., Weil, D.N.: A contribution to the empirics of economic growth. *The Quarterly Journal of Economics*, 107(2), 407–437. (1992), DOI: 10.2307/2118477
- [8] Krugman, P.: The Myth of Asia's Miracle. *Foreign Affairs*, 73(6), pp. 62–78. (1994).
- [9] Jorgenson D.W. and Griliches, Z.: The explanation of productivity change. *Review of Economic Studies*, 34(3), pp. 249–83. (1967)
- [10] Hulten C.R.: The measurement of capital. In Berndt E.R., Triplett J.E. (eds). *Conference on Research in Income and Wealth. 50th Anniversary Conference. 1988, vol. 54, pp. 119–158. University of Chicago Press, Chicago (1990)*

- [11] Hulten, C.R.: Growth Accounting. Handbook of the Economics of Innovation. NBER Working Paper, No. 15341/September 2009. (2009).
- [12] Podpiera J., Raeli, F. and Stepanyan, A.: A Fresh Look at Potential Output in Central, Eastern, and Southeastern European Countries. IMF Working Paper, No. 37/2017. (2017)
- [13] Dimelis, S. P., Papaioannou, S. K.: Entry Regulation, Public Ownership and TFP Growth: Industry - Level Evidence from South European Countries. *The Manchester School*, 84(6): 749–770. (2016), DOI: 10.1111/manc.12131
- [14] Hsieh, C. T.: What Explains the Industrial Revolution in East Asia? Evidence from the Factor Markets. *American Economic Review*, 92(3), pp. 502–526. (2002).
- [15] Hloušek, M.: Growth Accounting for Visegrad States: Dual Approach. Research Centre for Competitiveness of Czech Economy. Working Paper, No. 7/ 2007. (2007).
- [16] Musso, P.: Capital Obsolescence, Growth Accounting and Total Factor Productivity. *Revue de l'OFCE*, 5(97), 217–233. (2006), DOI: 10.3917/reof.073.0217
- [17] OECD – Slovenia (2009). OECD Economic Surveys: Slovenia 2009. OECD Publishing. ISBN-10: 9264030786
- [18] Vidovic, H. (2002). The services sectors in Central and Eastern Europe. The Vienna Institute for international economic studies. Bank Austria Creditanstalt
- [19] OECD (2000). The services economy. STI Science Technology Industry. Business and Industry Policy Forum Series. Paris.
- [20] OECD – Slovenia17, 2017. <http://www.oecd.org/eco/surveys/Slovenia-2017-OECD-economic-survey-overview.pdf>

FINANCIAL LITERACY OF THE UNIVERSITY STUDENTS IN THE TECHNICAL FIELDS OF STUDY

Zuzana Kozubíková¹⁸²

Aleš Kozubík¹⁸³

Jiří Nožička¹⁸⁴

Abstract: *Financial literacy belongs to the most important competencies of individuals living in a modern global society. This article presents the results of a financial literacy questionnaire survey among students of the technical fields at universities. It analyses several areas of financial literacy such as time value of money, inflation, annuities, and similar. Interesting data on students' competencies has been obtained from the research, which will be used to improve the financial education in the relevant study fields.*

Key words: *Financial literacy, financial education, labor market.*

1. INTRODUCTION

The need to be financially literate is based on the life of the individual, without distinction of his/her education. How important we perceive the fact that „financial literacy and schooling attainment have been linked to household wealth accumulation“([2]). For purposes of our article, we define the concept of the financially literate person in accordance with ([6]) 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 planning of financial flows. The result of preference of planning cash flow is more uniform consumption throughout life, depending on the stage of the life cycle”.

2. RESULTS OF THE INTERNATIONAL RESEARCH

Even in the era of emerging financial crisis and later "the economists are beginning to investigate the causes and consequences of financial illiteracy to better understand why retirement planning is lacking and why so many households arrive close to retirement with little or no wealth" [7]. Many research studies have confirmed that a large proportion of young and adult people have little knowledge of finance, risk, and financial products. [7]; [8]; [1]. Financial product offerings today are too complex and consumer circumstances are too diverse for simple rules [12]. They often do not even use the most basic concepts of savings and investment decisions. Only a negligible part of the population act at least according to simple rules [3]; [5].

Financial literacy of an individual should also be reflected in an elemental area such as the willingness to follow up the amount of bank charges. UniCredit Bank [11] has conducted a

¹⁸² University of Žilina – Faculty of Management Science and Informatics – Department of the Macro and Microeconomics, Univerzitná 8215/1,010 26 Žilina, Slovak Republic

¹⁸³ University of Žilina – Faculty of Management Science and Informatics – Department of the Mathematical Methods and Operations Research, Univerzitná 8215/1, 010 26 Žilina, Slovak Republic

¹⁸⁴ University of Pardubice, Faculty of Transport Engineering, Department of Transport Management, Marketing and Logistics, Studentská 95, 532 10 Pardubice 2, Czech Republic

survey in 2017 on how much Slovak residents pay within the current account. Research has shown that only less than a quarter has a free account. Furthermore, almost 33% of clients do not regularly check the amount of bank charges and 6% of clients do not even know what fees they pay. Age structure has not been detected. In another survey of 2015 on saving and lending to Slovaks and Czechs, they say that half of the households in both countries cannot save more than 100 euros a month. The entire quarter does not even save 70 € per month. A third of Slovaks and every fourth Czech do not even know exactly which financial obligations they exactly have.

In 2014 Standard and Poor's Ratings Services worked with Gallup, Inc., the World Bank Development Research Group, and the Global Financial Literacy Excellence Center at the George Washington University on the S&P Global FinLit Survey – the largest, most comprehensive global measurement of financial literacy. It probes knowledge of four basic financial concepts: risk diversification, inflation, numeracy, and interest compounding [9]. The selected results show the portion of adults that are financially literate in a given country: Denmark 71%, Sweden 71%, United Kingdom 67%, Germany 66%, Finland 63%, Czech Republic 58%, Belgium 55%, Hungary 54%, Austria 53%, France 52%, Spain 49%, Slovak Republic 48%, Greece 45%, Croatia 44%, Poland 42% and Italy 37%.

Ing. Zuzana Kozubíková, PhD., works as an assistant professor in the Department of macro- and microeconomics, where she reads lessons from "Corporate finance", "Capital and investment theory" and seminars from "Business economics", "Elementary economic theories" designed for study programs Informatics and Management. At the present, the author participates in two research projects VEGA. Author's research activities focus on the field of financial and investment decision-making and financial literacy-



3. METHODS AND DATA COLLECTION

Data was collected through a questionnaire survey. In our survey, we focused on the students of two faculties with similar origins at the former University of the transport and communications. The research questionnaires were addressed to the students of the technical fields of study, especially the computer science. Overall, we distributed 400 questionnaires among the students. After sorting the questionnaires and removing the questionnaires with malicious or incomplete responses, we obtained a sample of 313 questionnaires. This means that the response rate was 78.25 %.

The questions in our questionnaire can be divided into two parts. The first part collected certain personal data and respondents' attitudes towards financial literacy. As a basic feature of the relationship to financial literacy, we have chosen:

- self-evaluation of our own financial literacy by the respondents themselves,
- their perception of the importance of this competence,
- the way in which they make the decisions in the financial matters.

The second part of the questionnaire was designed to test the actual level of respondents' financial literacy. This part of the questionnaire consisted of thirteen multiple-choice questions, each having four options, only one of which was correct. Each question included the option for

students to say that they did not know or did not want to answer. Thematically, the questions could be divided into four categories:

- the time value of money,
- inflation perception,
- annuities and mortgages,
- basics of the investing.

4. RESULTS

Before analyzing the success of respondents in the practical questions of our questionnaire survey, we deal with the personality traits of the participants. The results of the self-assessment of financial literacy by the respondents themselves are shown in Table 1. It is easy to see that the majority of respondents evaluate themselves in average and above average financial literacy and only less than a quarter of them (23.96 %) self-critically admits of some minor or larger deficiencies.

<i>Self-assessment</i>	<i>Fully</i>	<i>Mostly</i>	<i>Average</i>	<i>Some deficit</i>	<i>Very little</i>	<i>Not at all</i>
<i>Percentage</i>	5.43 %	33.87 %	36.74 %	15.97 %	6.71 %	1.28 %

Table 1: Percentages of the respondents with respect to their self-assessment of the financial literacy. (Source: Own processing)

If we compare this self-assessment with the actual success rates quoted in Table 2, we observe a great contradiction. It turns out that up to 75 % of the participants in the research have achieved a success rate of 53.85 %, means approximately only one half of the correctly answered questions. Moreover, the best result was only 84.15 % what means, that nobody of the participants answered correctly all questions. This points to an important element in the mentality, which is a major overvaluation of one's own abilities.

<i>Quantile</i>	<i>0 %</i>	<i>25 %</i>	<i>50 %</i>	<i>75 %</i>	<i>100 %</i>
<i>Success rate</i>	0.00 %	30.77 %	46.15 %	53.85 %	84.61 %

Table 2: Quantiles of the success rate in the research sample. (Source: Own processing)

As the second significant personality characteristic, we evaluated the perception of the importance of financial literacy. The positive thing is that only about 4% of respondents consider it as little important, as can be seen in Table 3. Here we can also observe, that more than half of the participants have identified it as vital or very important.

<i>Importance perception</i>	<i>Vital</i>	<i>Very important</i>	<i>Important</i>	<i>Little important</i>
<i>Percentage</i>	15.65 %	41.85 %	38.34 %	4.15 %

Table 3: Percentages of the respondents with respect to their importance perception of the financial literacy. (Source: Own processing)

The third and final aspect of our personality analysis was the way respondents decide on financial issues. There dominates more than half ratio of those who consult the decision in the family circle. But notable is the high proportion of those who say they are always self-sufficient,

up to five times the number of those who feel fully financially literate. These ratios are summarized in Table 4.

<i>Way of the decision making</i>	<i>Self-sufficient</i>	<i>Family circle</i>	<i>With friends</i>	<i>Financial advisor</i>	<i>Advise in bank</i>
<i>Percentage</i>	28.75 %	51.12 %	1.92 %	9.58 %	8.63 %

Table 4: Percentages of the respondents with respect to their way of the financial decision making. (Source: Own processing)

A deeper analysis of personality traits in relation to financial literacy is obtained from two-way tables. Some interesting information we can read from Table 5. This table analyzes self-reflection in financial literacy at the same time as the decision-making process. For example, we see that only 13 out of 17 respondents that declare themselves as fully financially literate are actually deciding on their own. In contrast, up to 90 respondents said they always know how to decide. However, 12 of them appreciate their own literacy below average. Extreme is one participant who judged to be completely financially illiterate, but he believes he can always decide correctly on his own. Besides the two marginal categories according to self-assessment, there is predominant decision making in the family circle.

	<i>Fully</i>	<i>Mostly</i>	<i>Average</i>	<i>Some deficit</i>	<i>Very little</i>	<i>Not at all</i>
<i>Self-sufficient</i>	13	45	22	7	4	1
<i>Family circle</i>	3	44	67	33	12	1
<i>With friends</i>	0	1	1	4	0	0
<i>Financial advisor</i>	1	8	13	3	4	1
<i>Advise in bank</i>	0	8	12	3	3	1

Table 5: Two-way table comparing the self-assessment (columns) and way of decision making (rows). (Source: Own processing)

As we mentioned above, Table 2 lists all important empirical quantiles of the success rates distribution. We can analyze them in more detail when compared to personality traits. Figure 1 illustrates boxplots of performance by self-assessment and the perception of the importance of financial literacy. On the left side of Figure 1, we can see that the group evaluating as fully financial literate has achieved a significantly lower median of success than those who admit certain minor or larger deficiencies. Although whiskers of the graph show that the best performers belong to this group, it can be seen globally that the vast majority of this group has overestimated its abilities.

RNDr. Aleš Kozubík, PhD., graduated from the Masaryk University, Faculty of Sciences, specialization mathematical analysis. He has teaching experience from University of Economics in Bratislava, where he has read the lessons in mathematics. Actually, he is teaching mathematical analysis and probability theory and statistics at the Faculty of Management and Informatics, University of Žilina. His research is concerned with the actuarial science and insurance risk theory. He is a great propagator of the free open source software.



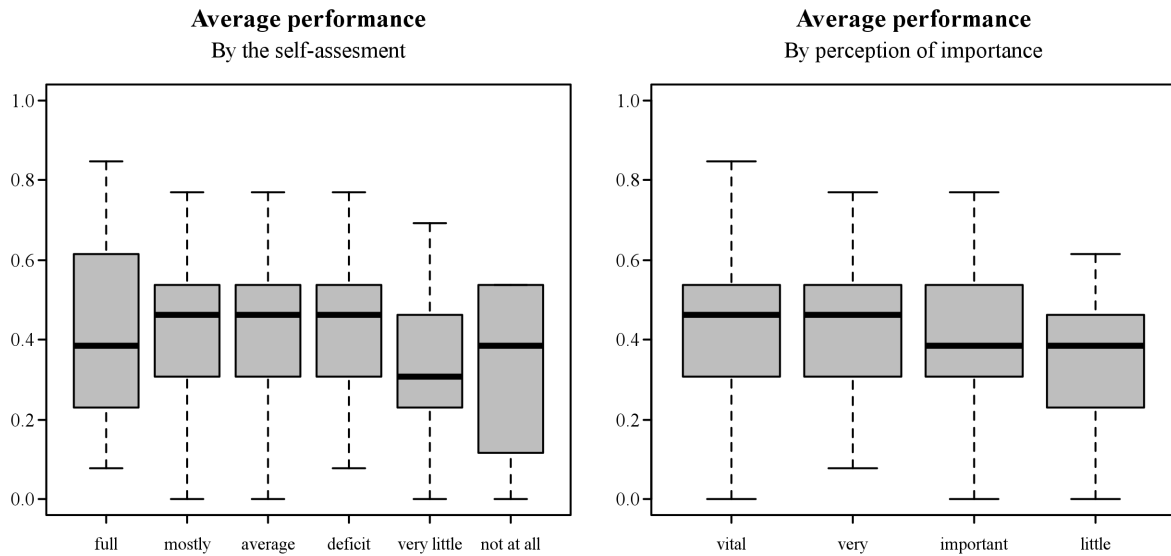


Figure 1: The boxplots of the average performances according to the self-assessment of the respondents (left-hand side) and according to the perception of the importance (right-hand side). (Source: Own processing)

On the right side of Figure 1, the boxplots of performances are displayed according to the perceived importance. Here one can easily see the declining trend in the medians, which confirms the fact that the performance of respondents is decreasing proportionally with the decrease in the level of perception of the importance of financial literacy.

Let us now look closer to the success rate of the respondents in the different thematic categories. The resulting values of the sample characteristics of these success rates are summarized in Table 6. The samples are characterized by the mean value and the coefficient of variation, which describes the variability of the results.

	<i>ALL</i>	<i>TVI</i>	<i>ANM</i>	<i>INV</i>
<i>Mean</i>	41.95 %	35.02 %	53.29%	34.61%
<i>Coefficient of variation</i>	39.11 %	57.71 %	47.59 %	74.27 %

Table 6: The sample characteristics of the success rates according to the thematic categories.

ALL – all categories together, TVI – time value and inflation, ANM – annuities and mortgaging, INV – basics of the investing. (Source: Own processing)

It is worth highlighting the interesting fact that significantly better results were achieved in the annuity and mortgages categories than in the others. This fact is surprising because this issue is computationally the most difficult. The relatively high value of the variation coefficient for the other two categories confirms that the respondents tend only to guess in the case of the seemingly simple tasks.

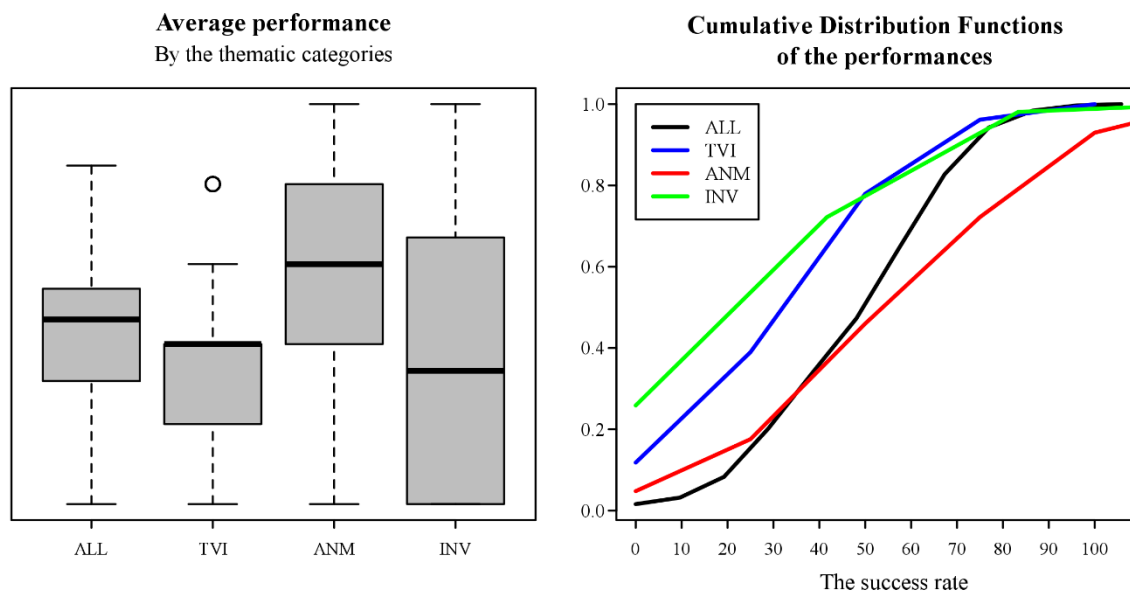


Figure 2: The boxplots (in the left) of the success rates by the thematic categories and the graphs of the cumulative distribution functions (in the right) of the success rates with respect to the thematic categories. Here ALL – all categories together, TVI – time value and inflation, ANM – annuities and mortgaging, INV – basics of the investing. (Source: Own processing)

This result is also visible from the boxplots in the left-hand side of Figure 2. Here we see that the median of success rates in the category of annuities and mortgages significantly exceeds the medians of the other categories. We can even notice that this median is higher than the third quartile of overall success. And not just that. It also exceeds the best results achieved in the remaining two thematic categories. In the right-hand side of Figure 2, we present the cumulative distribution functions of the success rates. It is clear, that the graph of the cumulative distribution function of the performance in the category of annuities and mortgages is notable moved to the right. It signals the stochastically predominance in this thematic category.

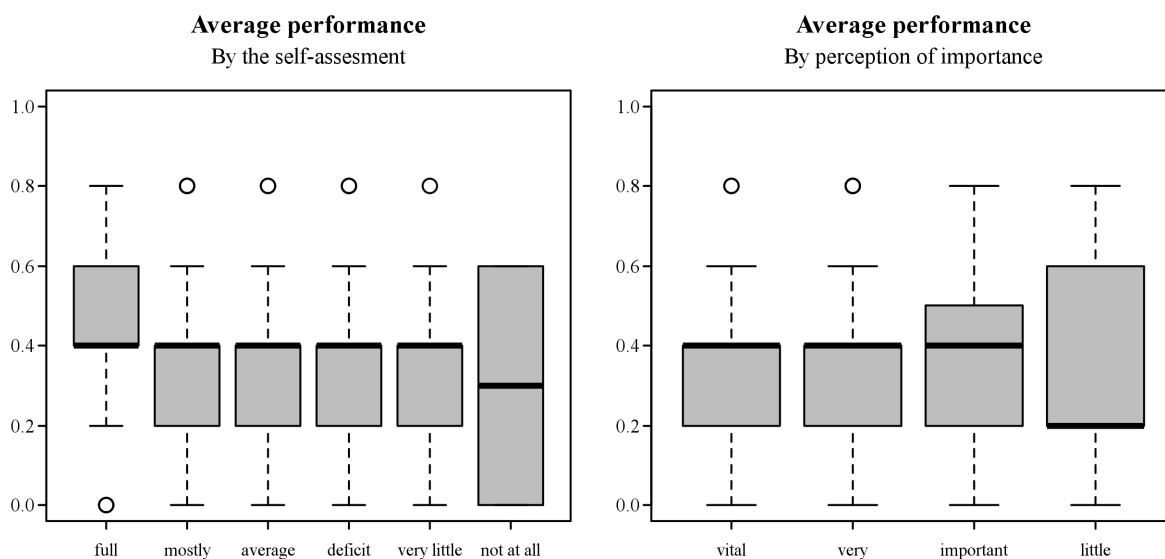


Figure 3: The boxplots of the average performances according to the self-assessment of the respondents (left-hand side) and according to the perception of the importance (right-hand side) in the category time value and inflation. (Source: Own processing)

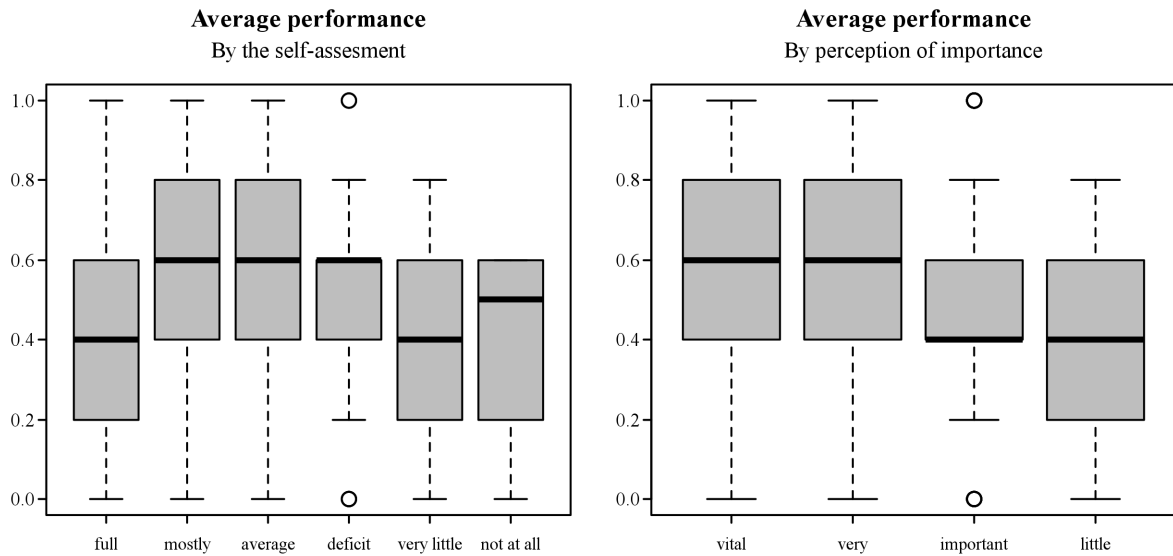


Figure 4: The boxplots of the average performances according to the self-assessment of the respondents (left-hand side) and according to the perception of the importance (right-hand side) in the category annuities and mortgaging. (Source: Own processing)

In Figures 3 – 5, we illustrate the boxplots of the respondents' success rate in each of the thematic categories, separated according to the personal characteristics. Even in this segmentation, we can observe the same trends as in Figure 1, where the summaries are shown for all the categories together. We can observe that the trend of a certain overrating of own abilities persists in those who declare themselves to be fully literate. At the same time, it is also confirmed the fact, that respondents attributing sufficient importance to financial literacy achieve better results than others.

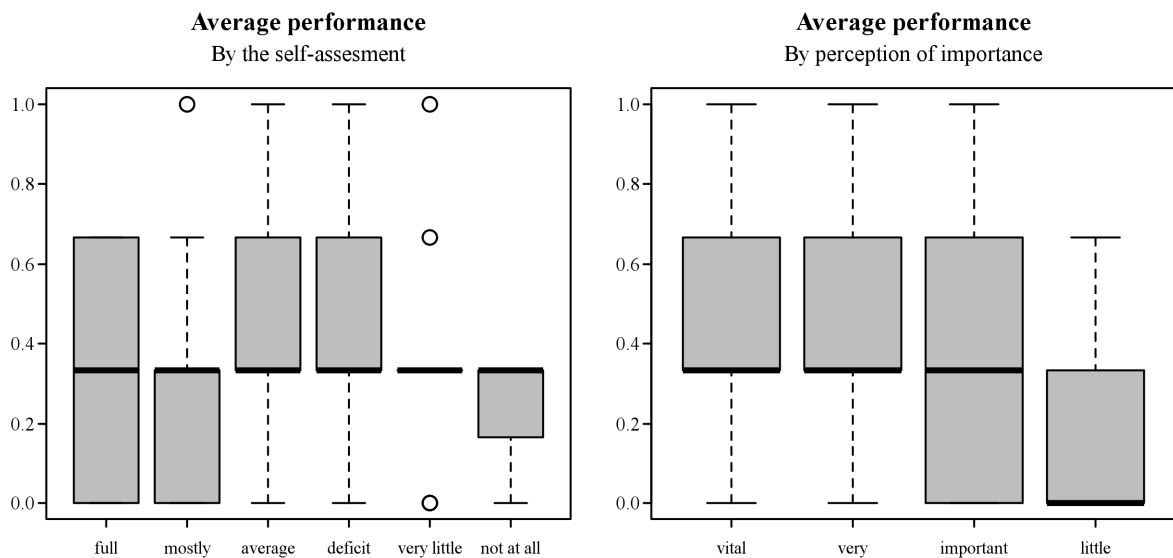


Figure 5: The boxplots of the average performances according to the self-assessment of the respondents (left-hand side) and according to the perception of the importance (right-hand side) in the category basics of investments. (Source: Own processing)

5. CONCLUSION

Research has shown that respondents overestimate their knowledge of financial literacy. What is seemingly easy, they underestimate. Another interesting fact is that significantly better results were achieved in the categories of annuity and mortgages than in others. This is surprising because these tasks are the most difficult to compute. Paradoxically, part of the respondents themselves felt they had shortcomings, but they still felt competent to make their own decisions.

Ing. Jiří Nožička, PhD.

The author focuses on macroeconomics and microeconomics. Within the historical development of economic systems, he searches for similarities with current developments in society and predicts possible development of current conditions.



These research findings show that more attention needs to be paid to the underlying - time value of money, interest rate and inflation. An appropriately chosen learning method plays an important role. "Educational methods and innovations (in education) are a key factor as they allow students to change information more quickly into knowledge" [10]. Financial literacy is part of the knowledge and skills of a college graduate. „The graduate will be applied to the labour market if she/he has knowledge of several disciplines and the ability to view the solution to the problems in the enterprise in terms of technology and economy as well“ [4].

REFERENCES

- [1] Almenberg, J., & Säve-Söderbergh, J. (2011). *Financial Literacy and Retirement Planning in Sweden* (CeRP Working Papers No. 112). Center for Research on Pensions and Welfare Policies, Turin (Italy). Retrieved Jun 2, 2017 from <https://ideas.repec.org/p/crp/wpaper/112.html>
- [2] Behrman, J, Mitchell, O.S., Soo, C., Bravo, D. (2012). *Financial Literacy, Schooling, and Wealth Accumulation*. American Economic Review P&P. 102(3), pp. 300–304.
- [3] Campbell, J., & Mankiw, N. G. (1990). *Permanent Income, Current Income, and Consumption* (Scholarly Articles). Harvard University Department of Economics. Retrieved Jun 3, 2017 from <http://econpapers.repec.org/paper/hrvfaseco/3353762.htm>
- [4] Ďurišová, M., Kucharčíková, A. (2016). *The Issue of Costs in Teaching Economic Courses in Informatics*. The Online Journal of Science and Technology – January 2016, Vol. 61 Issue 1, pp. 77–81.
- [5] Hall, R. E., & Mishkin, F. S. (1982). *The Sensitivity of Consumption to Transitory Income: Estimates from Panel Data on Households*. *Econometrica*, 50(2), 461. <https://doi.org/10.2307/1912638>
- [6] Kozubíková, Z. (2015). *Financial literacy as an important objective of the education in economics*. In: Knowledge for Market Use 2015: women in business in the past and present. Olomouc, IL: Societas Scientiarum Olomucensis II, pp. 429–439.
- [7] Lusardi, A., & Mitchell, O. S. (2011). *Financial literacy around the world: an overview*. *Journal of Pension Economics and Finance*, 10(04), pp.497–508. <https://doi.org/10.1017/S1474747211000448>
- [8] Mandell, L.(2007) *Financial literacy of high school students*. In JJ Xiao (Ed.), *Handbook of Consumer Finance Research*, New York, NY: Springer, 2007, pp. 163–183.
- [9] S&P (2014). *Global FinLit Survey*. Retrieved Jun 2, 2017 from <http://gflec.org/initiatives/sp-global-finlit-survey/>

- [10] Tokarčíková, E. (2013). *Teaching and Learning Economics - Methods and Innovations*. In: Knowledge for Market Use, Olomouc, IL: Societas Scietiarum Olomucensis II, pp.310–315.
- [11] UniCredit Bank (2017). Retrieved Jun 2, 2017 from <https://www.unicreditbank.sk/sk/o-banke/tlacove-centrum/tlacove-spravy.html>
- [12] Willis, L. E. (2011). *The Financial Education Fallacy*. *American Economic Review*, 101(3), pp. 429–434. <https://doi.org/10.1257/aer.101.3.429>

MANAGEMENT DECISIONS IN A COMPANY IN CRISIS IN THE SLOVAK REPUBLIC

Lucia Ondrušová¹⁸⁵

Abstract: *In the Slovak Republic, since 2016, capital companies have to identify, on the basis of accounting data, the ratio of equity and liabilities to determine whether or not the company is in crisis. Establishing a company in crisis is a reason to avoid company tunneling and to meet commitments to creditors who are not linked to a business relationship. Many businesses have obligations, in particular, to shareholders or other dependents for loans or similar transactions that increase the amount of their liabilities, which may lead to a crisis. A solution to prevent a company from entering the crisis is to meet these obligations with sufficient funds of the company. In the absence of a company's money, the company's debt relief or the capitalization of liabilities, thereby increasing the company's own capital and reducing the company's entry into the crisis. In the absence of the capitalization of the liabilities, all loans and similar transactions are treated as payments that replace own funds and can not be paid to the investor. As managers have to make decisions about how to settle liabilities, not only to shareholders and dependents, but also to actual creditors who have provided services or sold goods or materials. Managers have the option of acquiring funds from their partners by adding additional capital, acquiring money from their partners free of charge or capitalizing on their obligations. When looking at a company's solution to the crisis, based on data from company accounts, the most common business solution was the capitalization of liabilities, which means lowering liabilities and increasing the company's equity. At the same time, the loan granted by the company to the shareholder may, after the threat of the company's entry into the crisis, be terminated, the company may pay to the shareholder.*

A company in crisis is a problem that is new in the Slovak Republic, and it is necessary that companies apply it and apply it in the conduct of its business activities in order to prevent problems in the bankruptcy and liquidation of the company. In examining the issue, we were based on legislation regulating the issue of a company in crisis. In addition to legislation, we also went on to draw on the specialist articles that related to the issue.

To address the issue of the company in crisis, we first studied the terminology under review. We then used the analysis and selection method to draw conclusions.

Key words: *capital company, crisis, financial statement, ratio of equity and liabilities, shareholders*

1. INTRODUCTION

The establishment of a company in crisis in the Slovak Republic was a response to problems related to the process of bankruptcy and restructuring. The main reason was to prevent damage to creditors in bankruptcy and restructuring proceedings and to strengthen the responsibility for the business of individual companies. The partners are to solve the problem of the company's lack of funds by increasing the registered capital of the company or, other equity and not through the provision of real or fictitious loans through which they can

¹⁸⁵ University of Economics in Bratislava, Faculty of Economic Informatics, Department of Accountancy and Auditing, Dolnozemska cesta 1/b, 852 35 Bratislava, Slovak republic

prepare a position to control the bankruptcy or restructuring process at the expense of the actual creditors who have actually provided the services, sold the goods, the material. At the same time, it is necessary to address problems of lack of financial resources, taking into account the requirements of entrepreneurial ethics, which assesses the economic activities of an enterprise based on moral values where the primary objective is not to maximize profits but to focus on long-term development and prosperity [1].

2. COMPANY IN CRISIS

In the Slovak Republic, some capital companies need to find out whether their company is in crisis or is not in crisis since 2016. These are commercial companies, such as a limited liability company, a joint stock company, a simple stock company, and a limited partnership whose complement is not a natural person. The bank, the electronic money institution, the insurance company, the reinsurance company, the health insurance company, the asset management company, the securities broker, the stock exchange and the central securities depository, even if they are considered as capital companies, cannot be defined as a company in crisis because of their impact on the public interests of the State.

The company in crisis is defined in Act no. 513/1991 Coll. Commercial Code as amended (hereinafter referred to as the Commercial Code). Under Section 67a of the Commercial Code, a company in crisis is a company that is in decline or its threatening decline.

Decline is governed by Act No. 7/2005 Coll. on Bankruptcy and Restructuring and on Amendments to Certain Laws, as amended, and the debtor's insolvency or extension. A company is in a state of insolvency if it is unable to pay at least two financial obligations to more than one creditor for 30 days after the due date. A company is deemed to be prolonged if it has more than one creditor and the value of its liabilities exceeds the value of its assets while at the same time it reaches a negative equity. Both the value of the liabilities

Lucia Ondrušová

WORK EXPERIENCE

Dates: December 2008 – present

Occupation or position held: Senior lecturer

Name and address of employer: Economic University, Dolnozemska cesta 1, 852 35 Bratislava, Slovakia, Faculty of Business Informatics, Department of Accountancy and Auditing

Dates: December 2006 – present

Occupation or position held: Accountant, Project manager

Name and address of employer: Association for the economic prosperity of Zahorie, Hlboka 35, 900 55 Lozorno

Dates: September 2005 – September 2008

Occupation or position held: Doctoral

Name and address of employer: Economic University, Dolnozemska cesta 1, 852 35 Bratislava, Slovakia, Faculty of Business Informatics, Department of Accountancy and Auditing

Dates: September 2005 – present

Occupation or position held: Vice-president of Association

Name and address of employer: Association for the Development of Regions of Slovakia in the European area, 017 05 Povazska Tepla 494/2

Dates: Summer 2002, 2003

Occupation or position held: administrative work

Name and address of employer: Princess Alaska Tours, 2825 Second Avenue, Suite 400, Seattle, WA 981 21

Dates: 2002 – present

Name and address of employer: Association for the economic prosperity of Slovakia, Jasovska 8, 851 07 Bratislava, Slovakia

Dates: August 1996 – February 2002

Name and address of employer: Wholesale, Retail business, Real – Ondrus, Krasnohorska 1-3, Bratislava, Slovakia

Dates: 1998 - 2000

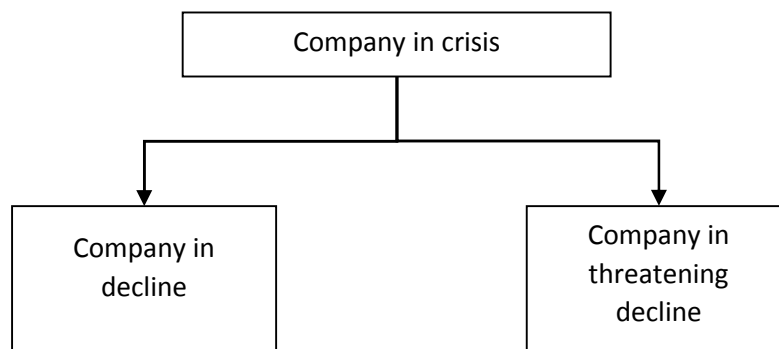
Name and address of employer: Sport club, TJ Elan Petržalka, Cernisevskeho 10, 832 04 Bratislava, Slovakia

and the value of the assets are recorded in the company's accounts or, respectively, according to an expert opinion, which is preferred to accounting.

Threatening decline is understood as a low ratio of own funds (equity) and foreign sources (liabilities). The ratio of equity and liabilities is set out in the Commercial Code separately for the years 2016, 2017 and 2018 as follows:

- year 2016: ratio 4: 100,
- year 2017: ratio 6:100,
- year 2018: ratio 8:100.

The amount of equity and liabilities is determined from the accounting of the company. If the bookkeeping was not done correctly, it is based on the assumed status that would be if the bookkeeping was conducted correctly.



Scheme 1: Company in crisis across the Commercial Code

3. PREVENTING THE COMPANY'S THREATENING DECLINE

Since managers' judgment of whether a company is in crisis or not based on accounting or of the company's financial statements, it is important that the books are kept correctly and provide a true and fair view of the facts that are the subject of the accounting. Decline can only be ascertained from detailed accounting statements like, for example from the commitment book, inventory of liabilities. The company's threatening decline can be traced back to the company's accounts, in addition to accounting. The financial statements are in accordance with § 17 of Act no. 431/2002 Coll. on accounting, as amended (hereinafter referred to as the Accounting Act) a structured presentation of facts that are the subject of accounting provided to persons using this information - users. The objective of the financial statements is to provide information about the financial statements, performance and changes in the entity's financial statements [4]. The financial statements provide an overview of the amount of equity and liabilities, thus not only managers but also economically-identifiable individuals are able to ascertain their relationship and to assess whether the company is in a threatening decline. This ratio can be seen from the financial statements, which must be disclosed by the companies in the Slovak Republic in the register of financial statements.

Equity is the difference between assets and liabilities, respectively in other words, equity is constituted by equity, capital funds, profits, valuation differences transferred to previous years' operating results and results of management in approval. According to the Act on Accounting, the liability is subject to an obligation of a trading company, which is the result of past events, is likely to reduce economic benefits in the future (directly or indirectly reducing the funds of the company) and the commercial company can reliably appreciate this liability [3].

Addressing threatening decline is the observance of the established ratio of equity and liabilities. If the ratio is lower than the rate set by the Commercial Code, a company several options to deal with the situation and depending on the actual structure of equity and liabilities.

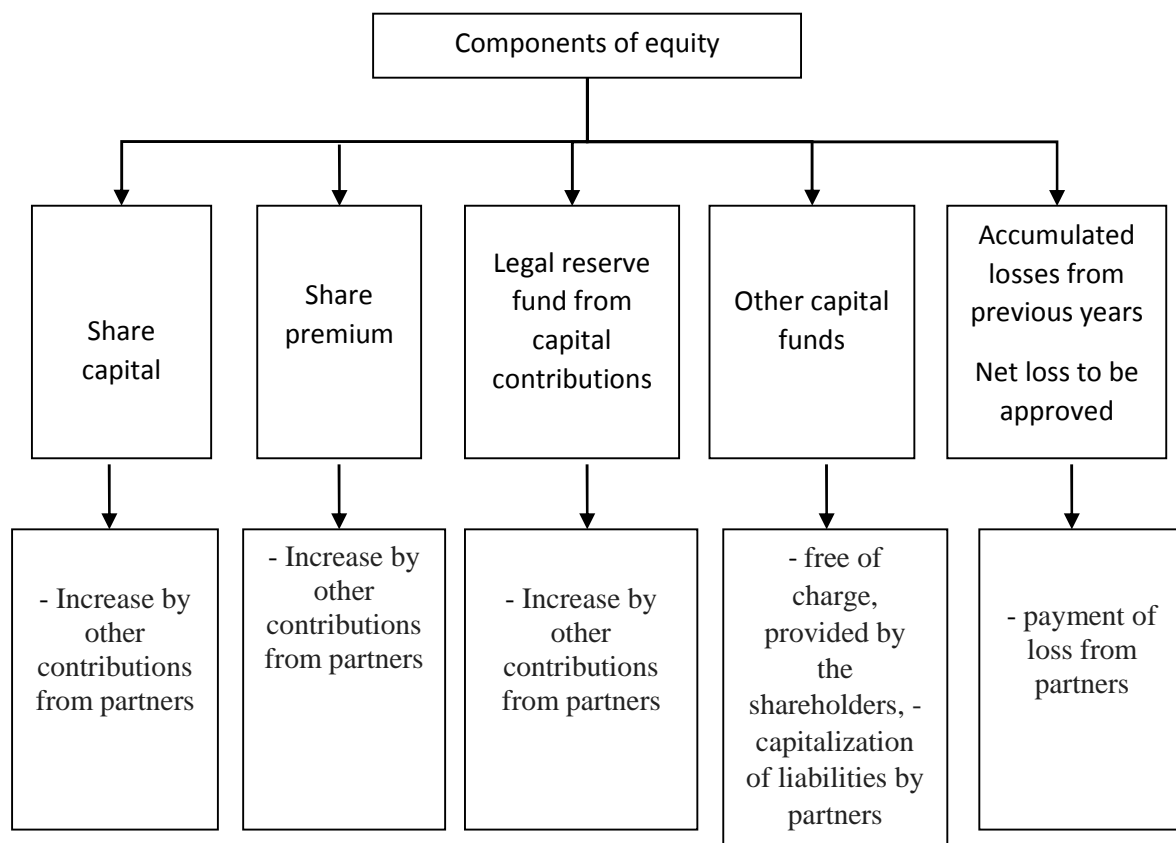
From the point of view of a company in threatening decline, it is important to monitor the structure of equity. The basic constituent of capital companies is the capital, which must be at least the amount that is set for that type of business company by the Commercial Code. In the case of a limited liability company, the minimum share capital is EUR 5,000, in the case of a joint stock company EUR 25,000, in a simple company per share, the capital stock is at least EUR 1, and the limited partnership must enter a minimum of EUR 250 in the limited partnership [2].

As can be seen from the minimum capital stock of a capital company, a simple company per share and a limited partnership, the amount is very low, which can cause a problem in calculating the share of equity and liabilities, which is an indicator of the threatening decline of a company. In these companies, a higher capital value than the minimum amount set by the Commercial Code can be considered for the prevention of threatening decline.

Regarding equity, managers may also propose to raise capital with a higher emission rate than the nominal value of shares. In this case, the company will increase not only equity, but may also raise equity through the share premium. The emission premium represents the difference between the issue price and the nominal value of the shares.

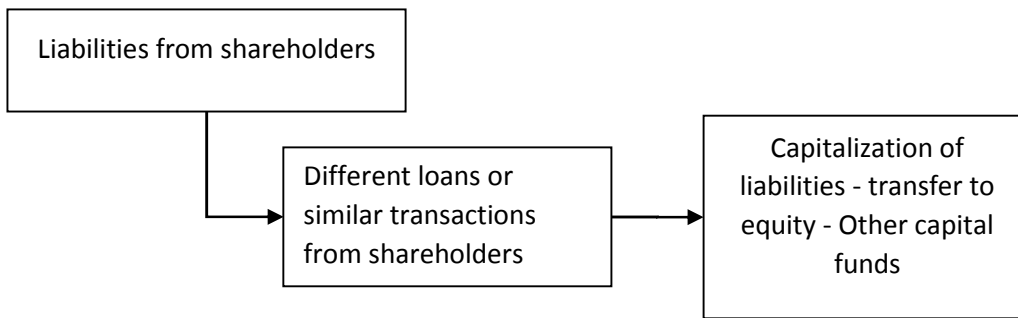
A further component of equity, which could help maintain the equity and liabilities ratio at the level set by the Commercial Code, is equity funds. In commercial companies, a capital reserve fund is a legal reserve fund from capital contributions, which is only to be formed by a joint-stock company and a simple company per share, and at the time of its creation, at least 10% of the share capital. Other companies are under no obligation to create. Significant account of capital funds is the Other Capital Funds account, on which the entities account for the assets received free of charge from the company's shareholder, regardless of whether it is a monetary or non-monetary asset. This account does not have a well-defined use, and in case of its creation it is possible to increase the amount of equity and, at the same time, after the threatening decline has ceased, the company may return the asset received free of charge to the shareholder. At the same time, such performance is not subject to corporation tax [5].

The results of previous years' operating results and the result of the management in the approval may be either a profit or loss of a trading company. If a company earns profit, it increases the amount of equity and has a good impact on the calculation of the threatening decline of the company. At the same time, managers need to ensure that they remain in the company and that they are not paid in full to the shareholders. In the case of a loss, it is important that the height itself does not affect the total amount of equity, which would make the value of equity even negative. If the value of a company's equity is negative, the company automatically gets into the crisis as it becomes prolonged. Managers can solve the company's loss management by multiple options, by arranging from a Legal reserve fund, from profits from past years, or by the payment of losses from shareholders. When arranging a loss from the legal reserve fund or from profits from previous years, respectively other components of equity are only tilted between individual equity items, thus not changing their equity. In order to increase the amount of equity, it is appropriate to pay the loss to the shareholders, thereby increasing the value of equity.



Scheme 2: Components of equity, the increase of which affects the ratio of equity and liabilities

In addition to investigating and increasing equity, companies must also track the size and structure of their liabilities. The ideal condition is that the value of the liabilities is lower than the value of the company's assets. In case the company has liabilities, it is important not only their height but also the structure. It is important that managers differentiate or liabilities are to creditors who are not affiliated with a company or vice versa are in relation to a company (eg. Partner, shareholder, member of the statutory body, a silent partner or a person close to them (hereinafter collectively referred as companions of the company)). Liabilities to such persons, such as loans and similar transactions, in the event of threatening decline, are considered to be payments replacing the own funds of its financing. Companies can also capitalize on such liabilities. This means that the company's partners forgive the company's liabilities for loans or similar transactions, and the company transfers them from liabilities to equity, namely under Other capital funds. This capitalization of liabilities will reduce the amount of the company's liabilities and will increase the amount of equity, which can provide an improvement in the ratio of equity and liabilities.



Scheme 3: Capitalization of liabilities from shareholders

4. CONCLUSION

In 2016, capital companies in the Slovak Republic have to find out whether they are or are not in crisis. Establishing a company in crisis was a response to bankruptcy and restructuring problems in order to avoid bankruptcy and restructuring of creditors and to strengthen the corporate responsibility of individual company members. The solution to prevent the entry of the company into crisis by the partners to ensure additional resources mainly in the form of a capital increase, investment in other components of equity and the creation of various funds that will be used to cover the liabilities to creditors. Partners should prefer deposits into individual equity before lending, borrowing, and similar performance so that the company does not get into the crisis and consequently do not create a better position in the event of liquidation and bankruptcy.

If a company chooses to provide the company with a loan or other similar benefit, it may decide to make such a loan, capitalize the loan and transfer it to equity in the form of other capital funds. It is advantageous for the shareholders because they increase their equity, reduce their liabilities, thereby improving the ratio of equity and liabilities, and at the same time, after a certain time when the risk of threatening decline goes away, they can pay the amount provided to the company, because the legal standard does not regulate the use of other capital funds. However, if a shareholders wants to provide the company with credit, loan or other similarity, despite the disadvantages, he must note that such performance will be treated as a substitute for own funds and that the partner will not be able to pay it if he is in the company continue to face of threatening decline.

From an entity perspective, preventing a company from entering the crisis is only on its own operation, repaying its obligations to creditors, pursuing business with profits, and resolving companies that will not affect the company by going into liquidation or bankruptcy. Partners have a choice of ways to prevent a company's threatening decline and thus put companies in a crisis. The choice of the most appropriate option depends on the functioning of the business company and on the access of managers as well as the partners themselves. In our opinion, the best option is to provide funds free of charge to the Other capital funds and, if the shareholder has already provided the company with a loan or other similar transaction, to settle this by capitalizing on such liabilities. The better the ratio of equity and the company's liabilities, and at the same time after the failure of the threatening decline, the partner can repay the money provided.

REFERENCES

- [1] Mateášová, M. – Meluchová, J. (2015). *The ethical aspect of the business in insurance in the conditions of a globalized financial market*. In *Financial management of firms and financial institutions* [elektronický zdroj] : proceedings : 10th international scientific conference : 7th - 8th september 2015, Ostrava, Czech Republic: VŠB - Technical university of Ostrava, 2015. pp 783 - 790.
- [2] Máziková, K. (2010). *Zmeny vlastníckych transakcií v obchodných spoločnostiach z pohľadu účtovníctva*. Bratislava: Iura Edition.
- [3] Pakšiová, R. - Janhuba, M. (2012). *Teória účtovníctva v kontexte svetového vývoja*. Bratislava: Iura Edition.
- [4] Parajka, B. (2016). *Micro accounting entities in The Slovak Republic - a year after an introduction*. Strategic Management: international Journal of Strategic Management and Decision Support Systems in Strategic Management, 21(3), 43-48.
- [5] Vašeková, M. (2016). *Contributions to capital and loans from shareholders in terms of commercial law, accounting and tax legislation in Slovakia*. In *Účetníctví a auditing v procesu světové harmonizace : sborník z 16. mezinárodní vědecké konference : Vranov nad Dyjí, Česko, 13. - 15. září 2016, Praha : Vysoká škola ekonomická v Praze, pp 195-199.*
- [6] Act no. 513/1991 Coll. Commercial Code as amended.
- [7] Act no. 431/2002 Coll. on accounting, as amended.
- [8] Act No. 7/2005 Coll. on Bankruptcy and Restructuring and on Amendments to Certain Laws, as amended.

PROJECT RESEARCH FUNDING IN SLOVAKIA

Alexandra Lešková¹⁸⁶
Miroslav Šipikal¹⁸⁷

Abstract: *Public research plays a very important role in innovation systems. In many countries is performed by the public institutions like universities. There are more ways of funding research and finding the optimal one requires constant watching and comparing models already used in practice. This paper analyses the support of Slovak universities and their faculties from three sources – two national agencies (VEGA and APVV) and European Structural and Investment Funds, where two operational programs were set up for universities (OP Education and OP Research and Development). The aim of the paper is to compare the reallocation of different sources and identify possible changes of faculties research outcomes. The study is conducted on 18 public universities and their 100 faculties and analyses the reallocation of support since 2007 to 2015, when universities had for the first time in addition to national resources the whole programming period for funding their activities from EU financial sources. While the aiming of VEGA and APVV was very similar to each other even in the fields of science, EU funds led to different reallocation. OP Research and Development focused mostly on technical and medical fields as the result of aiming to support research or build the infrastructure on which these fields are intensive. On the other hand, reallocation of sources from OP Education seemed to be the least concentrated and with an emphasis on popularizing of science focused besides the technical fields on social or philosophical sciences. However, applying the quality indicator measured by the accreditation coefficients given to faculties for their research activities every 6 years (most recently in 2015), the project research funding has led to concentration of sources to better actors. Additionally, Slovakia's funding model of universities is based on performance indicators. This leads, thought, to the situation that the financial sources were concentrated in few best performers. On the other hand, watching the changes in accreditation coefficients from 2009, the study highlights the shift in the quality of outcomes. A year 2015 brought additional 17% of universities among those having accreditation coefficient on level A or A- and only 10% of faculties received worse indicators. Project research funding could lead to putting more emphasis on outcomes and quality of the research on the faculties.*

Key words: *universities, project research funding, public support, cohesion policy*

1. INTRODUCTION

Public research plays a very important role in innovation systems by ensuring new knowledge. It is primarily funded by public money and carried out by research institutions. The fundamental justification for government support of research is given by the classical market failure argument claiming that the market does not provide sufficient incentives for private investment in research [1]. Investment in research and development (R&D) leads to an output – the knowledge of how to make new goods and services. A firm that came with new knowledge can

¹⁸⁶ Faculty of National Economy, University of Economics in Bratislava, Dolnozemska cesta 1, 852 35 Bratislava, Slovakia

¹⁸⁷ Faculty of National Economy, University of Economics in Bratislava, Dolnozemska cesta 1, 852 35 Bratislava, Slovakia

hardly keep it for itself in secret, therefore, the knowledge might be used by another firms. The returns of the investment cannot be appropriated by the firm undertaking this investment. Hence the firm is more reluctant to invest. Additionally, the utility of this knowledge is higher for a whole society than just for a firm, therefore, the argument says the research should be complemented by a public support. This argument thought has been developed, modified and extended in many ways [1], [2]. Public research can be in addition led to meet specific needs of national interests. In many OECD countries are as main performers of public research considered universities [1]. We agree then that the government funding is an important source for R&D funding and universities may play a key role. Let's now see what kind of support can R&D institutions, like universities, obtain to conduct research.

There are several ways how to classify funding models for university research. The sources can be divided into internal including governmental core funding and university assets and external composed of public project funding or grants provided by public funding agencies and contracts with public administration [3]. We can also consider it as either institutional funding or competitive project mechanism. Institutional funding, so-called block grants, is the traditional funding instrument for money allocation which considers various criteria like performance indicators or budget negotiations. Supported institutions are in this case provided with stable funding over the long term and get a certain degree of autonomy in research as well [1]. The system can increase stability of organization by covering the salaries and basic infrastructure expenditures [3]. Researchers can develop and express their potential in ways of their own choosing and even the unknown quality performers get a chance to conduct research. On the other hand, it can bring a sensitivity to changes in the allocation mechanisms and lead to inefficiency [3], [4]. Another way of R&D funding is to introduce the competitive R&D project grants. This instrument is based on competitiveness of researchers from research universities and public research institutions. The advantage of the latter lies in putting more emphasis on outcomes and quality of the research because if money is given to the best performers, it should end up by producing better results. It even creates a general incentive to achieve better results and become competitive [1], [3]. Although this selective funding approach is efficient in the short term, the long-term consequences for society could be negative. It prevents new scientists with bright ideas working in less esteemed institutions from developing their potential [4]. Policy makers must deal with finding the best strategy that ensures an efficient allocation of public funding. Some countries put more emphasis on competitive funding (Belgium, Portugal, Japan) and some on performance-based funding (Czech Republic, Greece, Slovakia) [1]. Countries like The Netherlands, Germany, Norway, Denmark, Sweden, Finland, UK or even Australia combine the funding models. The differences can be found then in the shares of sources and responsible institutions [3]. But combining the models may cause that due to competitive character the grants will be allocated towards the top universities and these also receive the largest share of money by reaching the best values of indicators. It though increases concentration of resources. On the other hand, more sources of

Alexandra Lešková is a Phd. student at the Department of Public Administration and Regional Development, Faculty of National Economy at the University of Economics in Bratislava. She obtained her master's degree at the same department. Alexandra is currently in her 2nd year of studies and in her thesis pays attention to Evaluating the support of universities from cohesion policy. She is also interested in studies handling the role of universities in regional development.



funding may help to offset the danger of scientific sclerosis in established ideas set by agency in monopsony position [4].

From the European Commission viewpoint is institutional funding with a competitive element an answer – e. g. conducting an ex post assessment of the output and performance of universities [5], [6]. This approach can lead to improvements in research performance by selecting the best research groups, promoting research themes and cooperation and competition among the researchers [7]. But even if all countries introduce legislative reforms and include recommended model, the efficiency and performance effects will not be the same due to the differences in the quality levels of public research systems and of national research performers [8].

As we have shown, there are different types of R&D funding. In order to find the optimal model for a country, it is necessary to watch and compare the models that are already used in practice. In case of Slovakia, [9] have already paid attention to the issue of financing universities from another possible sources based on competitive element provided by the European Union and highlighted its role and reallocation in less developed regions. Different types of universities funding in Slovakia have been compared in another study [10], where authors focused on reallocation of sources from the state agencies and EU structural funds which are based on competitive project mechanism and the sources of the Ministry of Education within the performance-based model. The study concludes that there are indeed differences in distribution of the financial sources - mainly in the structural funds, and even in case of similar schemes of state agencies - the concentration of support distinguishes from each other.

This paper compares the reallocation of sources from national agencies and European Structural and Investment Funds, where two operational programmes were set up for universities. Study goes deeper comparing to previous ones and analyses the distribution of support on faculty level of universities. Moreover, study identifies possible changes in faculty research outcomes by comparing accreditation coefficients given to faculties every six years, recently in 2015. This allows to see changes in their performance.

2. RESEARCH AND DEVELOPMENT FUNDING MODEL IN SLOVAKIA

Slovak funding model is based on performance indicators. However, universities have also an option to propose research projects from public agencies. The Ministry of Education, Science, Research and Sport of the Slovak Republic (Ministry of Education) provides a financial support to researchers through four existing agencies: the Scientific Grant Agency (VEGA), the Cultural and Educational Agency (KEGA), the Slovak Research and Development Agency (APVV) and the Research Agency. VEGA is an internal grant system for the education sector and Slovak Academy of Science focusing on science while KEGA supports applied research in the fields of education and creative and performing arts. APVV focuses on basic and applied R&D and techniques carried out by the public sector, the universities, the business sector and non-profit sector within the Agency's programs. Recipients of funds are public, state, private universities and colleges, government and business sector R&D and individuals conducting R&D within the meaning of the trade law. Research agency fulfils the role of an intermediary authority for operational programs of Education and Research and Development (www.minedu.sk).

Among national agencies, VEGA and APVV can be thanks to their focusing considered as bodies stimulating most of the universities to be more competitive. They both fund projects of

the science and technology fields from the sources of the State Budget, what makes them indeed similar to each other. APVV is a non-profit organization which revenues and expenditures are connected to the state budget through the budget category of the Ministry of Education. The Agency has been established on base of the Act of the National Council and provides funds for implementations: R&D projects in all fields of science and technology, projects within Agency's programs and projects under international agreements on scientific and technological cooperation projects within international programs and initiatives in the field of research and development including costs of their preparations. The Agency's programs are proposed by Minister of Education and adopted by the government. The second body that focuses on funding R&D in the Slovak Republic - VEGA is a joint advisory body of the Minister of Education, and an auxiliary body of the presidium of the Slovak Academy of Sciences for projects selected for funding from institutional finance resources under two sub-chapters of the State Budget: the university-based science and technology, and the Slovak Academy of Science. VEGA is an advisory body in field of implementation of science and technology policies, financing basic research and evaluation of research projects. Both these agencies operate on the same bases when all researchers interested in funding must wait until the call for project proposals is made and then propose a project. All projects are subsequently evaluated by commission and the best ones receive a financial support determined by the agencies [11], [12].

Funds from EU policy represented the most significant source from project funding for Slovak universities. As an intermediate body in Slovakia was for 2007 – 2013 established the Research agency operating under the Ministry of Education for the operational programs. It is a state budgetary organization and a legal person connected to the state budget. Two operational programs were set up to fund educational and R&D processes. OP Education focused on popularizing science and adaptation of higher education to the needs of knowledge based on society and the labour market i.e. by supporting bachelor studies as full-fledged higher education studies. OP Research and Development aimed to modernize and make more effective the system of R&D by building and modernizing infrastructure, supporting knowledge and technology transfer or participating of researchers on joint research projects [13].

Since these financial sources were given to universities as additional to their funding, they might be considered as the case of competitive funding model. Let's now found out how the allocation of the funds looked like. Did the support concentrate in certain universities or faculties? Was the allocation the same within the disciplines? Were there any differences in agencies' targeting comparing to Structural Funds? And finally, did the research outcomes of the faculties change after the support? This paper analyses on 18 public universities and their 100 faculties how the support from national agencies and Research agency was allocated and identifies possible changes of faculty research outcomes.

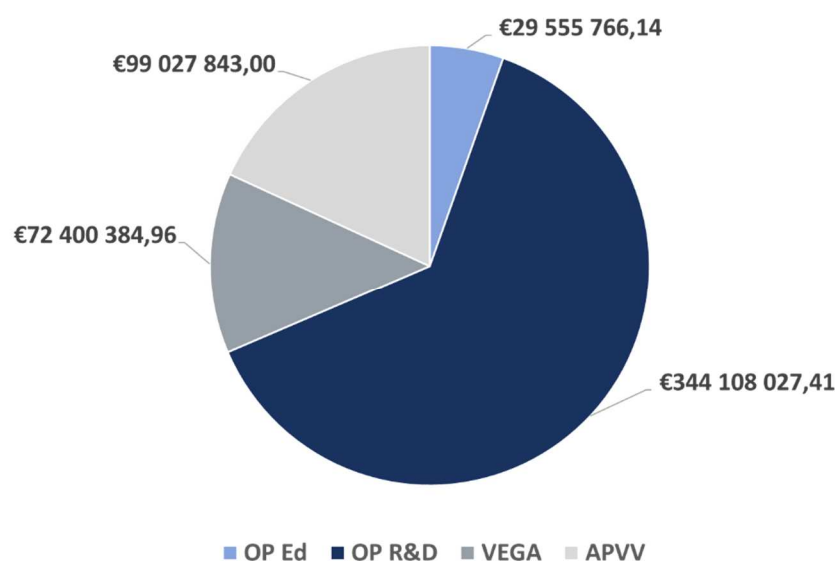
3. METHODOLOGY

The analysis is based on the argument that public research can be funded in many ways and looking for the optimal one requires watching the models already used. Identifying their positive and negative aspects is important. As we already said public universities are in many OECD countries considered as the main performers of public research [1]. Even our own calculation shows that in case of Slovakia were public universities during 2007 – 2015 supported by 95,67 % of all grants designed by APVV, VEGA and Research agency. Therefore, we conduct the analysis only on public universities. All private and state universities have been excluded from the analysis because primary is the research in Slovakia ensured by the public institutions like public universities or Slovak Academy of Sciences. The total number of public

universities in Slovakia is 20. However, we had to exclude two public universities since the structures of the institutions are different and we were not able to determine a faculty level. Analysis is therefore conducted on 18 public universities. We started the analysis by watching the grants that universities received from APVV, VEGA and Research agency over the period of 2007 – 2015. That means we have included in case of VEGA even the projects that started before 2007 but only the amount assigned for 2007 has been taking into account. In case of APVV and Research agency only the projects proposed since 2007 were watched. That is because the two agencies do not assign the amount of grant on a yearly basis. All information about the projects are available on the websites of the agencies. We analysed 6 984 projects with own specific code, project name, recipient (university) and the amount of grant. Faculty and the project leader were not always available – we added them individually thanks to the specific codes of projects. We also added a field of each faculty which was assigned in accordance with the Fields of science and technology classification defined by the Ministry of Education. We excluded projects which were not proposed by faculty but different university's departments such as Botanic Garden, Institute of Management, Rector's Office etc. That is because we cannot measure the research outcome of these departments. As an indicator of quality and research outcome was set an accreditation coefficient given to faculty considering its performance by the Accreditation Commission every six years. Therefore, we could compare years 2009 and 2015. This allowed us to see whether the universities of higher quality were more successful. Additionally, we could observe the changes in their performance. The accreditation coefficients are available on the website of the Ministry of Education [14].

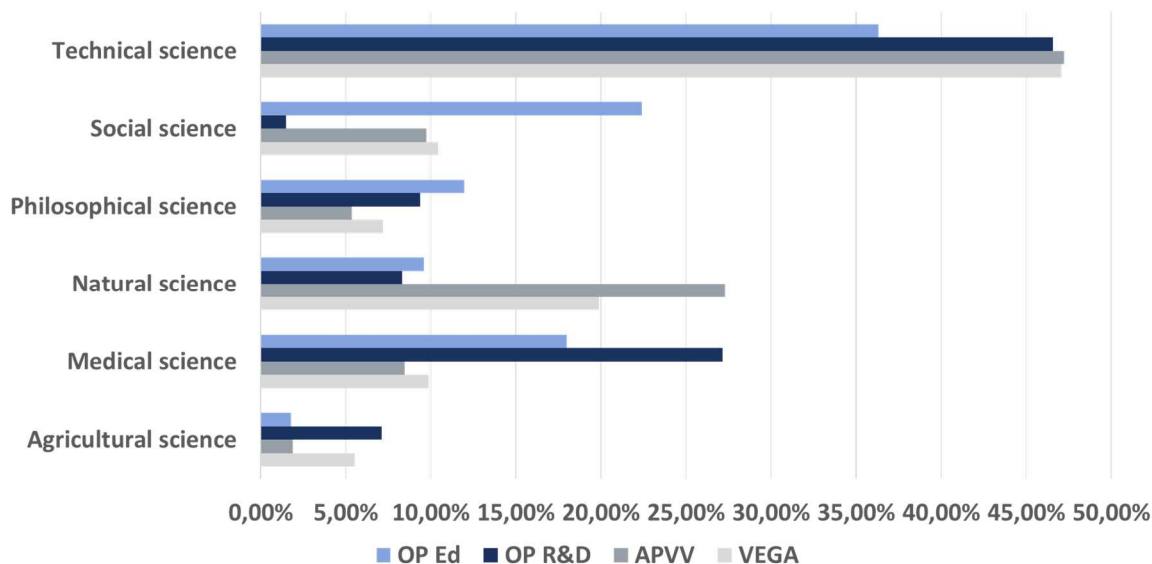
4. RESULTS

From the very beginning let's see how much the agencies provided to the faculties in period 2007 – 2015. When we look at the amount of money given to faculties in Graph 1, we do see some differences. The APVV sources were about 15 % higher comparing to VEGA. On the other hand, VEGA supported more than 80 % of all projects granted from national funds. Taking a look at the Structural Funds, we see that OP R&D provided the most significant amount of money to faculties while OP Education was the lowest one.



Graph 1: Financial sources from APVV, VEGA and Research agency in 2007 – 2015
Source: Own calculations based on the list of supported projects published on the Ministry of Education website

Graph 2 shows the grant allocation according to the fields of science. We see that the order of supported fields is the same in national agencies. The most funded disciplines were the technical science and then the natural science. Different results are seen in allocation of Structural Funds. Although the most supported projects were under the technical field, OP R&D then provided funds to faculties operating under the medical science.

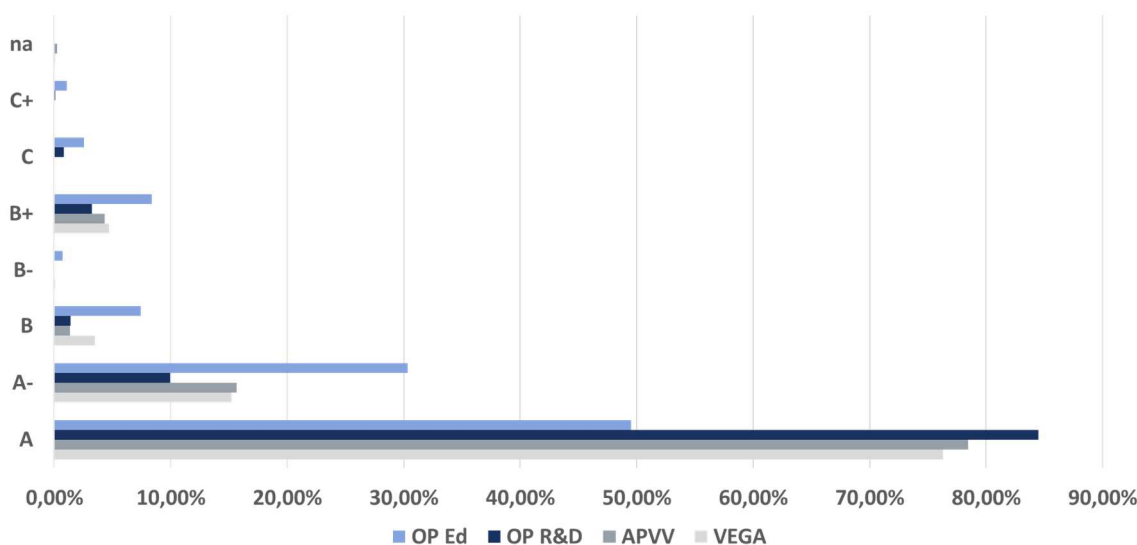


Graph 2: Grant allocation considering different fields of science

Source: Own calculations based on the list of supported projects published on the Ministry of Education website

Faculties under the natural science received almost the same support like the ones under the philosophical or agricultural science. OP Education was the least concentrated and the most evenly spread. Besides supporting technical or medical science, it focused also on social or philosophical sciences.

To see how resources were reallocated taken into consideration the quality expressed by accreditation coefficient, we can conclude that the faculties that received the coefficient A were given the highest and significant share of grants. This is shown in Graph 3.

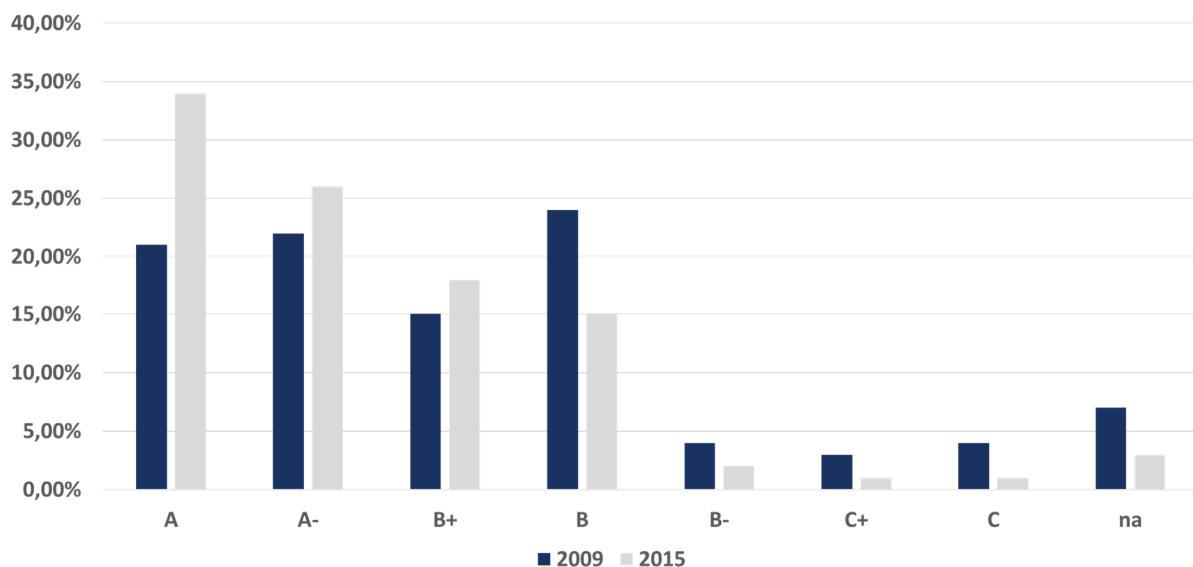


Graph 3 Grant allocation considering the accreditation coefficient assigned in 2015

Source: Own calculations based on the list of supported projects published on the Ministry of Education website

The support was indeed allocated in order starting from the best coefficient (A) and ending by (C+). While OP R&D and national grants were concentrated mostly in the best performers, OP Education contributed the most evenly to faculties. Analysing the support considering coefficients from 2009, the reallocation looks very similar. More than 20 % of funds from each source went to the faculties gaining score A- and approximately 60 % went to the best performers (A). The only exception here is again OP Education.

From 100 faculties, 34 % were accredited by coefficient A in 2015. In 2009 received coefficient A only 21 % of faculties. Comparing the years in Graph 4 we can see that another 17 % of faculties were actually brought among those having A or A-. Only 10 % of faculties received worse indicators.



Graph 4 Change in accreditation coefficients of faculties between 2009 and 2015

Source: Own calculations based on the list of supported projects published on the Ministry of Education website

5. DISCUSSION

We showed that Slovak competitive research funding model is mostly based on support from two national agencies focusing on the same target and though on the same performers. Although APVV seems to be more concentrated, the main differences are only in the amount of grant and number of supported projects. Therefore, arises the question whether both agencies are necessary to have. Analysis also confirmed that EU funds provided the most significant support to researchers on faculties since 2007. Although the aim of EU is to lower the regional disparities within the Union, OP R&D with the highest amount of grants was strongly concentrated in the best performers in technical and medical field of science. These areas are very dependent on infrastructure and more likely to apply knowledge and technological transfer, which OP helped to access. Still, the Structural Funds offered more than a three and a

Miroslav Šipikal is a Vice Dean for Development and Social Care of Students and Statutory Deputy of the Dean at the Faculty of National Economy, University of Economics in Bratislava. Miroslav works at the Department of Public Administration and Regional Development at the same faculty. Among his research areas belong regional policy, regional policy of EU, innovation policy and foreign direct investments.



half times higher amount of support to researchers comparing to national funds and they reached the best faculties. Somehow the exception was OP Education with different goals and less concentration on best performers but much lower support. Technical science projects were still on top though.

Universities in Slovakia face the situation, where their yearly funding is influenced by their performance in accordance with performance indicators. At the same time, researchers at these institutions are limited to receive the funds from competitive research mechanism, unless they gain the best results. This is confirmed also by results of [10], where is pointed out, that all sources of funding including performance-based funding are highly correlated. Little difference is seen in Structural Funds and the reason is that these sources have quite different aim. The question is still how to help to develop potential of scientists working in less esteemed institutions with harder access to funds. Our results though confirm some shift in the quality of research outcomes of faculties comparing a 6-year gap. This might be caused by cooperation of researchers on research projects and thus their possible development. Next research will assess the impact of the project research funding on researchers by watching the number and quality of publications.

4. CONCLUSIONS

Research funding is important for conducting public research. It can be funded by different ways and finding the optimal one requires watching the models already used. We tried to analyse reallocation of different sources of competitive research funding model in Slovakia including Structural Funds. Analysis shows that targeting of national public agencies is very similar to each other, what brings a question of necessity of having both of them. Structural Funds had different aiming and operational programs focused on different areas and performers. Still, most of the funds were concentrated in the best performers – as competitive project mechanism requires. On the other hand, it might lead to a situation that researchers working in less efficient institution can harder develop some potential. It seems thought that research outcomes of faculties in Slovakia have changed and resulted in better indicators comparing a six-year gap. Next research will go deeper and analyze the impact of different sources on research outcomes on the level of researchers.

ACKNOWLEDGEMENT

This work was supported by the Slovak Research and Development Agency under the contract No. APVV-14-0512 and by the VEGA agency under the contract No. “1/0098/15”.

REFERENCES

- [1] OECD. 2012. *OECD Science, Technology and Industry Outlook 2012*. OECD Publishing. Available at: <http://dx.doi.org/10.1787/sti_outlook-2012-en>.
- [2] Hall, B. 2002. *The Financing of Research and Development*. University of California at Berkley, U. S. A. : National Bureau of Economic Research. January, 2002. Available at: <<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.299.2789&rep=rep1&type=pdf>>.
- [3] Auranen, O., Nieminen, M., 2010. *University research funding and publication performance – An international comparison*. In: *Research Policy*, Vol. 39, Issue 6. July 2010. pp. 822–834.

- [4] Geuna, A. 2001. *The Changing Rationale for European University Research Funding: Are There Negative Unintended Consequences?* Journal of Economic Issues, 35:3, 607-632, DOI: 10.1080/00213624.2001.11506393.
- [5] European Commission, 2012. *Communication from the commission to the European parliament, the council, the European economic and social committee and the committee of the regions a reinforced European research area partnership for excellence and growth.* Com/2012/0392 final. Available at: <<http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52012DC0392> last accessed 8-10-2015>.
- [6] Cruz-Castro, L., Bleda, M., Derrick, GE., Jonkers, K., Martinez, C., and Sanz-Menendez, L., 2011. Issue brief.: *Public sector research funding.* Available at: <https://www.innovationpolicyplatform.org/sites/default/files/Public%20Sector%20Research%20Funding_0_0.pdf>.
- [7] Braun, D., 2003. *Lasting tensions in research policy-making – a delegation problem.* Science and Public Policy, 30, pp. 309–321.
- [8] Bleiklie, I., Michelsen, S., 2015. *Political-Administrative Regimes and University Governance.* Available at: <<http://ecpr.eu/Filestore/PaperProposal/48e6c9c2-7460-43a9-aaf7-557bdb35e4cf.pdf> last accessed 8-10-2015>.
- [9] Sipikal, M. – Písar, P. – Varga, M. 2015. Verejná podpora a financovanie univerzít. In *Finančná stabilita a udržateľný rast v Európskej únii: súčasný stav a perspektívy.* International research conference. Finančná stabilita a udržateľný rast v Európskej únii: súčasný stav a perspektívy : zborník príspevkov z [9. ročníka] medzinárodnej vedeckej konferencie : Banská Bystrica, 27. október 2015 [elektronický zdroj]. - Banská Bystrica : Belianum, 2015. ISBN 978-80-557-1054-9.
- [10] Sipikal, M. – Nemethova, V. 2016. Projektové versus výkonové financovanie univerzít. In *Veřejná správa 2016.* International research conference. Veřejná správa 2016 : sborník příspěvků z 11. mezinárodní vědecké konference: Pardubice, 22. 9. 2016. - Pardubice : Univerzita Pardubice, Fakulta ekonomicko-správní, 2016.
- [11] Ministry of Education, Science, Research and Sport. *Statute VEGA.* Cited: 10. 02. 2017. Available at: <<https://www.minedu.sk/zakladne-dokumenty-vega/>>.
- [12] Slovak Research and Development Agency. *Statute SRDA.* Cited: 10. 02. 2017. Available at: <<http://www.apvv.sk/agentura.html?lang=en>>.
- [13] Research agency. *About us.* Cited: 14. 11. 2017. Available at: <<http://www.asfeu.sk/agentura/o-nas/ulohy-agentury/>>.
- [14] Ministry of Education, Science, Research and Sport. 2016. *Rozhodnutia vo veci akreditácie podľa zákona o vysokých školách.* Available at: <<https://www.minedu.sk/rozhodnutia-vo-veci-akreditacie-podla-zakona-o-vysokych-skolach/>>.

ENTERPRISE RISK MANAGEMENT THROUGH THE VALUE AT RISK CONCEPT; ANALYSIS OF BELGRADE STOCK EXCHANGE INDEX

Luka M. Filipovic¹⁸⁸
Branko Z. Ljutić
Borjana B. Mirjanic

Abstract: *Business opportunities in today's global economy are in continuous change and that for there is a need for identifying, monitoring, assessing, and managing an enterprise's business opportunities as well as enterprise's risk. Risks threaten not just business units, programs or processes, but entire enterprises, and because of that enterprise risk management - ERM is crucial for enterprises. ERM helps organizations to administrate risk and strategy setting from organizational culture to execution. Risk is usually measured by standard deviation and it is thought of as it's volatility. However, standard deviation is uncorrelated with the direction of movement. Naturally, investors are not much worried about upside movement. It is the downside movement that is important and that they are concerned about. A measure of risk that focuses on downside movement is Value at Risk - VaR, which is in fact a key element of an enterprise's ERM strategy. One aspect of ERM involves the magnitude and expectance of impact of circumstances or occasions to the enterprise's goals, including both risks and opportunities. The concept of VaR engirds this very good and this concept is an integral part of risk management. VaR is the issue of nearly every risk-adjusted return-on-capital loan pricing model. As well, VaR is the standard for measuring market risk and in general, it can be an invaluable tool in quantifying risks (strategic, financial, etc.).*

In this paper, authors will analyze how VaR concept contributes ERM, by analyzing the basic characteristics of distribution of daily logarithmic yields of Belgrade Stock exchange index. The aim of this paper is to measure the level of market risk by using the VaR concept, and using the belexline index as a market proxy. The measured VaR determines the decisions envisaged by the ERM.

Key words: *ERM, VaR, portfolio, quantifying volatility, standard deviation, logarithmic yields, belexline*

1. INTRODUCTION

The main goal of a modern enterprise is to minimize risks and preserve its value. The essence is to trace and apply a sustainable path of enterprise development based on an analysis of its position, trends in the development of the environment, the probability of occurrence of negative events and turning points, and the aspiration of direct competitors, whose behavior, among other things, is related to the current performance and strategy of the analyzed enterprise. These decisions lead to the allocation of resources that should enable the preservation of the present value, or even increase it. Consequently, the risk which is inherent or which is caused by decisions within an enterprise is assessed from the point of view of the impact on the enterprise risk management trough the value at risk concept. Series of significant economic crises affected on the development of a large number of methodologies and concepts

¹⁸⁸ EuroAudit, 11000 Belgrade , Bul. Despota Stefana 12, 11000 Belgrade, Serbia

for measures and market risk management in neoteric business finance. The Value at Risk concept is particularly emphasized, with its popularity and distribution, which is a methodological framework for measuring and assessing operational and market risks. A passable valuation at risk demands the fulfillment of certain econometric conditions. The concept itself is built on the assumption that financial markets are efficient. The prices of financial assets follow the margin process, which is equivalent to the supposition that the series of financial market yields are distributed identically and independently.

2. ENTERPRISE RISK MANAGEMENT THROUGH THE VaR CONCEPT

We can notice a noteworthy change in company's attitudes and goals about enterprise risk management in few last decades, and since then, we are faced with obligation to give answer of whether risk management contributes to value creation in the enterprise [1]. The emerging concept of risk management, at the same time, faces quite a few challenges. First challenge means that managers at all levels must have an insight into how risk management affects on free cash flows, next challenge means that risk management must be organized as a process at the enterprise level, taking the widest possible vision in assessing risk factors and their effects. Last but not least, risk management should not be a function of investment and financial strategy. Kaplan and Mikes have concluded [2] that before the ERM emerged, there was a need to label these risks in a special way (financial risk, operational risk, market risk, reputation risk, etc.) and positioned organizational through the business functions of the company. The lack of risk management in segments is the inability to see the overall exposure of the enterprise to risk, since each risk is treated apart [3]. As Andersen and Schröder have said [4], modern risk management is determined as a strategic, because the usage and formulation of a risk strategy is needed, at the highest level in the enterprise. The basic characteristic that separates ERM from the conventional concept of risk management is holistic as well as integrative approach and, as Chapman concluded in his research [5], for the new modern could not be said to be a turning point in thinking, but rather a result of the natural maturation and evolution of the profession of risk management. Stulz and Nocco said [6] that the risk management concept in the enterprise today is elongated beyond hedging financial risks and the insurance frameworks, so it also includes other risk coordinated. Or furthermore, Segal concluded [3] that ERM can be defined as a process by which enterprises identify and measure risk, manage and publish all relevant information in order to increase value for the main stakeholders and shareholders. Reduce the volatility is one of the direct effects of the ERM implementation, in other words, the standard deviation of the results, and targeted performance growth should be the second ERM effect. Effective risk management

Luka M. Filipović

Currently Employed in EuroAudit doo, company for Audit, Accounting and Financial consulting. He is student of the final year of doctoral studies.



From 2001 to 2002, he was employed in AiM Invest as a contributor to the analysis of the domestic capital market. From 2002 to 2007, he was employed in Asimex doo, as the associate in bookkeeping. From 2007 to 2012 he was employed in the international association for the numbering of articles by EAN symbolization "GSI Serbia" in the position of the secretary of the team support. From 2012 until 2017 he has been employed in Belgrade Business School as an assistant for the subject of financial markets. He has published several papers in domestic and international journals and participated at many scientific and business conferences. The scientific fields of research are Accounting, Audit, Enterprise Risk Management, Financial Risk Management, Portfolio optimization. He speaks English and German languages.

leads to the yield (*value*) increase, while reducing standard deviation (*risk*). Risk is seen as an opportunity to increase value for the owners, instead of being seen as an undesirable phenomenon. The assumptions of an effective ERM process which are based on value at risk are precisely definition, measurement, and understanding the appetite for risk. Within ERM who is based on *VaR*, the risk appetite receives the necessary quantification by measuring its risk exposure, the main manifestation of ERM. The *VaR* concept offers an integrated way of managing market risks by combining all risk factors, respecting the level of their correlation, into an indicator that represents a simple and consistent risk measure for different positions and different risks types. In that way, as Radivojević pointed out [7], it is possible to easily understand the risk exposure and the comparison of different financial instruments, which were not comparable until the implementation of the concept. Numerous authors point out that the root of the *VaR* concept is in Markowitz's portfolio analysis, more precisely in the model for calculating portfolio yield variance. Markowitz has upgraded the portfolio theory by discovering that effective diversification is carried out by introducing into consideration, in addition to the yield (r) and risk (σ) and the third variable - the interdependence/correlation (σ_{ij}) of the returns of individual securities within the portfolio. With this variable, investors have been given the opportunity to form portfolios, which will bring them higher yields with the same risk, or the same yields with lower risk. For a portfolio of n securities, it is necessary (n) variance and $(n^2 - n) / 2$ covariance. The total number of data required for calculating effective portfolios is $n*(n + 3) / 2$.

Louis Bachelier has discovered and proved in year 1990 that the returns of financial assets could be described using a random walk model [8]. The model implicates that the yield of the portfolio depends on the fixed parameter (μ) and the random variable (ε_t), which can be shown by the following expression:

Branko Ž. Ljutić

Certified auditor, member of the Institute of Certified Accountants of Montenegro – ICAM, Podgorica, and member of the Association of Accountants and Auditors of Serbia, Belgrade, Serbia; Doctor of Science (PhD), Master of Science, Bachelor of Economics (Finance and Accounting). Senior Audit Partner: Montenegro Audit, Podgorica, Montenegro, since 2015. Full professor of finance and business finance, University of Belgrade, Serbia, since 2001; full professor of management and marketing, John Neisbitt University, Belgrade, Serbia, since 2008; Professor of Finance and Banking, University of Novi Sad, Serbia, since 2011. Visiting professor in MBA studies (forensic accounting, auditing), Zagreb School of Economics and Management since 2007. Previous professional engagements in the field of auditing includes: Confida-Finodit, Belgrade Serbia; Director and Partner: International Consulting Center Accounting, Auditing and Tax - ICCAT, Belgrade, Serbia; Richard and Partners, Podgorica, Montenegro. He has participated in the creation of a number federal laws in the field of finance, banking, SME business sector, stock exchanges, accounting and auditing, in ex-Yugoslavia and in Serbia. Writer of several books (scientific monographs, textbooks) and published reviewed papers; organizer and instructor at commercial training programs (auditing, accounting, management). Instructor in Accounting and Auditing at ICAM, Podgorica,; International and Regional Financial Reporting and Auditing Instructor, CFRR, World Bank, Vienna, Austria since 2015. He was a member and president of several corporate management and supervisory boards (PKB Corporation, Belgrade, Lenex Group, Belgrade, Commercial-Commercial Bank, Belgrade, Cobest-Invest, Mladenovac, Invest-biro, Belgrade. (macro and micro economics, marketing, International Financial Reporting Standards), the leading author of the first English-Serbian Dictionary of Accounting, and is or was a member of the editorial board of several scientific and research journal publishers.



$$r_t = \mu + \sigma \varepsilon_t \quad (2.1)$$

With: $\varepsilon_t \sim \text{IID } N(0,1)$

where: r_t is the yield of the portfolio, μ is the constant, σ is the volatility of the change in the price of assets (variance of yield of the portfolio and ε_t is normally distributed random variable).

If the model is presented in the most general form $P_t = \mu + CP_{t-1} + \varepsilon_t$, where P is the sign for the price, expressed in logarithmic form, it can be noticed that the model represents a special case of the autoregressive model of the first order AR (1), where the model parameter is $|C|=1$.

We can conclude, if we consider above mentioned facts, that the *VaR* concept starts on the assumption of an efficient market. However, empirical research suggest that financial markets are not efficient, there is a correlation between yields and asset prices and that volatilities are not homoscedastic. *VaR* measures the highest loss that can be expected over a certain period of time with the defined probability. Further we will analyze *VaR* through parametric value at risk concept and we will realize in what extent *VaR* contributes enterprise risk management.

2.1. PARAMETRIC VALUE AT RISK

Trough Value at Risk concept we suggest to risk managers how much they can lose during the moment of a certain period of time for a certain level of confidence, taking negative movement of market risk factors, under normal market circumstances. When we say normal, we mean normal market movements that can be exceeded only in a small and precisely defined percentage. The mathematical definition *VaR* states that for a given level of confidence, where $\alpha \in (0,1)$, the *VaR* portfolios for α particular holding period t , is the smallest number $k \in \mathfrak{R}$, so that the probability of loss occurring during the holding period is greater than k is α , which is expressed in the following way:

$$\Pr(r < -VaR) = \int_{-\infty}^{-VaR} dF_{\Delta P}(r) = 1 - cl = \alpha \quad (2.1.1)$$

Where: $f(r)$ the density function of yield probability portfolios, $F_{\Delta P}(r)$ cumulative portfolio yield probability function, cl level of trust. Analyzing the above expression (2.1.1) we can clearly notice that for parametric *VaR* it is necessary to know two parameters: the holding period and the level of confidence that is being evaluated. Holding period represents the period for which the *VaR* is valued, while the level of trust is the probability for which an assessment is made, and the probability for potential loss will not be higher than *VaR*. As Bams and Whitehouse noted [9] the most important assumption for calculating the parametric *VaR* is the assumption regarding the choice of theoretical distribution, which can best describe the movement of the basic factors of market risk. In this case, the *VaR* assessment is reduced to the determination (α) quantile distribution of portfolio yield through transformation $f(\Delta P)$ into a standardized normal distribution $\Phi(z)$, where (z) is a standardized random variable that is valid $z \sim N(0, 1)$. Since $\Pr(r < -VaR) = \alpha$, using the normal standardized transformation, the following expression is obtained:

$$\Pr\left(\left[\frac{r - \mu}{\sigma}\right] < \left[\frac{-VaR_\alpha - \mu}{\sigma}\right]\right) = \alpha \quad (2.1.2)$$

Since $[r - \mu] / \sigma_t \sim N(0,1)$; it is obtained:

$$\Pr\left(z < \left[\frac{-VaR_\alpha - \mu}{\sigma}\right]\right) = \alpha \quad (2.1.3)$$

Or , $\Pr(z < -z_\alpha) = \alpha \quad (2.1.4)$

Where: $-z_\alpha = \left[\frac{-VaR_\alpha - \mu}{\sigma}\right] \quad (2.1.5)$

The value of the standardized normal distribution quantile corresponds to the level of confidence (1-cl). *VaR* which is obtained like this is a parametric assessment, since it involves an evaluation of the portfolio yield distribution parameters, instead of just obtaining quantiles of the empirical distribution. By including in the term the value of the portfolio (*P*), we can determine *VaR* in the monetary amount. Under the assumption of normal distribution, the parametric *VaR* has two other important features: a) the ability to transform the *VaR* estimates by levels of confidence, b) the ability to transform *VaR* estimates for different levels of trust.

Determining the *VaR* parameter under the assumption of the normality of the portfolio yield portfolio can be graphically displayed as in Figure 1:

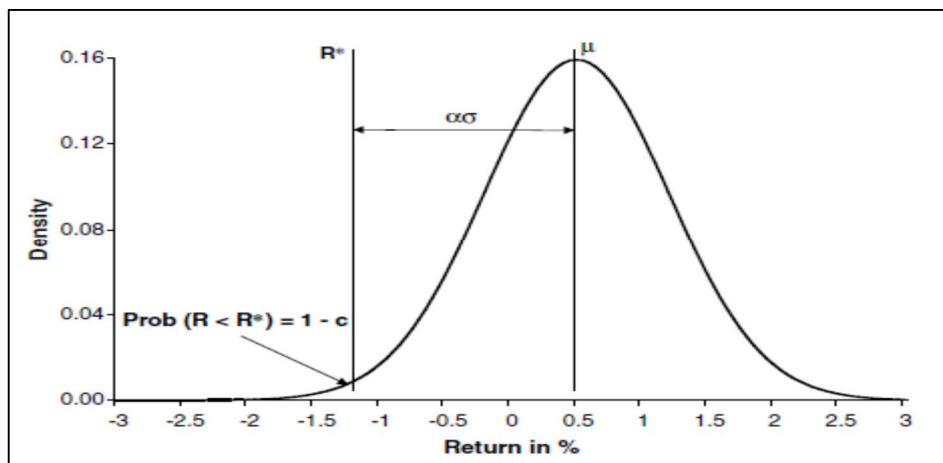


Figure 1: *VaR* assuming that the yield series of the portfolio follows normal distribution
Source (Authors)

We can see in the Figure 1, *VaR* represents the cutoff value with constant probability $\alpha = (1-cl)$; and we see that there will be an overrun.

Each of the assumptions should be examined when assessing *VaR*. The use of historical data implies the assumption of stationarity which means that the yield distortion does not change over time. However, empirical research clearly indicates that this assumption does not stand, but that the series of yields from financial markets is characterized by the phenomenon of autocorrelation and heteroskedasticity¹⁸⁹. This means that the yield series are not IID¹⁹⁰, that the assumption of stationarity and intertemporal unpredictability do not stand in random walk. Assuming that the average value of the yield series is zero, it is quite disputable, since it is known that the securities have a positive expected yield. Numerous empirical researches show us that the assumption about the normality of the distribution of the yield series of the portfolio does not stand. In the case of accepting the assumption that the portfolio yield sequence will

¹⁸⁹ Heteroscedastic is collection of random variables and the characteristic of variance being changed over time.

¹⁹⁰ IID - independent and identically distribution it implies that the distribution of future portfolio returns will be identical to the average distribution, and that there is no autocorrelation between the yield of the portfolio.

follow a normal distribution, the *VaR* estimate for the 90% confidence level will correspond to the standardized normal random variable value, 1.64. In the case of reliance on empirical distribution, which has thicker distribution tails compared to normal distribution, at this level of confidence *VaR* is equivalent to 2.

3. MARKET RISK VALUATION; DISTRIBUTION OF DAILY LOGARITHMIC YIELDS OF BELGRADE STOCK EXCHANGE INDEX

This section of the paper presents daily *VaR* assessments made for a confidence level of 99%, since this level of trust is prescribed by the Basel Committee on Banking Supervision¹⁹¹. Daily *VaR* estimates are made using the tested models, as well as the actual movement of the index yield. As in this paper, the market risk assessment is carried out on a sample of approximately year and a half of daily data on the yields of the stock exchange index Belexline. Observed period is from 2nd January 2016. until 2nd January 2017. In order to test the assumption, set in the paper, which states that the series of securities yields in selected markets deviate from the assumption of identical and independent distribution (autocorrelation and heteroskedasticity are present), before the *VaR* estimates were made, we did an analysis of the basic characteristics distribution of the yield series of general stock exchange index. The figure below shows Distribution of daily logarithmic yields of Belexline for the observed period.

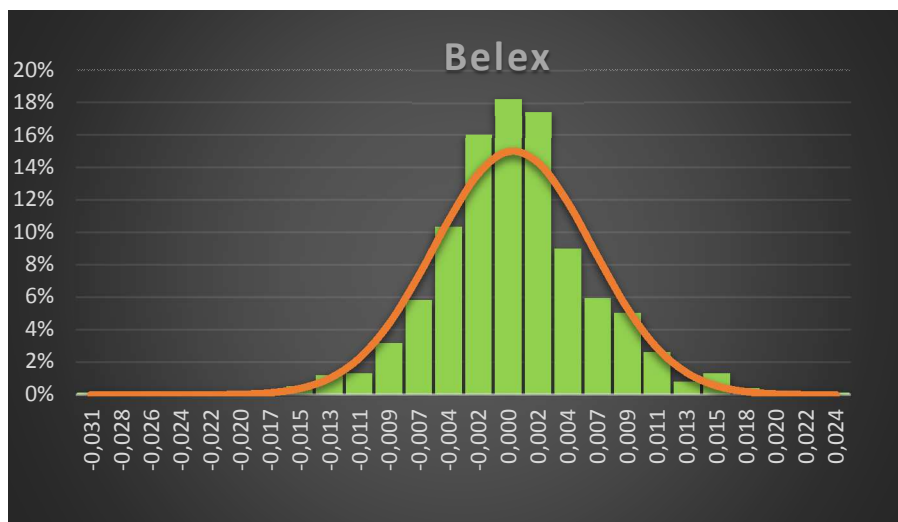


Figure 2: Distribution of daily logarithmic yields of Belexline for the observed period
Source (Author's calculations)

As it is seen from the Figure 2, the analysis of Belexline daily rates of return movements point out the incompatibility with the description of the Serbian capital market under the assumption of identical distribution. The figure indicates the grouping of volatility of high, as well as low period. The basic characteristics of distribution of Belexline index is shown in Table below, with the note that p-values are shown in brackets:

Belexline	
Middle	0,0004
Standard error	0,0002

¹⁹¹ The Basel Committee on Banking Supervision provides a forum for regular cooperation on banking supervisory matters. Its objective is to enhance understanding of key supervisory issues and improve the quality of banking supervision worldwide.

Standard Deviation	0,0057
Variance	0,0000
Kurtosis	5,1018
Asymmetry coefficient	0,0335
Range	0,0569
Min. Values	-0,0316
Max. Values	0,0251
Jerque-Bera test	136,902 (1,8e-03)
Doornik-Hansen test	89,008 (4,6e-02)
Shapiro-Wilk test	0,980 (1,3e-008)

Table 1: The basic characteristic of Belexline index

Source (Author's calculations)

Statistical analysis of the distribution of daily logarithmic yields of the Belexline index confirms the results of previous empirical research which pointed out that standard deviations are in line with the average of developing countries from the EU. The analysis reveals that the indices have leptocentric distribution, which is confirmed by the analysis of the asymmetry and flattening coefficients, as well as the visual analysis of the deviation of the yield index distribution relative to the normal distribution. Kurtosis is 5,1.

To test the existence of the ARCH effect, an Engel test was used based on calculating the Lagrange multiplier for the ARCH (1) model. The results of the test are shown in Table 2.

Belexline	
Test value - 0.4996	p-value – 0.4796

Table 2: The results for ARCH effect of first order

Source (Author's calculations)

The Engel test results are not identified on Serbian capital market and they point out that yields are not IID. By obtaining these data, the assumption was proved that the securities yield series in selected market deviate from the assumption of an identical and independent distribution (there is autocorrelation and heteroskedasticity). Under these circumstances, the assumption of IID yields is inadequate and limits the applicability of the risk model based on it. It is necessary to model yields as an ARMA-GARCH process, in order to successfully co-opt both dependencies. More precisely, the yield of the Belexline index is potentially modeled as ARMA (q, p) -GARCH (0,0) since there is no ARCH effect, and there is a first order autocorrelation. Values of standard errors are given in brackets.

Model parameters <i>GARCH</i> (1,1)	α 0,0812 (0,0256)	β 0,8672 (0,0435)	ω 1,81e-06 (9,6e-07)	
Model parameters <i>GARCH</i> (1,1)- <i>t</i> (<i>d</i>)	α 0,0978 (0,0331)	β 0,8328 (0,0652)	ω 2,46e-06 (1,4e-06)	ν 6,3941 (1,5260)

Table 3: Estimates of Volatility model parameters

Source (Author's calculations)

Primitively reliable market risk assessments should be expected from the standard model of historical simulations on the capital markets of Serbia, since they have not recorded the ARCH effect.

0

4. CONCLUSION

Creating and exploiting new business opportunities as an integral part of the company's ability is the main goal of Enterprise risk management. The ERM tool for improving business opportunities that we have used in this paper – the *VaR* concept showed us that descriptive statistical analysis of the basic characteristics of the distribution of daily logarithmic yields of the index partially confirms the results of previous empirical research. Standard deviations are in line with the average of developing countries from the EU. This implies a relatively high level of fluctuations in the value of daily yields, which is confirmed by the difference between minimum and maximum values. An analysis of the yield mean that average yields are at a quite low level, which is surprising given the prevailing attitude that developing markets have higher yields and offer the possibility of achieving high risk premiums. One of the easing of capital markets in Serbia can be found in reducing investment activity, especially bringing the foreign investments. The results of the test point out that the parametric *VaR* method is quite reliable to be used for *VaR* assessment at the Serbian capital market, specified that Belexline loss in the period we have observed did not overstepped the *VaR* amount determined at the extremely high confidence level. The appearance of large changes in asset prices is followed by major changes, and small ones are followed by small ones. In other words, the consequence of this is that yields do not follow the concept of random walk, but they behave according to certain patterns.

REFERENCES

- [1] Muelbroek, L. K. (2002). The promise and challenge of integrated risk management. *Risk Management and Insurance Review*, 5, 55-66.
- [2] Kaplan, R., & Mikes, A. (2012). Managing risk: A new framework. *Harvard Business Review*, June, 49-58.
- [3] Segal, S. (2011). *Corporate value of enterprise risk management – The next step in business management*, John Wiley and Sons, New Jersey.
- [4] Andersen, T., Schröder, P. W. (2010). *Strategic risk management practice*. Cambridge Cambridge University Press.
- [5] Chapman, R. J. (2006). *Simple tools and techniques for enterprise risk management*. New York: John Wiley & Sons
- [6] Stulz, R. M., Nocco, B. W. (2008). *Enterprise risk management: Theory and practice*.

Borjana B. Mirjanić

Currently a college professor at Belgrade Business School – Higher Education Institution for Applied Studies, teaches Financial markets and Stock exchanges. She has a Ph.D in Finance, thesis: Performance Management of Equity Portfolio in Specific Conditions of Emerging Financial Markets - Case of Belgrade Stock Exchange. She is the author and co-author of a large number of papers published in many scientific and professional journals, as well as book – tutorial Financial markets. The scientific fields of research are Financial Management, Financial Risk Management, Investments, Emerging capital markets and Portfolio optimization. She speaks English and French languages.



- [7] Radivojevic, N., et. al. (2010), “*Testing the Applicability of Parametric and Nonparametric Methods of Value at Risk at the Serbian Capital Market*”, *Banking*, No. 11-12, pp. 46-61.
- [8] Tapiero, C., (2004), *Risk and Financial Management: Mathematical and Computational Methods*, John Wiley and Sons, New Jersey.
- [9] Bams, D., Wielhouwer, J., (2005), “An evaluation framework for alternative VaR-models” *Journal of International Money and Finance*, Vol. 24, No. 6, pp. 994-958
- [10] Andersen, T. J., Denrell, R. A., & Bettis, R. A. (2007). Strategic responsiveness and Bowman's risk-return paradox. *Strategic Management Journal*, 28, 407-429.
- [11] Chew, D. H. (Ed), *Corporate risk management* (323-347). New York: Columbia University Press.
- [12] Kaplan, R., & Mikes, A. (2012). Managing risk: A new framework. *Harvard Business Review*, June, 49-58.
- [13] Layton, M., & Funston, R. (2006). The risk intelligent enterprise: ERM Done Right. *Deloitte Touche Tohmatsu Papers*. London
- [14] Segal, S. (2006). Screening for success: Value-based enterprise risk management: The key to unlocking ERM potential. *Corporate Finance Review*, Jan-Feb, 16-26.
- [15] Carol, A. (2008) *Market Risk Analysis 4-VaR Model*, Chichester, John Wiley and Sons

THE CHALLENGES OF ESTABLISHING FOOD DONATION SYSTEM¹⁹²

Deni Lovrenčić¹⁹³
Nenad Vretenar¹⁹⁴
Zoran Ježić¹⁹⁵

Abstract: *Food donation system is a process usually led by food donation organizations that are collecting food from businesses and individuals or from the ones with excess of goods, storage it, distribute it to the food banks and finally redirect it towards people in community that have a deficit of particular goods. Food donation system is, therefore, a part of charitable activities usually organized by civil society organizations sometimes supported by state or local governments. Although arguments in favor of creating food donation system are very clear and acceptable to most, those included in an attempt to organize it are usually coping with many obstacles and resistance like the need to: lobby governments for change tax and other legislation connected to food donation, convince possible donators that donated food want create negative outcomes to them like black markets, contractions in demand etc.*

Other set of challenges is in creating efficient donation organization and logistics. As charity organizations are often connected in networks, form organizational point-of-view, food donation systems usually emerged in a hybrid organizational form somewhere between firm hierarchies and pure market organization of transactions.

The creation of food donation system in Croatia is in its very beginnings of making a food waste management program and food donation organizations. Therefore, the main aim of this paper is to address some organizational issues that stand in the way of the creation of sustainable food donation system. We analyzed best practice in European countries such as Italy and France who have set the effective laws to enhance food donation. Based on their experience and recommendations from organization theory, we aim to contribute to the present and the future efforts to create efficient and sustainable system that would fit the needs of the Republic of Croatia, and other CEE countries with similar social and institutional context.

Key words: *Food donation organizations, food waste, food donation, hybrid organization structure*

INTRODUCTION

Charity organizations are being analyzed and discussed in economic science for more than a century but the need to understand economic aspects of charity and to develop charity organizations is still very much alive. When defining what charity organizations are, we used Pervey's [1] explanation that charity organizations societies are not associations for purpose of giving relief, but organizations principally formed for the purpose of bringing the existing relief societies and churches in cooperation. That means that the need for organizations who will work as intermediates between those willing to donate and organizations that are giving the actual help to needed people has been known and understood at least since the 19th century. There are

¹⁹² This work has been fully supported by the University of Rijeka under the project number 13.02.1.2.04

¹⁹³ University of Rijeka, Faculty of Economics, Ivana Filipovica 4, Rijeka, Croatia

¹⁹⁴ University of Rijeka, Faculty of Economics, Ivana Filipovica 4, Rijeka, Croatia

¹⁹⁵ University of Rijeka, Faculty of Economics, Ivana Filipovica 4, Rijeka, Croatia

at least few reasons explaining the need for mediation. First, charity organizations can in some degree unite forces made by different charitable organizations in certain city, area, state etc. Not only that by cooperating they can achieve more, but they can lower the degree of competition between themselves i.e., they can come to the conclusion that their joint effort could perhaps be beneficiary to all of them and their purposes. Furthermore, by cooperation, they can widen the knowledge about people who need help the most and therefore they can increase effectiveness of their efforts.

Đeni Lovrenčić, mag.oec (MSc) from the University of Rijeka, Faculty of Economics Rijeka. Her scientific interest is mainly focused on the fields of organization and management. During her master study she acquired an interest to difficulties connected with food donation and she is now trying to contribute in creation of such system in Croatia.

1. THEORETICAL FRAMEWORK

In his famous paper published 80 years ago, Roland Coase [2] was contemplating the advantages of organizing a transaction within a hierarchy versus using the market mechanism to obtain it. Although charity logistics are typically not something that one would see as a market transaction, we can use some of Coase's argumentation to clarify the need to engage civil sector (NGOs) in charity. Coase argues that hierarchies should be used as long as organizing a transaction within the hierarchy is more efficient than by using the market. However, due to the difficulties to manage big organization, after certain size (and scale) is reached, adding additional transactions to a hierarchy becomes more and more costly. This argumentation can be used to explain why are civil organizations in charity necessary even in countries that are on the government level very sensitive towards the needs of its' vulnerable members. Therefore, even if institutionally organized help towards those who need it is at a very high level, there is still a need for private charity initiatives. What actually intrigues researchers is relationship between private and public charity and the effect that public charity and public policies towards charity has on efforts to attract private donations. [3][4][5]

Coase's argumentation that in a large scope of activities a single hierarchy will become more costly and less efficient than market alternatives also convenient to enhance views that there is an actual need for the existence of many different NGOs that attempt to procure resources to provide help to certain groups of people in need, as the allocation of totally available resources will be more efficient than it would be if it would be centrally administrated. Moreover the previously explained need for charity organization to mediate between those NGOs leads to conclusion that charity organizations, charity NGOs and donors are or should be engaged in hybrid organizational form. A hybrid form of organization is suitably described by Douma and Scheuder [6]: "Hybrid form is a set of organizations such that coordination between those organizations takes place by means of the price mechanism and various other coordination mechanisms simultaneously". Other authors offer similar definitions. Menard [7][8] explains hybrids as a various solutions and arrangements between legally independent entities that are mutually adjusting and coordinating their business needs by sharing technologies, products, services and capital without joint ownership and with some help of price mechanism. Hybrid organizations are expected to show their efficiency when there is a need for the economy of scope. Also, network of relations in these forms can provide good supervising system based on mutual adjustment and horizontal supervision, which can lead towards diminishment of an adverse behavior.

As pointed by Menard [8] for involved parties it could be convenient to engage into a hybrid form when they facing complexity. Firstly, hybrid form enhances the ability to handle a multiple connected and intertwined transactions more easily. Moreover, when there are changes in environment, hybrids can handle its organizations to abandon some rights in an attempt to remove particular uncertainties that are endangering project or a relationship between partners. Hybrids are, therefore, enabling higher level of operational flexibility that can be defined as the known response for short-term changes in the environment with the goal to protect the organization. [9] One of the reasons that hybrids enhance operational flexibility is that they aren't necessary always consisted with the same organizations within, as legally independent organizations are working temporarily on joint projects with mutual controls established through contract relations. [10] Alternative models of food donating system are shown on Figure 1.

Nenad Vretenar, PhD is MSc, MPhil and PhD from the University of Rijeka, Faculty of Economics Rijeka is presently an assistant professor at is alma mater on the courses of Organization, and Economics of Rational Behaviour. His scientific interest is mainly focused on the fields of organization and management, rational behaviour, and decision making. Published papers: <https://portal.uniri.hr/Portfelj/1761>

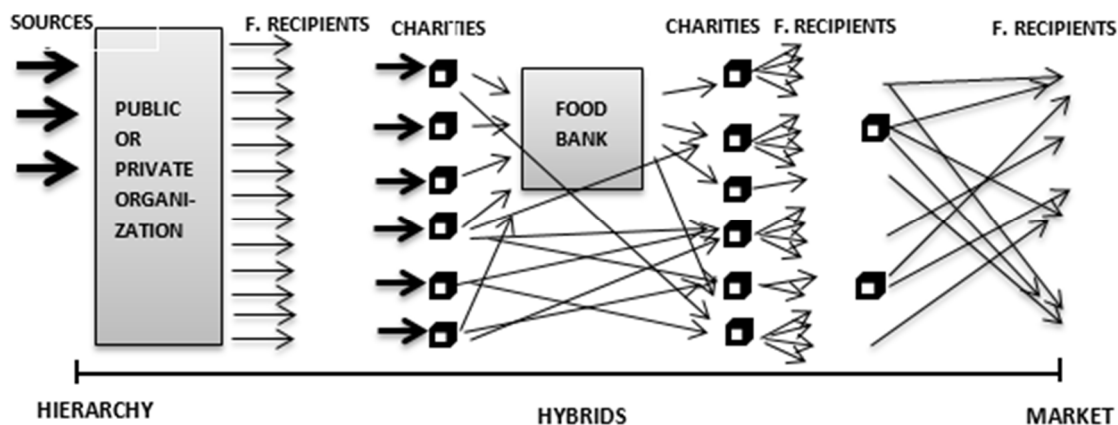


Figure 1: Hierarchical, market based and hybrid solutions for food donation systems, authors creation

However, entering into a hybrid form also involves potential danger of opportunism between involved parties. One of the problem occurs in business with unpredictable demands, such as technological changes. Despite all of the inconveniences stated above, organizations decide to be a part of hybrid organizations. Their decision is based on the flexible rules in hybrid forms, gaining revenues and sharing expenses. In order to prevent insecurities and unpredictable behavior they also use techniques such as joint governance, shared knowledge, buffer strategies, and common standards. The high level of free riding can tried to be solved with more contracts specified in more details, and better communication and information sharing. However, Lovrencic [11] noticed that since detailed contracts are in conflict with the endeavoring greater independence, which is one of the motives for organization to connected through hybrid instead through hierarchy, solution to reduce free riding and opportunisms should be accomplished through the communication between partners and environments and through connecting with organizations that are sharing the same goals.

2. THE NEED FOR FOOD DONATION ORGANIZATIONS

There are many reasons why inhabitants of a certain country or region could benefit from having operational food donation charity organization, or a food bank. As mentioned above, even in rich countries with high sensitivity towards people in need, governmental measures are not able to fulfill all needs. One could argue that the best and the cheapest solution to patch the holes left by formal state institutions is in enabling peer-to-peer relationships between local donors, and local recipients, or local charity organizations that is dispatching donations directly to recipients. However, during our field research that included series of interviews with voluntaries and activists in Croatian hybrid platform called Food network, and in charity shop in the city of Rijeka, we obtained a knowledge that small local organization are, without cooperation on wider level, in constant misbalance between goods needed and goods that they have in inventories. Furthermore, they are in constant time misbalance as donors are more willing to donate in certain time of the year. The problems of uncoordinated local (and even not local) charity organizations were best seen during 2014 severe floods in several municipalities in Eastern Croatia. During that crisis, some, but not all, charity shops were making a big extra effort to collect and dispatch food, clothes and shoes to the areas hit by natural disaster. In the same time the Croatian Red Cross collected more than 60 million HRK (around 8 million EUR) in donations but failed to distribute it to the ones that were forced out of their homes by the flood and keeping the funds on Red Cross bank account. That was latter poorly explained by inability to identify and locate people in need. [12] Another issue and limitation of peer-to-peer donation system is that Croatia is financially highly centralized country with most financial power in the city of Zagreb (Figure 2 and 3). This creates further misbalance between “wealthy” charities in Zagreb and not so fortunate charities in less developed areas. To address this and other problems of uncoordinated food donation, many countries opted to organize food banks, as intermediates.

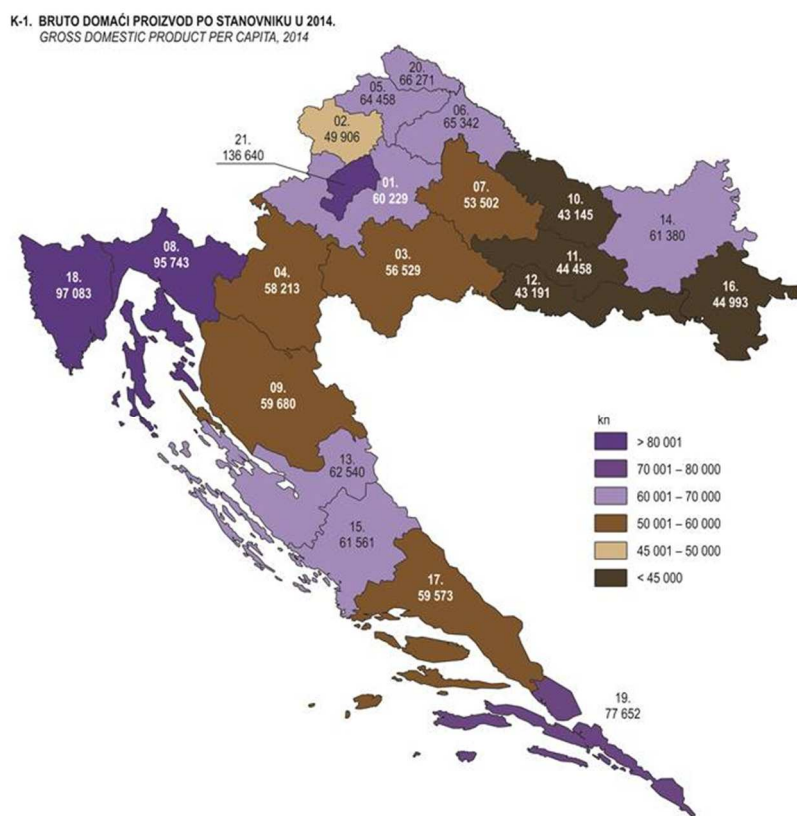


Figure 2: Croatian GDP per capita on county level in 2014 [13]

County	2017			2017		Total of Croatia
	M	F	2017 - total	% M	% F	
Zagreb	4109	5180	9288	44	56	4,76
Krapina-Zagorje	1657	2091	3747	44	56	1,92
Sisak-Moslavina	5797	7829	13626	43	57	6,98
Karlovačka	2517	3512	6029	42	58	3,09
Varaždinska	2010	2220	4230	48	52	2,17
Koprivnica-Krizevci	1652	2031	3683	45	55	1,89
Bjelovar-Bilogora	3586	3927	7513	48	52	3,85
Primorje-Gorski Kotar	4000	5764	9763	41	59	5,00
Lika-Senj	1265	1394	2659	48	52	1,36
Virovitičko-podavska	2841	3784	6625	43	57	3,39
Pozega-Slavonia	1531	2126	3657	42	58	1,87
Brod Posavina	3353	5208	8561	39	61	4,39
Zadarska	2489	3214	5703	44	56	2,92
Osijek-Baranja	9443	14132	23575	40	60	12,08
Sibenik-Knin	2610	2796	5406	48	52	2,77
Vukovar-Srijem	4662	6959	11621	40	60	5,95
Split-Dalmatia	12520	17764	30285	41	59	15,51
Istarska	1773	2229	4002	44	56	2,05
Dubrovnik-Neretva	2497	3217	5714	44	56	2,93
Međimurje	1675	1978	3654	46	54	1,87
City of Zagreb	11695	14183	25878	45	55	13,26
TOTAL	83683	111536	195219	43	57	100,00

Figure 3: Registered unemployed persons, by counties, end of October 2017, authors calculation [14]

3. THE BEST EU PRACTICES

Italy and France are first countries in Europe to enforce the law that bans supermarkets to throw away unsold food.[15][16] Both countries are successful in conducting the law but they distinguish in a way of delivering the law to the people. In an attempt to change trends, Italian government started educating people that donations and prevention of food waste should be a way of life and not an obligation. Italian laws [17] and incentives are made to support donations and make them more convenient. Companies have a tax reduction on garbage that is proportional to donated food. Furthermore, there are mitigate circumstances to encourage donations such as the law that allows donations of food that is past sell by date or even if it is mislabeled, if, of course does not impose any safety risks. Farmers can donate unsold products to charitable organization without engaging into any extra cost. One of the new trends in to prevents waste of food is popularization of “doggy bags”. The name is changed into “family bags” in order to remove a negative connotation and to stimulate people to take leftovers home, instead that are thrown away. One of the promoters of food donation and prevention of food waste is one of the greatest world chefs Massimo Bottura. [18] During the Milan expo he made a collaboration with Catholic charity and open a soup kitchen that served food that has not been eaten on Milan expo show. They fed homeless people and recovered around fifteen tons of food that would end up in the trash. This was made with a thought to raise an awareness how much food would end up as a waste, just from one event. At the moment Italy is recovering 550 million of tons of food per year, that would end up as a waste and they want to accomplish 1 million tons of food recovered per year. Efforts needed to reduce food waste are shown on Figure 4.

Zoran Ježić, PhD is MSc, MPhil and PhD from the University of Rijeka, Faculty of Economics Rijeka is presently an assistant professor at is alma mater on



the courses of National economy, Regional policy and Human resource management. His scientific interest is mainly focused on the fields of economic growth and human resource development. Published papers: <http://bib.irb.hr/lista-radova?autor=274855>

While Italian policy is based on incentives, motivation and changing lifestyle, French policy is based on payment fees. France is the first country in the world that banned destruction of unsold food. Supermarkets that are bigger than 4,304 square feet are obligated to sign a contract with Food banks or charitable organizations which obligates both sides to pass and to collect food that has not been sold.[19] If large retailers do not donate the food they will face a fine of 3,750 euros. End users of donated food will benefit from this law, not just because of the larger amount, but also because of the wider diversification of donated food, which leads to nutritional balance among end users. As Italy, France also concentrated on education of the individuals and not just companies. They introduced a program in schools for the children to teach them how to prevent waste, preserve and utilize products and point out on the problem of food waste.

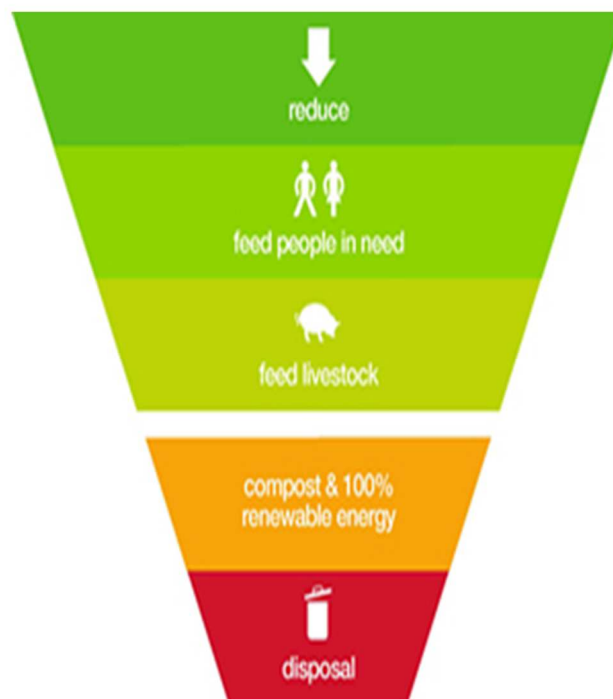


Figure 4: Pyramid of food waste [20]

They are also concentrating on problem of fruits and vegetables with irregular shape and size that is thrown away.[21] Up to 40% of the French agricultural production was destroyed, because fruits and vegetables were not conforming norms. They made market campaign that promotes fruits and vegetables of irregular shapes and sizes, because their nutritional worth is not lower. One of the biggest roles in this campaign had French retail store that put on 30% discount all of the food that had an irregular shape and size or that it did not meet the appearance standard. Moreover they made soups and juices to show that all of these products are equal in taste and nutritional value. In just first two days approximately 2.1 tons of fruit and vegetables was sold in every store. To make easier for people to reach food and vegetables that is on discount, they made a mobile application which showed which stores have discounts.

4. FOOD DONATION SYSTEM IN CROATIA

Main problem with food donation in Croatia is that in Croatia organized food donation system does not exist. There are charitable nonprofit organizations such as soup kitchens, Red Cross

or Caritas, but there is no functioning food donation system. In 2015 a nonprofit association Food Network [22] made an effort and pushed towards the removing taxes for donated food. The main goal was to make donation easier to retail stores, bakeries, restaurants, hotels. Although success of this campaign was a big victory and a necessary step towards the ultimate goal, people still do not know how to donate, to whom, there are no incentives, nor rules, laws and regulations. The most important factor is the organization, such as Food bank which will organize donations of food, educate people, cooperate with retail stores, rise an awareness of pollution that comes from food waste, accentuate the benefits of food donations and to make them as easier and convenient for people to encourage food donation. In Croatia food must be donated between 90 and 7 days before expiration date, but it is not determined who takes the responsibility when food is donated.

Problems with food donations system in the rest of the Europe are based on better education of people and utilization of food. According to Eurostat [23] the biggest waste producers are households, so it is important to educate individuals how to prevent waste and utilize food. It is divided in three strategies. Labeling, storage and portion sizes. It is important to educate people on difference in terms such as: “best before“, “use by“, “sell by“, “display by“. By mixing these terms, people can throw away edible food. Adequate storage techniques can significantly prolong expiration date. Portion sizes in households refer to the size of packaging. Although smaller packaging is more convenient, bigger packaging, with adequate storage techniques minimizes the waste induced with packaging materials.

CONCLUSION

Croatia has yet to build sustainable food donation system. The need for establishing and running food bank is recognized among charity organization and on the government level. However, although future food bank is likely to be nongovernmental charity organization, aid and support of the national and local authorities is crucial. As we can see from countries that are much more advanced in this area, challenges in food donations system are the education of people, motivation of retail stores and farmers to donate food and to label doggy bags as something good and make it a part of the culture. State involvement is necessary as NGOs do not have the resources to run this kind of campaign on the national level. After the establishing of food bank, another big step could be the ban on the destruction of unsold food. Considering that food must not become a waste, every bigger retail store should than have a contract with food bank or other non-profit organizations that will obligated to take the excess of food from the retail stores, storage it and redistribute it. To enable that in an efficient manner, connected entities should create a hybrid organization that would enable communication, cooperation and that would enhance better allocation of donated food.

REFERANCES

- [1] Pervey, C.A., (1899), Economic Aspects of Charity Organization, The Annals of the American Academy of Political and Social Science, Vol. 14 (Jul. 1899), pp. 1-17
- [2] Coase, R., (1937), The nature of firm, *Economica*, New Series, Vol. 4, No. 16. (Nov., 1937), pp. 386-405
- [3] Warr, P.G., (1982), Pareto Optimal Redistribution And Private Charity, *Journal of Public Economics* 19, pp. 131-138
- [4] Andreoni, J., (2015), Charity and Philanthropy, *Economics of*, International Encyclopedia of the Social & Behavioral Sciences, James D. Wright (editor-in-chief), 2nd edition, Vol 3. Oxford: Elsevier. pp. 358-363

- [5] Jones, K., (2017), Government or charity? Preferences for welfare provision by ethnicity, *Journal of Behavioral and Experimental Economics* 66, pp. 72–77
- [6] Douma S. and Scheuder, H., (2008), *Economic approaches to organizations*, Prentice hall Europe and Pearsons education
- [7] Menard, C., (2002) *Hybrid Modes of Organization. Alliances, Joint Ventures, Networks, and Other 'Strange' Animals*, *The Handbook of Organizational Economics*, Princeton University Press, pp 1066-1108
- [8] Menard, C. (2004), *The Economics of Hybrid Organizations*, *Journal of Institutional and Theoretical Economics*, 160, 1–32
- [9] Fayezi, S., Zutshi, A, O'Loughlin, A., (2014), Developing an analytical framework to assess the uncertainty and flexibility mismatches across the supply chain, *Business process management journal*, vol. 20, no. 3, pp. 362-391
- [10] Kastelan Mrak, M., Sokolić, D., Vretenar, N., (2016), Comparing the performance of two industries during the crisis, *Economic Horizons*, 2016, Vol. 18, No 3, pp. 255-269; doi:10.5937/ekonhor1603261K
- [11] Lovrenčić, Đ., (2017), Problems in organization of food donation system (analysis of selected countries), Master thesis, University of Rijeka, Faculty of economics
- [12] Crveni križ oročio novac, umjesto da ga da stradalima u poplavama (<http://www.novilist.hr/Vijesti/Hrvatska/Crveni-kriz-orocio-novac-umjesto-da-ga-da-stradalima-u-poplavama>, retrieved 10.10.2017.)
- [13] Croatian bureau of statistics (https://www.dzs.hr/Hrv_Eng/publication/2017/12-01-03_01_2017.htm, retrieved 10.10.2017.)
- [14] Monthly Statistics Bulletin, Croatian Employment Service (http://www.hzz.hr/UserDocsImages/stat_bilten_10_2017.pdf, retrieved 15.11.2017.)
- [15] France battles food waste by law (<http://www.dw.com/en/france-battles-food-waste-by-law/a-19148931>, retrieved 2.9.2017.)
- [16] Italy to change the law, (<http://www.independent.co.uk/news/world/europe/italy-food-waste-law-supermarkets-a6931681.html>, retrived, 22.10.2017.
- [17] Italy tackles food waste with law encouraging firms to donate food, (<https://www.theguardian.com/world/2016/aug/03/italy-food-waste-law-donate-food>, retrieved 22.4.2017.)
- [18] Italy; food waste law (<https://www.theguardian.com/world/2016/aug/03/italy-food-waste-law-donate-food>, retrieved, 22.10.2017)
- [19] France to force big supermarkets to give unsold food to charities (<https://www.theguardian.com/world/2015/may/22/france-to-force-big-supermarkets-to-give-away-unsold-food-to-charity>, retrieved 2.9.2017)
- [20] In Europe, 88 million tons of food are wasted annually in the EU (<https://www.eurofoodbank.org/poverty-waste/food-waste>, retrieved 15.9.2017.)
- [21] France's Ugly Produce Campaign (<https://www.organicauthority.com/3-food-waste-facts-about-frances-ugly-produce-campaign>, retrieved, 22.10.2017)
- [22] Mreža hrane (<https://www.facebook.com/mrezahrane/>; retrieved,22.10.2017)
- [23] Eurostat - Food Waste statistics - Expert group meeting on Food Losses and Food Waste 22 June 2016 (https://ec.europa.eu/food/sites/food/files/safety/docs/fw_eu-actions_ms_20160622_p04.pdf, retrieved 20.10.2017)

EFFICIENCY OF POLISH PROGRAMMES FOR FAMILIES WITH MANY CHILDREN

Anna Bebel¹⁹⁶

Abstract: *The aim of this paper is to present the programmes of the Large Family Card (LFC) as an effective family policy instrument. An essential issue is the analysis of the efficiency of such programmes in Poland. The efficiency was measured with the Data Envelopment Analysis method. The LFC is a general term that stands for nationally and locally implemented programmes aimed at families with many children. The LFC involves issuing cards that entitle cardholders to discounts at sports, recreational and cultural facilities (e.g. swimming pools, theatres, cinemas and zoos) and private companies (e.g. shops and restaurants). The study analysed five Polish programmes. The most efficient of these was a low-budget programme from Tychy. Wrocław's programme was also found to be very efficient. Aid programmes (e.g. in Bielsko-Biala and Grodzisk Mazowiecki) were much less efficient than the other programmes (despite good management and high awareness of goals), which showed that it is generally difficult to compare such varied programmes.*

Key words: *Large Family Card, efficiency, Data Envelopment Analysis*

1. INTRODUCTION

The Large Family Card (LFC) is a general term that stands for nationally and locally implemented programmes aimed at families with many children. This type of support is available in a number of European countries (e.g. France, Denmark, Luxembourg, Belgium, Spain, Austria, Italy and Hungary) and is considered to be an effective form of support for families with many children. The idea behind the programme is to create a positive image of a large family and to improve their living conditions, e.g. by increasing the availability of cultural, entertainment and sports offers for such families. The LFC is addressed to all large families (including foster families) from a given locality, region or country, regardless of their income. The programme involves issuing cards that entitle the families to significant discounts at or free admission to cultural, entertainment and sport facilities, and sometimes also discounted or free public transport. Equal access to the card for all large families can prevent the stigmatisation and humiliation of children from large families.

The LFC is a relatively new approach to supporting large families in Poland. This study on the LFC in Poland, including the assessment of the programme's efficiency, was motivated by the lack of research in this area. Moreover, Polish family policy of the recent years incorporated very few instruments aimed at large families, which makes any attempts to recognise and support this group especially important.

2. THE DATA ANALYSIS METHOD

The Data Envelopment Analysis (DEA) method was used to investigate the efficiency of the implemented programmes. This method is used extensively in the United States, Western

¹⁹⁶ Wrocław University of Economics, ul. Komandorska 118/120, 53-345 Wrocław, POLAND

Europe and Scandinavia. It is also known in Polish scientific centres. It is used to test efficiency in facilities such as [1]:

- hospitals and other health care units;
- educational units (schools, colleges and universities);
- military units;
- non-profit organisations.

It is also used in research on the economic efficiency of local self-government entities, both in Poland [2] and abroad [3,4,5], and selected public expenditures incurred by these units [6,7]. According to P. de Lancer, DEA is ‘a powerful linear programming technique for assessing the efficiency of organizations (...) providing similar services’ [8].

The method is nonparametric, as no parameter estimates are made. Efficiency in this DEA is relative and calculated for all objects in the studied group (which is made up of homogeneous units called Decision Making Units (DMUs)[9]). *Efficiency* is defined as a ‘quotient of the weighted sum of effects to the weighted sum of inputs’ [10].

The method makes it possible to calculate efficiency for several inputs and outputs, where inputs simultaneously contribute to the formation of several results. In DEA, the inputs and outputs do not necessarily need to be expressed in monetary units, and a correlation between the inputs or the outputs can occur [11].

The effectiveness of the programme ‘Two plus three and more’, conducted for the years 2006–2009 [12] showed an increase in efficiency over time and confirmed the viability of DEA in research on the effectiveness of such programmes. Difficulties with using DEA to research the efficiency of different programmes were primarily related to different programme offers and different archiving goals (regardless of the goals that had been officially established and contained in the programme documentation). In some programmes, the offer was prepared very reliably: it was based on the real interests of large families and the capabilities of a given municipality, while in other programmes, the offer was created randomly and focused primarily on limiting public expenditures. Another barrier was the lack of data on programme costs in most of the reviewed programmes. Although most cities prepared annual programme reports, some did not include information about the costs incurred (and the amount of lost revenue), but only general information on the use of individual facilities, interest in the offer and the number of participants and programme partners (e.g. Gdansk and Zabrze). Some cities did not evaluate the programme at all (e.g. Bytom, Garwolin and Swietochlowice), and the only data available for programme developers were the number of issued cards.

In the applied method, more than one programme could prove to be fully efficient, which is why a ‘superefficiency’ model was used to create the ranking of the programmes. This made it possible to observe: firstly, whether a given programme was efficient; and secondly, how the programmes differed in efficiency. The efficiency was examined for 2013. The expenditures

Anna Bebel, PhD at Wroclaw University of Economics (Faculty of Economic Science, Department of Mathematical Economics). Her main research interests are: family policy



(especially targeted at families with many children), quality of life, social inequalities and social well-being. She has published a number of papers (both in Polish and English) and participated in numerous international and domestic scientific conferences.

comprised the financial expenditures incurred by a given local government unit for the implementation of the programme (in PLN) in 2013. The results comprised:

- the number of families participating in a programme in a given year;
- the level of satisfaction of participants¹⁹⁷. The satisfaction index was expressed as the arithmetic mean of all grades¹⁹⁸.

3. RESULTS

An input orientation model was used in the efficiency analysis, which allowed for the determination of the level of cost constraint that would be necessary to achieve efficiency while maintaining the same effects [13]. An efficiency index of below 1 indicated incomplete efficiency of a programme in the analysed period, and an efficiency index of 1 indicated complete efficiency. The index could also exceed 1, indicating the degree of the superefficiency of the programme. The higher the value of the index, the higher the efficiency of the programme in a given year. The results of the efficiency test are presented in Table 1.

Table 1. Efficiency of Large Family Card programmes in 2013 in selected cities

Programme (DMU)	Efficiency (2013)
Bielsko-Biala	0.37
Grodzisk Mazowiecki	0.28
Katowice	0.69
Tychy	2.15
Wroclaw	1.55

Source: own calculations using the Efficiency Measurement System (EMS), University of Dortmund.

The highest efficiency was achieved by the programme from Tychy. The programme from Wroclaw also proved to be effective. The remaining programmes did not achieve efficiency, with the lowest index obtained by the programme from Grodzisk Mazowiecki. It should be borne in mind, however, that the implementation of the programmes in Bielsko-Biala and Grodzisk Mazowiecki differed significantly from the other three programmes. They were aid programmes, unlike the other programmes, which pursued promotional aims. As a result, the costs incurred for their implementation were significantly higher than in the other three programmes. Therefore, it is worth adding the results of qualitative research (as presented in article [14]) to the conclusions. The programmes from Katowice, Tychy and Wroclaw were similarly efficient, which may indicate that (despite differences in their offers) they were close to each other in terms of the achieved goals. Accordingly, the analysis of the efficiency indicates that the programme from Katowice was the least developed. It achieved similar results to the programme from Tychy, but was much more expensive.

4. SUMMARY

In sum, DEA is a method that allows for a successful evaluation of the efficiency of programmes. It is necessary, however for their implementers to collect the relevant data (e.g. financial data on programme implementation costs). Moreover, differences between the programmes and their offers make it necessary to divide the programmes into two groups: aid

¹⁹⁷ Satisfaction with participation in the programme measured based on the results of a survey conducted among the programme participants. The programme's rating was expressed on a five-point scale, where: 1 meant 'very dissatisfied', 2 meant 'not satisfied', 3 meant 'partially satisfied', 4 meant 'satisfied' and 5 meant 'very satisfied'.

¹⁹⁸ Families who could not assess their satisfaction with the programme were omitted.

programmes and programmes that promote large families. The former are characterised by significantly higher implementation costs and much greater support, while the latter can be implemented with a smaller budget. It is important, however, that the objectives of the programmes are clearly defined and properly implemented. The efficiency of a programme over time can also be studied. This efficiency should increase (or at least not decrease). Among the low-budget programmes, the programme from Tychy was the most efficient. Wrocław's programme was also very efficient. Aid programs (e.g. from Bielsko-Biala and Grodzisk Mazowiecki) were much less efficient than the other programmes (despite good management and high awareness of goals), which makes it difficult to compare programmes at different levels. The programme from Katowice was the weakest: it was not very effective in supporting families (it scored much worse than the programmes from Grodzisk Mazowiecki or Bielsko-Biala), and its economic effectiveness was also low.

REFERENCES

- [1] Domagała A., *Metoda Data Envelopment Analysis jako narzędzie badania względnej efektywności technicznej*, Badania Operacyjne i Decyzje Nr 3–4 2007, p. 22.
- [2] Karbownik B., Kula G., *Efektywność sektora publicznego na poziomie samorządu lokalnego*, Materiały i Studia, Zeszyt nr 242, Narodowy Bank Polski, Warszawa 2009.
- [3] Kutlar A., Bakirci F., Yüksel F., *An analysis on the economic effectiveness of municipalities in Turkey*, African Journal of Marketing Management Vol. 4(3), pp. 80-98, March 2012, DOI: 10.5897/AJMM11.054.
- [4] Jeirani S., Soufi M., *Ranking of Municipalities Based on Efficiency by Data Envelopment Analysis (DEA)*, International Journal of Review in Life Sciences 5(5), JK Welfare & Pharmascope Foundation, 2015, pp. 954-964.
- [5] De Borger B., Kerstens K., *Comparative Analysis of FDH, DEA, and Econometric Approaches*, Regional Science and Urban Economics 26(2), April 1996, pp.145-170, DOI: 10.1016/0166-0462(95)02127-2.
- [6] Kosmaczewska J., *Analiza efektywności gospodarowania gmin wiejskich w kontekście rozwoju funkcji turystycznej z wykorzystaniem metody DEA*, Zeszyty Naukowe SGGW - Ekonomia i Org. Gosp. Żywnościowej, nr 90, 2011, pp. 131-141.
- [7] Karkazis J., Thanassoulis E., *Assessing the effectiveness of regional development policies in Northern Greece using data envelopment analysis*, Socio-Economic Planning Sciences, Volume 32, Issue 2, June 1998, pp. 123-137, doi:10.1016/S0038-0121(97)00023-2.
- [8] Lancer P. de, *Data Envelopment Analysis for Performance Assessment and Decision Making*, [in:] *Handbook of Research Methods in Public Administration*, G. J. Miller, M.L. Whicker (red.), Public Administration and Public Policy/71, Marcel Dekker Inc., New York/ Basel 1999, p. 669.
- [9] Charnes A., W.W. Cooper, E. Rhodes, *Measuring the efficiency of decision making units*, „European Journal of Operational Research”, 2, 1978, pp. 429-444.
- [10] Domagała A., op. cit., p. 23.
- [11] Guzik B., *Podstawowe modele DEA w badaniu efektywności gospodarczej i społecznej*, Wydawnictwo Uniwersytetu Ekonomicznego w Poznaniu, Poznań 2009, p. 29.
- [12] Bebel A., *Skuteczność programu wspierającego wrocławskie rodziny wielodzietne we wzmacnianiu rodzinnego kapitału społecznego*, [in:] *Ekonomia 10. Mikroekonomia i ekonomia instytucjonalna*, M. Piotrowska (red.), Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu nr 139, Wyd. UE we Wrocławiu, Wrocław 2010, pp. 263-276.

- [13] Scheel H., *EMS: Efficiency Measurement System User's Manual*, 2000, version 1.3 from 15.08.2000, <http://www.holger-scheel.de/ems/ems.pdf>, access: 20.10.2017, p.7.
- [14] Bebel A., Wpływ Karty Dużej Rodziny na poprawę sytuacji rodzin wielodzietnych w Polsce - ocena na podstawie zogniskowanych wywiadów grupowych, [in:] *Sytuacja rodzin i polityka rodzinna w Polsce po dekadzie członkostwa w Unii Europejskiej*, Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu, No 438, Wyd. UE we Wrocławiu, Wrocław 2016, pp. 206-223 , DOI: 10.15611/pn.2016.438.13.

CHILDREN AND THEIR ROLE IN FAMILY TRAVEL PURCHASE DECISION-MAKING PROCESS: EVIDENCE FROM HUNGARY

Slavica Tomić¹⁹⁹
Ksenija Leković²⁰⁰
Dražen Marić²⁰¹

Abstract: *Within this paper attention is paid to the specific segment of consumers – children. It is a segment that is specific for its psychological and economic characteristics and is practically absent from the tourism literature and research. On the other hand, family vacation is categorized as a “child centered” product and many children are encouraged to participate in this kind of decision-making process. The aim of this paper is to examine children’s role in family purchase decision-making concerning family vacation. Information was gathered from 110 respondents – parents of children consumers from Hungary. Research question was – whether children affect the initial purchase phase and the phase of searching and deciding on the purchase of family vacation. For this purpose Spearman’s rank correlation was used for testing hypothesis. Results show that children do have significant impact in both phases of a family travel purchase decision-making process.*

Key words: *Children, Decision-making process, Family vacation, Hungary*

1. INTRODUCTION

Family, as one of the most important socioeconomic units, has not received as much scholarly attention as it deserves. Although most people travel with their families, traditional tourist studies are focused on individual travelers and group tours [1]. At the same time family is considered to be a major consumer segment for various types of tourism business [2], [3]. Moreover it is a segment that is becoming increasingly important in the travel marketplace.

According to Kang et al. [4] family is a significant decision-making and consumption unit of tourism products. Family travel purchase decisions are defined as high involvement decisions that require individual involvement and joint decision-making. Children, wives and past decision experiences exert influence on family decision-making [5]. On the other hand, children were absent from research until recently when several studies recognized the fact that children play important role in family decision-making [6].

The authors of this paper have tried to answer the question whether children affect the initial phase and the phase of searching and deciding on the purchase of family vacation bearing in mind that family vacations could be regarded as a “child-centered” product [7]. According to this the aim of the paper is to present the specificity of children’s role in family purchase decision-making on the tourist market in Hungary.

¹⁹⁹ Univerzitet u Novom Sadu, Ekonomski fakultet u Subotici, Segedinski put 9-11, 24000 Subotica, Serbia

²⁰⁰ Univerzitet u Novom Sadu, Ekonomski fakultet u Subotici, Segedinski put 9-11, 24000 Subotica, Serbia

²⁰¹ Univerzitet u Novom Sadu, Ekonomski fakultet u Subotici, Segedinski put 9-11, 24000 Subotica, Serbia

2. LITERATURE REVIEW

Over the years, family has evolved into DMU (decision-making unit) [8]. According to Gram [6] children have entered the unit of decision-making and they are involved directly or indirectly in family purchasing. The changing conditions of today have affected various changes that transformed the family decision-making process. Demographic and social shifts such as smaller families, dual income, increasing number of single parents and decrease in the amount of time spent with children have changed the attitude of parents and gave the children an increase status of influencing family purchase decision-making process [9]-[14]. Term "Kidfluence" defines the influence of child in either direct or indirect manner over the family purchases [15].

The family decision-making process differs from an individual decision-making process. According to family system theory family is an interactive system in which every member affects and complies to the rest of the system [16]. Because systems are made up of different members not only do family members influence each other but they are involved in joint decision-making. Author Maričić [17] identifies four basic roles in the decision-making process depending on which family member has the dominant influence. According to him there are situations in which the dominant role is played by the wife, by the husband, situations of autonomous purchase and situations when decisions are made together.

Many studies in the tourism literature indicate that the most dominant decision-making type in family travel purchase decisions is joint decision. Family vacations are taken by multiple members whose opinions are incorporated into joint decision-making process [4]. Likewise family vacation has been recognized as a significant component of family well-being [18], during decision-making process an effort is made in order to consider every member's preference as much as possible.

Families are becoming more children centered [9] and most children are asked to take part in the family vacation decision-making process. So far children exert different influence. The intensity of influence depends, among the rest, on the stage of the decision-making process in which the child/family is [19]. According to Gram [6] children have the most influence in the early stages of the decision-making process (initial phase) and less influence when the final

Slavica Tomić

Born in Subotica in 1962. Graduated at the Faculty of Economics in Subotica in 1984. In 1995 she defended her master thesis entitled "The efficiency of reproduction-specific reference to export-oriented companies." At the same faculty she defended her doctoral thesis entitled "The engagement of capital in the business models of success" in 2003. Since 1985 she is employed at the Faculty of Economics in Subotica. She became Associate Professor in the field of management during 2009, re-elected to the same position in the same field in 2014. She covers teaching at the undergraduate level in the subjects Economics of Enterprise, Economics of Tourism and Hospitality; Master studies on subjects Theory of costs and Modeling the development of tourism and hospitality; PhD studies on the subject of Resource economy and corporate efficiency. She is co-author of the textbook and practicum in the subject Economics of Enterprise, co-author of the international monograph entitled "Corporate Governance" and co-author in International thematic monograph – thematic proceedings: Modern management tools and economy of tourism sector in present era. She has also authored or co-authored several papers and participated in numerous scientific conferences at home and abroad.



decisions are made. During family travel purchase decision-making process children participate in several ways. They act as autonomic individuals, spending their own pocket money during vacation. Furthermore, children influence other family members' decisions either as initiators or advisors [20].

3. METHODOLOGY

In this paper a role of the children in a family vacation purchase decision-making process was observed. The empirical research was conducted in 2015 on a sample comprising 110 respondents from the territory of Hungary. The basic set consisted of parents of children aged up to 12, who provided information on children's attitudes and behaviour, whereas the children had a "passive" role [2]. The sample structure is shown in Table 1.

Table 1. Profile - Parents

		Original sample	
		n=110	%
Gender	Male	22	20.0
	Female	88	80.0
Age	18-20	-	-
	21-35	55	50.0
	36-50	51	3.6
	50+	4	3.3
Education	Elementary school	11	10.0
	Secondary school	48	43.6
	College	11	10.0
	Basic studies	24	21.8
	Postgraduate studies	16	14.5
Net monthly family income	up to 300 €	19	17.3
	301-600 €	42	38.2
	601-900 €	28	25.5
	901-1200 €	14	12.7
	over 1200 €	7	6.4
Family structure	Partnership	89	80.9
	Single parent	21	19.1

Source: the authors

Each parent filled in the questionnaire for one child aged up to 12. The sample structure of children of responding parents is shown in Table 2.

Table 2. Profile - Children

		Original sample	
		n=110	%
Gender	Boy	53	48.2
	Girl	57	51.8
Age	0-4	9	8.2
	5-7	44	40.0
	8-12	57	51.8
	still without pocket money	70	63.6

Net monthly pocket money	up to 10 €	29	26.4
	10-20 €	10	9.1
	20-30 €	1	0.9
	30-40 €	-	-
	over 40 €	-	-

Source: the authors

Data was collected through field research. Questionnaire consisted of three sections. The first and the second section of the questionnaire covered the general characteristics of respondents and their children (age, gender, education level, monthly income, monthly pocket money). The third section of the questionnaire was focussed on attitudes related to the family travel purchase decision-making process, and was divided into two stages: (1) initial stage of purchase and (2) the stage of search for product and deciding for purchase, which encompassed all stages of purchase decision-making process (need recognition, information search, evaluation of alternatives, purchase decision and post-purchase behaviour) (Kotler et al., 2010, p. 218). Questions in the third part of the questionnaire were formulated as statements that respondents rated 1 to 5 on the provided Likert scale of responses (1 – disagree completely, 2 – disagree partly, 3 – neutral, 4 – agree partly, 5 – agree completely). The research was adapted to a scale used by Beatty & Talpade [21]. Cronbach's Alpha coefficient was > 0.815 for the initial stage of purchase and > 0.860 for the search and decision making stage (Table 3, Table 4). The product applied in this research – family vacation – belongs to the area of making joint, i.e. family decisions [17].

Table 3. Cronbach's Alpha coefficient – initial stage of purchase

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.815	.815	4

Source: the authors' calculation

Table 4. Cronbach's Alpha coefficient – the stage of search for product and deciding for purchase

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.858	.860	4

Source: the authors' calculation

Starting from the basic aim of this paper and taking into account recent scientific research on this topic, hypothesis that was subject to testing is:

H_0 : There is a significant correlation between the initial influence of child consumers when deciding on the purchase of a family vacation and influence of child consumers during search for product and deciding for purchase.

4. RESULTS

The correlation between the initial influence of child consumers when deciding on the purchase of a family vacation and influence of child consumers during search for product and deciding

for purchase was examined by means of Spearman's rank correlation (as the results of Shapiro-Wilk test showed disrupted normality of arrangement of observed variables, non-parametric tests were applied in the analysis) (Table 5).

Table 5. Correlation between initial influence and influence during search for product and deciding for purchase

		Initial influence	Influence during search for product and deciding for purchase
Spearman's rho	Initial influence	1.000	.447**
		Correlation Coefficient	
		Sig. (2-tailed)	.
		N	110
	Influence during search for product and deciding for purchase	.447**	1.000
		Correlation Coefficient	
	Sig. (2-tailed)	.000	.
	N	110	110

** . Correlation is significant at the 0.01 level (2-tailed).

Source: the authors' calculation

A relative strong positive correlation, ($r=0,447$) $n=110$, $p<0,001$, was calculated between the initial influence of child consumers when deciding on the purchase of a family vacation and influence of child consumers during search for product and deciding for purchase so that it is concluded that the increased initial influence is accompanied by a relative high influence during search and deciding for purchase. The initial influence of children in the decision-making process for the purchase of family vacation accounts for 19.88% of variance of influence during search for product and deciding for purchase.

Correlation indicates that there is medium strong positive and significant relationship between the initial influence of child consumers when deciding on the purchase of a family vacation and influence of child consumers during search for product and deciding for purchase. Finally, it can be concluded that hypothesis H_0 is confirmed.

5. CONCLUSIONS

Family travel purchase decision-making process is a two-way process with well-informed children on the one side and supportive parents on the other. As this study

Ksenija Leković

Born in Subotica in 1983.

Graduated at the Faculty of Economics in Subotica in 2007. (Marketing Management). In 2009, she completed master studies and defended master thesis entitled

"Information basis of direct marketing." At the same faculty she completed PhD in Management and Business (Marketing) and defended her doctoral thesis entitled "Children as consumers and family decision-making process in selected countries of Southeast Europe". Since 2008, she is employed at the Faculty of Economics in Subotica as teaching assistant (specialized for the field of Marketing – Principles of Marketing, Marketing Research, Consumer Behavior, Direct Marketing). She has also authored or co-authored several papers (co-author in International thematic monograph – thematic proceedings: Modern management tools and economy of tourism sector in present era) and participated in numerous scientific conferences at home and abroad.



demonstrates, the perception about children making decisions about purchasing only traditional children's products (toys, sweets, snacks, books) is proven to be wrong. It can be concluded that children do influence on decision of purchase for products for self use and products meant for the whole family. Regarding vacation as an example of joint decision the results of our research coincide with the results of some previous studies [22], [6], [8], [5], [9], [20].

This study contributes to the family vacation literature and expands knowledge of destination marketers and managers. Even though the data were collected in Hungary, research method could be easily adopted by other destination marketers in order to understand their particular market's family decision-making characteristics. As the number of family vacations increase, effective tourism marketing will be maximized when destination managers understand how consumers make their travel decisions. Understanding family as a consumptive unit and children's purchase influence [23] within it is especially important for managers.

Although the results of this research provide primary data it should be kept in mind that sample size was only 110. Also, this paper presents results from only one country.

REFERENCE

- Lehto, X. Y., Fu, X., Li, H., Zhou, L. (2017) Vacation Benefits and Activities: Understanding Chinese Family Travelers, *Journal of Hospitality & Tourism Research*, 41 (3), 301-328.
- Obrador, P. (2012). The place of the family in tourism research: Domesticity and thick sociality by the pool. *Annals of Tourism Research*, 39 (1), 401-420.
- Carr, N. (2006). A comparison of adolescents' and parents' holiday motivations and desires. *Tourism and Hospitality Research*, 6 (2), 129-142.
- Kang, S., K., Hsu, C., Wolfe, K. (2003) Family traveler segmentation by vacation decision-making patterns, *Journal of Hospitality & Tourism Research*, 27 (4), 448-469.
- Lehto, X. Y., Choi, S., Lin Y., MacDermid, S. (2009) Vacation and family functioning, *Annals of Tourism Research*, 36 (3), 459-479.
- Gram, M. (2007). Children as co-decision makers in the family? The case of family holidays. *Young Consumers*, 8 (1), 19-28.
- Wang, K., Hsieh, A., Yeh, Y., Tsai, C. (2004). Who is the decision-maker: the parents or the child in group package tours?. *Tourism Management*, 25, 183-194.
- Bronner, F., Hoog, R. (2008). Agreement and disagreement in family vacation decision-making. *Tourism Management*, 29, 967-979.
- Ishaque, A., Tufail, M. (2014) Influence of Children on Family Purchase Decision: Empirical Evidence from Pakistan, *International Review of Management and Business Research*, 3 (1), 162-173.

Dražen Marić

Born in Subotica in 1975. Graduated at the Faculty of Economics in Subotica in 1999. (Marketing Management). At the same Faculty he completed master studies and PhD in Management and Business (Marketing) and defended his doctoral thesis (focused on Relationship Marketing). Since 2002. he is employed at the Faculty of Economics in Subotica as teaching assistant and assistant professor (specialized for the field of Marketing – Service Marketing, Consumer Behavior, Direct Marketing). He has also authored or co-authored several papers and participated in numerous scientific conferences at home and abroad.



- Khattari, V. (2011). Marketers in Kids' Gloves. *BVIMR Management Egde*, 4 (2), 83-94.
- Tinson, J., Nancarrow, C., Brace, I. (2008). Purchase decision making and the increasing significance of family types. *Journal of Consumer Marketing*, 25 (1), 45-56.
- Flurry, L. (2007). Children's influence in family decision-making: Examining the impact of the changing American family. *Journal of Business Research*, 60, 322-330.
- Ekstrom, K. (2007). Parental consumer learning or 'keeping up with the children'. *Journal of Consumer Behaviour*, 6, 203-217.
- Kang, S., Hsu, C. (2005). Dyadic consensus on family vacation destination selection. *Tourism Management*, 26, 571-582.
- Soni, S., Upadhyaya, M. (2007). Pester Power Effect of Advertising. *International Marketing Conference on Marketing & Society*, 8-10 April, 2007.
- Zabriskie, R., B., McCormick, B., P. (2003). Parent and child perspective of family leisure involvement and satisfaction with family life. *Journal of Leisure Research*, 35 (2), 163-189.
- Maričić, B. (2011). *Ponašanje potrošača [Consumer behavior]*. Beograd: Centar za izdavačku delatnost Ekonomskog fakulteta u Beogradu.
- Chesworth, N. (2003). The Family Vacation: A Double Edged Sword. *International Journal of Consumer Studies*, 27 (4), 346-348.
- Norgaard, M., Bruns, K., Christensen, P., Mikkelsen, M. (2007). Children's influence on and participation in the family decision process during food buying. *Young Consumers*, 8 (3), 197-216.
- Niemczyk, A. (2015). Family decisions on the tourist market. *Economics and Sociology*, 8 (3), 272-283.
- Beatty, S., Talpade, S. (1994). Adolescent Influence in Family Decision Making: A Replication with Extension. *Journal of Consumer Research*, 21, 332-341.
- Ndubisi, N., Koo, J. (2006). Family structure and joint purchase decisions: two products analysis. *Management Research News*, 29, (1/2), 53-64.
- Laroche, M., Yang, Z., Kim, C., Richard, M., O. (2007). How culture matters in children's purchase influence: a multi-level investigation. *The Journal of Academy of Marketing Science*, 35, 113-126.

HOW SOCIAL MEDIA MARKETING IMPACT ON THE ORGANIZATIONS IN REPUBLIC OF MACEDONIA

Sanja Nikolic²⁰²
Sreten Miladinovski²⁰³

Abstract: *Nowadays the influence of information technology is huge: information technology is not only new industry, but its new way of business, trade, education, administration even house holding. The development of the technology caused increased competition and innovations growth. It becomes clear why organizations need new marketing approach to compete on the global market. The social media as the fastest growing phenomenon on the internet was recognized as innovative marketing tool by numerous organizations.*

Considering the low costs of social media marketing as one of the crucial benefits, this innovative marketing tool should be much useful for Macedonian organization giving them opportunity for creative campaigns, reaching easily new target groups, communication with the customers, brand management etc.

The aim of this paper is to examine the usage of the social media marketing in Macedonian organizations and how it impacts on their work. In this research the method used in data collection is online questionnaire (Likert scale). The research was conduct on a sample of 100 Macedonian organizations operating in different sectors: tourism, business, marketing, rural development, trade, non formal education, banks, IT sector, consulting, pharmacy, textile industry, finance, transport, food industry, graphic design and print, low services. The results show that Macedonian organizations recognized the benefits of social media marketing and their usage impact positively on decreasing marketing costs, increasing the income, enhancing the image of the organization, increasing the interest of the customers about the products etc.

The results of this research will contribute in creation of marketing strategies of Macedonian organizations and encourage them to follow the innovative global trend of social media marketing in order to make maximum exploit the benefits of it, reach more consumers and gain competitive advantages.

Key words: *social media marketing, benefits, Macedonian organizations, usage, positive impact*

INTRODUCTION

Rapid and advance development of the science, the engineering and the technology entails changes in society, as well as creating new conditions on the market to which organizations would have to respond. The new conditions on the market emphasize the importance of independence and the communication skills. The information and communication technologies are increasingly being incorporated into the interactions among people, as well as into business transactions. People have become dependent on technology to such an extent that literacy is no longer reading and writing, but work on computers. [1]

The influence of information technology is huge, information technology is not only new industry, but its new way of business, trade, education, administration even house holding.

²⁰² MIT University – Skopje, Bul Treta Makedonska Brigada BB Skopje R. Macedonia

²⁰³ MIT University – Skopje, Bul Treta Makedonska Brigada BB Skopje R. Macedonia

According to ACARD (Advisory Council for Applied Research and Development), information technology is crucial point in future economic development.

This is the reason why marketing managers have to be aware of this pressure of rapidly and unexpectedly changing environment, which will continue to make changes on the market and in every sphere of social life, and how to struggle for competitive advantage in it.

THE BENEFITS OF THE FASTEST GROWING PHENOMENA ON THE INTERNET – THE SOCIAL MEDIA MARKETING AND MACEDONIAN ORGANIZATIONS

Social media marketing uses the social media tools to persuade the customers (current and potential) that the products or services offered by the company are valuable for the price that is paid. Authors define the social marketing as “concerned with the application of marketing knowledge, concepts, and techniques to enhance social as well as economic ends. It is also concerned with the analysis of the social consequences of marketing policies, decisions and activities.” [2]

The main characteristic of the social media that could be useful for marketing managers is that, they provide interaction with the costumers. The traditional advertising tools are one-way communication – TV and radio, magazines, newspapers advertisings. The social media enable customers to express their opinions, desires and needs which is especially important to the organization in creating new products and marketing campaign. Also, this is how the new product or the organization is reaching to new markets through existing satisfied customers. [3]

Another crucial advantage is that the most popular social media networks are practically free to join and all tools for interacting with other people are all available for free. These platforms also offer advanced, but affordable

Sanja Nikolic is born on 20.10.1984 in Skopje, R. Macedonia. She graduated at Faculty of Economics, University "Ss. Cyril and Methodius" - Skopje in 2007. In the same year she was employed at MIT



University – Skopje, Faculty of Management as Teaching Assistant on a group of management subjects. She continued her education on master studies, also at Faculty of Economics, at marketing department. In 2011 Sanja become Master of Science in Economics (MSc). Right after she finished the postgraduate studies, she applied PhD thesis on the Institute of Economics, University "Ss. Cyril and Methodius" - Skopje and in 2013 became Doctor of Economic Sciences. She published lot of scientific papers and participated at scientific conferences. In 2014 she was elected in Assistant Professor at Faculty of Management, MIT University – Skopje and she was allotted following subjects to lecture: Business Communication, Leadership, Sustainable Business. Sanja was involved in Career Center working on enabling practice for students and enhance employability. Her motivation and enthusiasm were recognized and in 2015 she was promoted in Associate Dean of Faculty of Management, and short time after, in 2017 Sanja Nikolic was promoted in Prorector for Academic Affairs. In 2015 she published her first book “Knowledge Management – New Paradigm in Strategic Management” and next year, in co-authorship, she published her second book “Marketing (Concept, Global challenges and Strategic Approach)” which was published by Innovations and Sustainability Academy in Plovdiv, Bulgaria, 2016.

Besides lecturing on the university, she was involved in lot of project activities such as: research, analysis, expertise, presentations, trainings, lecturing, seminars, organization development, enhancing team work, enhancing communication skills etc.

advertising platforms that can be used to target consumers with demographic, keywords and interest-based campaigns. [4]

Regarding the use of information and communication technologies in business entities, Macedonian State Statistical Office, in October 2015 announced that 93.5% of the business entities with 10 or more employees had broadband internet access (through fixed or mobile connection). 59.1% of the business entities had access to the Internet through a portable device, using a mobile telephone network (3G/4G). [5]

THE AIM OF THE RESEARCH

The aim of the research is to examine how the use of social media marketing impact on the organizations in R. Macedonia.

METHODOLOGY

Method of data collection

The research was conducted using online survey – structured questionnaire as a data collection method. The questionnaire was formed with multiple choice questions, using the Likert scale and open questions. The respondents had to choose one from five offered alternatives which expressed their level of agreement or disagreement for a series of statements and they have to give their opinion on the open questions.

Sample

The sample was formed from the employees in Macedonian organizations working in different sectors: tourism, business, marketing, rural development, trade, non-formal education, banks, IT sector, consulting, pharmacy, textile industry, finance, transport, food industry, graphic design and print, low services. The sample consisted of 100 respondents who participated in the research (N=100).

RESULTS AND DISCUSSION

Demographic data show gender balance within the respondents. Namely, 55,2%, of the respondents are female and 44,8% are male. Considering the age, half of the respondents are between 30 and 35 age old – 56,9%, 25,9% are between 36 and 45 years old and 15,5% are between 24 and 29 years old. Only 1,7% are over 46 years old.

On the question “how long do you work in this organization”, most of the respondents answered that they work in their organizations more than 7 years – 46,6%, 43,1% answered that they have 1 – 7 years working experience in current organization and 10,3% of the respondents work less than a year in their organization.

Respondents were asked if their organization has a profile or page on some of the social network. Results show that even 91,4% of organizations have a profile of page on the social media which illustrated the interest in growing internet phenomena of the Macedonian organizations.

On the question “on which social network your organization has a profile or page”, respondents may choose more than one answer. They respond that: 89,7% of the organizations have a profile or page on Facebook; 29,3% - on Instagram; 22,4% - on Twitter; 3,4% - Pinterest; 1,7% stated that their organization have a web page and 1,7% stated that their organization don't have a profile or page on the social network. From the results it is obvious that Facebook, Instagram and Twitter are the most popular used social media among Macedonian organizations.

Furthermore, it was examined to what extend social media marketing influence to reduce the costs of the organization. Almost half of the respondents, 44,8% answered that the social media marketing influence to a great extent to reduce the costs of the organization, 29,3% answered that it influence to some extent, 12,5% answered that it influence in a very small extend and 6,9% answered that it influence to a very great extent. Considering the open answer alternative on this question, there was an answer that the social media marketing has not influence at all on the reduction of the organization's costs because unqualified staff works on it. Also, a few respondents (1,7%) answered that they are not familiar whit this issue.

The next question refers to the relation between the social media marketing and the profit of the organization. Namely, the biggest percent of the respondents (46,6%) answered that the social media marketing influence to a great extent to increase the profit of the organization, 27,6% answered that it influence to a small extent, 12,1% answered that it influence to a very small extent and 6,9% answered that it influence to a very great extent. As in the previous question, there were answers pointing out that unqualified staff is working on the social media marketing.

Considering the image of the organization, half of the respondents said that social media marketing influence to a great extent on enhancing

***Sreten Miladinovski** was born on July 1, 1981 in Skopje.*

In 2002, he graduated at the American College of Thessaloniki, Greece and in the same year as a full-time student graduated at the University "St. Kliment Ohridski", Faculty of Tourism and Hospitality Ohrid, Republic of Macedonia. He earned a master's degree in 2003 at the ESCEM School of Business and Management, French Republic. He received his PhD in 2005 at the International Personnel Academy, Kiev Ukraine, and obtained the title Doctor of Economics.



After graduation, he was employed at the Faculty of Social Sciences Skopje (FON) as a junior teaching assistant. In 2003 he was elected in teaching assistant at the Faculty of Economics at the European University. In 2006, he continued his career at the Faculty of Tourism in Skopje, where he was promoted in assistant professor. In 2007 he was elected Associate Dean for International Cooperation, and in 2009 he was elected in Associate Professor and Dean at the Faculty of International Marketing Management at the University of Tourism and Management-Skopje. In 2010 he was employed at MIT University as an associate professor in the field of economics where he runs the Prorektor post for international cooperation. In 2014 he was promoted in full-time professor in the field of economics.

Dr. Sreten Miladinovski from 2005 to present is a visiting professor at the University "Pjeter Budi" in Pristina, as well as the University of Hazi Zeka in Pec.

He participated in lot of conferences in the country and abroad, as well as in the preparation of business plans for many successful companies in the Republic of Macedonia.

He was a moderator of several international conferences.

Author or co-author of over 90 scientific and expert papers in the field of economics, as well as 20 books and textbooks.

the image of the organization and 32,8% believe that it influence in a very great extent. 12,1% answered that social media marketing influence to a small extent on the image, and no one of the respondents answered that it influence in a very small extent. The results impose the importance of the social media marketing use in the creation and enhancement the image of the organization.

Furthermore, the respondents were asked to what extent the social media marketing influence on increasing the customers' interest about the organization's product. The biggest percent of the respondents (46,6%) answered that the social media marketing influence to a great extent on increasing the customers' interest about the organization's product and 22,4% answered that it influence to a very great extent. 19% of the respondents said that the social media influence in a small extent and 5,2% said that it influence in a very small extent.

The next question aimed to examine does the organization use the feedback from the customers gather trough the social networks as an input in the analysis of the marketing campaign effectiveness. Even 79,3% of the respondents answered that their organization use the feedback from the customers in their analysis of the marketing campaign effectiveness, 12,1% answered that their organization doesn't use it and 1,7% said that they don't know. The results illustrate that the most of organization representatives recognize this important advantage of the social media marketing – the possibility of direct feedback of the customers and their use in the marketing analysis.

Linked to the previous, the following question examine to what extent according to respondents' opinion, the possibility of direct contact between the customers and organization trough the social media, is useful for the organization. Half of the respondents (53,4%) answered that the direct contact between the customers and the organization trough the social media, is useful for the organization in a great extent and 32,8% answered that it is useful in a very great extent. 10,3% of the respondents answered that it is useful in a small extent and only 3,4% answered with "a very small extent". As in the previous question, the respondents again recognize the benefits of the social media marketing direct contact with the customers.

The last question was comparing the traditional marketing and the social media marketing. Namely, the respondents have to answer "to what extent do you think that the social media marketing is more effective than the traditional marketing". Almost half of the respondents (48,3%) answered with "to great extent", 29,3% answered with "to a very great extent", 12,1% answered "to a small extent", and only 3,4% answered with "to a very small extent". 6,8% of the respondents said that they don't have opinion about this question; don't know; it depends of the target group of the organization; this is because the fast way of modern life etc.

CONCLUSION

Establishing communities around products and services (enabled by the social media) is a potential strategy to build brand loyalty, which is one of the most important traits of the successful companies, facilitating viral marketing, spreading customer testimonials. Social media can find new customers for the companies and can help in the process of conducting the market research.

Additionally, social media marketing also helps companies to: generate their exposure to business; build new business partnerships; generate qualified leads due to better lead generation efforts; sell more products/services; decrease their overall marketing expenses.

Considering the impact of the social media marketing on the Macedonian organization, generally it can be concluded that the impact is positive and that the organizations recognize the benefits of the social media marketing throughout increasing reduction of the costs, increasing of the image and brand recognition, direct feedback of the consumers used in the creation of the marketing strategies and analysis etc. The results of the research show that the major of the majority of the Macedonian organizations have a profile or account on the social networks, whereby the most popular among them are Facebook, Instagram and Twitter. Also, the respondents pointed out the advantages of the social media marketing over traditional marketing.

References:

- [1] Slavkovic, M. (2006) *Korporativno upravljanje u tranziciji – vlasništvo, kontrola, menadzrske kompetencije*, Upravljanje znanjem i menadzrske kompetencije, Kragujevac,
- [2] Lazer, W., Kelley, E.J. (1973) *Social Marketing: Perspectives and Viewpoints*, Homewood, Richard D. Irwin,
- [3] Neti, S. (July, 2011) *Social Media and its Role in Marketing*, International Journal of Enterprise Computing and Business Systems, Vol. 1, Issue 2
- [4] Efthymios Constantinides (2014) *Foundations of Social Media Marketing*, Procedia - Social and Behavioral Sciences 148, 40 – 57
- [5] Use of Information and Communication Technologies in Business Entities, State Statistical Office, <http://www.stat.gov.mk/PrikaziSoopstanie.aspx?rbtxt=76> (10.10.2015)
- [6] Nikolic S., Miladinoski S. (May 2016) *Advantages of social media marketing over traditional marketing*, Proceedings of International Scientific Conference “Global challenges and opportunities - future perspectives of developing countries”, MIT University - Skopje, Republic of Macedonia

INTERNATIONAL MARKETING IN THE SERVICE SECTOR: POTENTIAL AND CHALLENGES

Sasa Virijevic Jovanovic²⁰⁴
Dusko Mladjenovic²⁰⁵

Abstract: *The service sector is one of the three main pillars of a developed economy. Statistical data from the relevant organizations such as the World Bank and Eurostat show the examples of developed countries where service sectors participate in the creation of GDP from 70% to 92%. Regarding the key characteristics of services such as intangibility, inseparability, perishability and variability, the paper analyzes the specifics of internationalization in the service sector. Marketing literature considers that the process of service internationalization is more risky in comparison with other industries. The goal of this research is to demonstrate the reasons of such considerations and to explain the main factors that influence the internationalization in service companies. The importance of service sector in Europe proves the fact that the EU is the world's largest exporter of services. Therefore, the paper also analyzes service potential in the EU market, as well as the barriers to service trade.*

Key words: *international marketing, service marketing, service internationalization, service export, EU service trade*

1. INTRODUCTION

The service sector is one of the three main categories of a developed economy. It generates more than two-thirds of the world's GDP.[1] Even countries where during the 1990s the service sector accounted for 30% of GDP, today record a significant progress towards the 50% or 60%.

Key dimensions of the service sector in XXI century are: [2]

- The economy and the labor market is increasingly dependent on services;
- Increased involvement of consumers in making strategic business decisions;
- The emergence of products that are market-oriented and more responsive to the customer needs;
- Development of technologies that help customers and employees in providing services;
- Employees have more authority to create customized solutions for the specific requirements of customers;
- The emergence of new service activities and "service imperatives" of the products based on the intangible characteristics.

According to these trends, services are often seen as a great potential in trade, which significantly participate in world exports. From the marketing point of view, the internationalization of services is much more complicated and demanding in comparison to other products. The main reason for this is that in many service companies the producer and the production facilities are part of the service, which requires that the firm has greater control of its resources.[3] Moreover, the service is specific because it cannot be felt, stored, or possessed.

²⁰⁴ MEF, Faculty of applied management, economy and finance, Belgrade, Serbia

²⁰⁵ PhD student, Singidunum University, Belgrade, Serbia

Regarding these characteristics the marketers are faced with the challenge to increase the physical evidence of services in the internal market.

2. SERVICES IN THE INTERNATIONAL MARKET

The service economy consists of soft economic elements, divided in nine so-called super sectors, such as: education and health services, financial services, government services, information services, leisure and hospitality, business services, transport and utilities, trade, other services.[4]

Historically observed internationalization of services was carried out through three significant processes.[5] The first process was initiated by the international trade of goods that demanded services such as transport, logistics and warehouse services. The second is the FDI expansion that affected the internationalization of services such as banking and financial services, business advice, legal services, accounting etc. The third significant process that has influenced the internationalization of services is the development of technology, especially internet technology. The application of the Internet and digital technologies has significantly redefined the service market, contributing to the emergence of new types of services and occupations.

2.1. INTERNATIONAL SERVICE MARKETING ENTRY MODES

International service trade refers to trade in services as the transactions between residents and non-residents. Besides that, services may be supplied also through foreign affiliates in host countries.[6] Exports and imports of services can be done in the following ways:

- Cross-border trade: The examples are a web designer, who creates sites or an engineer working for clients all over the world while sitting at their homes;
- Consumption abroad: The consumer is using services outside his home country. For example services in tourism where tourists travel to foreign countries and experience services in restaurants, hotels, theatres, etc. Another example is education if students decide to study abroad.
- Direct entry/own subsidiary: The service firm establishes a service-producing organization of its own on the foreign market in order to provide better access to the local population. For example Starbucks Japan is a wholly owned subsidiary of Starbucks Corp.
- Indirect entry/intermediate mode is used when the service firm wants to avoid establishing a local operation that is totally or partly owned by itself but wants to establish a permanent operation in the foreign market. The main forms of such entry are: licensing agreements, franchising or management contracts. Some of the examples of indirect entry mode are Dominos Pizza, Coffee Republic and McDonald's Restaurants.

Sasa Virijevic Jovanovic is a marketing author and associate professor at Faculty of Applied Management, Economics and Finance, MEF in Belgrade, Serbia. She received her Bachelor Degree in economics. Postgraduate and PhD studies she finished at the University of Braca Karic, both in management. Sasa Virijevic Jovanovic is the author of over 40 publications (researches, papers, books) about marketing, brand management and digital branding. In her works, she was particularly interested in the concept of branding, emphasizing that the brand is a strategic issue of business and the essence of modern marketing.



- The movement of people: For example, a commercial lawyer based in Great Britain, who was hired to lead workshops in Greece.

2.2. THE IMPORTANCE OF SERVICE INTERNATIONALIZATION

The internationalization of services has multiple significance, including various social and economic effects. One of the effects is certainly the improvement of the service quality that is achieved on the basis of healthy competition and benchmarking. Intermediate services play an important role in the international value chains, contributing to product quality, lower costs, and better relations with stakeholders. Therefore, services are not just inputs in the value chain, but significant factors that change the whole way in which value is created.

In search of efficiency, in order to lower costs many companies have seen the service internalization as an opportunity for outsourcing. Regarding this, financial organizations have outsourced their back-office data-management and analytical tasks, architects their design tasks, large organizations have outsourced their call centers etc.

Furthermore, the internationalization of services significantly contributes to the development of the SME sector, improves manufacturing and agricultural exports and connects people in the digital environment. Service can be a value-add for manufactured products. If we decompose the value chains of goods we can see the very large services components that are embedded in them. Therefore, many service organizations provide transport, logistics, design, installation, repair services, insurance for the goods. On the other hand, production of some services is closely related to manufactured products such as tablets, smart phones, computers, software, printers, TV devices, smart refrigerators etc. An open service market is a driver of development, ensuring access to skills, technology, investments and markets in contemporary economy.

According to World Bank's report, barriers to trade in services are declining, slowly, but are much higher than those in the movement of goods, narrowly construed. [7] The most significant barriers to service internalization include regulation, legal institutions, infrastructure, and simple capacity.

2.3. THE SERVICE – CHALLENGE FOR INTERNATIONAL MARKETING

From the marketing point of view, the service is considered to be a special kind of product, which is intangible, indivisible and variable. According to Kotler, service is any act or performance that one party can offer to another that is essentially intangible and does not result in ownership of anything. Its production may or may not be tied to a physical product. (Kotler, 1987). Regarding these peculiarities of services, managing the marketing of services in the international markets is a real challenge.

Each feature of the service brings a new challenge for the marketer. Intangibility, for instance, opens the question of product evaluation before, during and after the purchasing process. In order to answer this challenge, marketers use physical evidence (websites, brochures, interior design, technology, etc.) as an indicator of quality. Indivisibility implies that the processes of production and use of services often occur simultaneously. Also, these processes are related to certain people who create and use the service, or participate in the service environment. Every aspect of experiencing and providing services include the behavior of people. And, predicting people's behavior in the environment is more difficult than anticipating demand for goods. Indivisibility as a feature also means that services cannot be stored for later use. Therefore,

marketers are making great efforts to manage the demand for services on the international market. An additional challenge for international service marketing is the variability. The quality of services varies depending on people, places or time. For this reason, services need to be standardized and regulated. The service variability carries many obstacles for international marketing, which we can see today in unequal quality standards that are applied in different states.

In addition to all these challenges, international service marketing nowadays face a legal issues in terms of different regulations that put barriers to market entries.

3. THE SERVICE INTERNATIONALIZATION IN EU

The living standards in Europe largely depend on the development of services. Across Europe, the service economy is going through a period of revolutionary change which defines new ways of doing business.

The services sector is by far the EU's largest GDP contributor as well as a significant generator of new jobs. According to statistical data from 2016, the tertiary sector is employing over 150 million Europeans.[8] Except those who continue tradition of crafts or agricultural business, it is likely that the Europeans most of their working lives are dealing with services, working in public agencies, nonprofit organizations, and so on. [9]

For the purposes of this study we considered useful to explore the importance of services in the structures of EU exports. An interesting fact is that the EU is the world's largest exporter of services, with the following figures [10]:

- EU -28 services exports worth 820 billion euro in 2016;
- EU-28 net surplus of services increased approximately 10-fold between 2000 and 2016.
- 130 billion euro trade surplus in services was achieved in 2016.

If we compare the exports of services in EU during the 2016, we would come to the conclusion that the United Kingdom was the EU Member State with the highest value of service exports to non-member countries with its EUR 183 billion of exports. It is followed by Germany (EUR 126 billion), France (EUR 96 billion), Ireland (EUR 65 billion) and the Netherlands (EUR 56 billion).[11]

The chart shows the structure of EU 28 service trade from 2016. According to chart, the largest importer of EU services is USA with 26, 7% of all exports to non-member countries. The next largest trading partners in service exports were Switzerland (14 %), China (5 %), Japan (4 %), Russia (3 %), Canada, India and Brazil (all 2 %).

Dusko Mladjenovic was born in 1966 in Nova Varoš, Serbia. He completed his master studies at Singidunum University in Belgrade - Department of Business Economics. He enrolled in PhD studies at the Singidunum University - Department of Tourism Management. He gained his practical experience in the economy, working in managerial positions since 1994. From October 2016 to April 2017 he worked at the Higher Business School in Kruševac, as a teacher of economics. Dusko Mladjenovic is also a researcher, interested in management. He participated in different international and national conferences.



When it comes to EU service imports, we can see that the list of trading partners is the same as in the case of service exports. The most important destination for EU service imports is USA with 30% of all services imported from non-member countries in 2016.

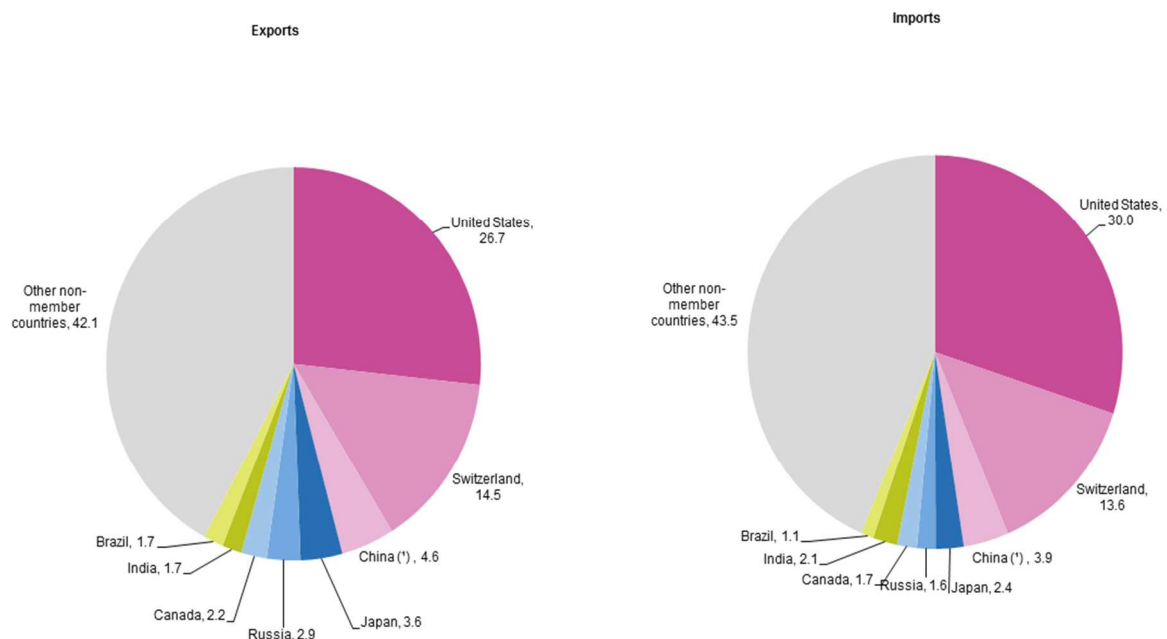


Chart: Trading partners' share of EU-28 international trade in services with non-member countries (extra-EU), 2016 (%) [11]

In order to present the importance of service internalization in EU, we have explored the statistical data that demonstrate the overall distribution of FDI across sectors in EU. According to official EU data, financial services are the most dominant sector in total EU FDI inflows. When it comes to nonfinancial service sector, business services account for more than 40 percent of the EU FDI [11].

Despite the economic support for services liberalization, service suppliers continue to be negatively impacted by discriminatory trade regimes in many countries. Barriers to services trade in Europe include: [12]

- Barriers to commercial establishment (including foreign ownership caps and joint venture obligations).
- Restrictions on types of commercial presence (branch / subsidiary) and number and type of services that can be provided.
- Nationality and residency requirements.
- Discriminatory registration requirements and licensing procedures.
- Economic needs tests and discriminatory treatment advantaging domestic companies over foreign companies.
- Closed sectorial market access.
- Non-Tariff Barriers (NTBs) such as technical barriers and complex regulatory environments.

CONCLUSION

The importance of services is reflected in all aspects of the economy and society. Services today represent a major indicator of standards in society. It is precisely the quality of services that effects the development of our societies, the quality of life and national economies. Economically observed services contribute significantly to the creation of a GDP, participate in employment and represent an important product in the international trade. The case of EU showed that services can have great contribution to economic development and trade. EU - 28 services exports worth 820 billion euro in 2016.

Internalization of services as a process, which has intensified with the emergence of globalization and digital technologies has opened many opportunities for development. The paper has emphasized the examples in which the service internationalization contributes to the development of the SME sector, participates in the global value chains, improves manufacturing and agricultural exports and connects people in the digital environment.

At the same time, service internalization brings new challenges for the marketing. The key issues for international service marketing are:

- How to increase the service tangibility in order to present the service quality in international markets and in different cultures;
- What mechanisms to use in order to manage demand for services;
- The question of service standardization in international markets,
- International cooperation in order to eliminate in order to eliminate the barriers to services trade.

REFERENCES

- [1] <http://www.oecd.org/>
- [2] Hoffman D., Bateson J. (2012) Service marketing, Concepts, Strategies, Cases, McGraw Hill, pp.4
- [3] Hollensen S. (2011) Global Marketing, Pearsons, pp.90
- [4] Hoffman D, Bateson J. (2010) Service marketing, Concepts, Strategies, Cases, Cengage learning, pp. 32
- [5] Cave William, (2006) National Accounts and Economic Statistics – Services, 7TH OECD INTERNATIONAL TRADE STATISTICS EXPERT MEETING ITS and OECD-EUROSTAT MEETING OF EXPERTS IN TRADE-IN-SERVICES STATISTICS (TIS), OECD, pp.5
- [6] <http://ec.europa.eu/eurostat>
- [7] World Bank, the Institute of Developing Economies, OECD, World Trade Organization, (2017) Global value chain development report, International Bank for Reconstruction and Development/The World Bank, pp.4
- [8] European Services Forum, The voice of the European Services Industry in Trade & Investment, <http://www.esf.be/>
- [9] Lovelock C. H., Vandermerwe S., Lewis B. (2011) Services Marketing, Edinburgh Business School, Edinburgh, pp.1-6
- [10] <http://www.esf.be/new/wp-content/uploads/2015/08/ESF-draft-v4-2014.pdf>
- [11] <http://ec.europa.eu/eurostat>
- [12] http://www.learneurope.eu/files/9413/7483/7529/ESF_Servicies_facts_and_figures_en.pdf, p:8

ANALYZING PASSENGERS PROFILE USING LOW COST AND FIXED COST CARRIERS: A CASE STUDY OF PRISTINA AIRPORT

Lorik Abdullahu²⁰⁶

Abstract: *The increased number of low cost carriers operating in the western Balkans has affected the development of competition among airlines and airports, resulting in significant passenger increase at Pristina Airport. The aim of this paper is to examine the passengers' profile, traveling on low-cost carriers (LCC) in comparison with those traveling on fixed cost carriers (FCC) by applying cluster analysis. Furthermore, it aims to provide new insights for airport and airline operators when designing their strategies in meeting the growing demand. The results of the study were obtained through a paper-based survey, with departing passengers in Pristina Airport and they reveal that, diaspora encouraged by price factor constitutes the main portion of LCC passengers. Affordable prices offered by LCC have been the main incendiary for passengers whose travel purpose is to visit friends and relatives at their homeland. However, passengers flying with fixed costs carriers could be generally classified into two segments, those whose flying purpose is business and those whose flying purpose is leisure. On the other hand, with young coming generation of diaspora (who were born abroad), the growing demand situation is foreseen to change due to their decreasing tendency and interest to visit their homeland.*

Key words: *passenger profile, low cost carriers, fixed cost carriers, Pristina airport*

INTRODUCTION

Governments of many countries have built and developed airports not only to improve their country's infrastructure but also to encourage local and regional development of the surrounding locality by creating and providing new opportunities for economic growth of the surrounding areas (JARACH, 2005). Airport privatization, in combination with airline market liberalization, offers new opportunities for passengers and airports to develop creative strategies and gain competitive advantage in the market. According to (Başar and Bhat, 2004) the deregulation of air transport and the growth of low-cost carriers (LCCs) such as Southwest and Ryanair, has resulted in intensified competition and much lower prices, especially on city pairs where network carriers compete with LCCs. In terms of seats (Dobruszkes, 2006) found that LCC cover 18% of the total air transport market in the Western Europe. Author (Dobruszkes, 2009) considered routes that were originating from west and east which were served by Low Cost Carriers reflecting a new form of mobility, mainly dedicated for emigrants working and living in western Europe, tourists flows as well as business. Undoubtedly LCC became a serious threat to traditional air carriers since they have gradually started to lose their market share as their passengers are shifting to low cost carriers. The LCC are known about their tendency to explore the advantage of using secondary airports, which allows substantial lower operating costs, savings and further possibility of offering cheaper air fares. Many studies were conducted, from several researchers, investigating the price sensitivity and factors that drive the air travelers when choosing their airline of preference (Lin and Huang,

²⁰⁶ University of Prishtina "Hasan Prishtina", Bregu I Diellit Z. Lindje II2 Nr.8 10000 Pristina

2015; O'Connell and Williams, 2005; Martinez-García, 2012; Fourie and Lubbe, 2006) and most of them have concluded that passenger profile using FSCs and LCCs substantially differ in terms of their socio-demographics. They have also found that the 21st century business passengers consider LCCs as an option for their business travel needs too. Furthermore, (Graham, 2006) argues that the environment within which the airline industries operate has become much more less certain and stable. However, in the long term the author foresees that it is likely that traditional key drivers of demand such as cost, income, and time will continue to play an important role in influencing air travel demand, although the exact relationship they have with travel growth and their relative importance, may change.

Similarly, in Pristina, the market liberalization and airport privatization enabled the entrance of LCC in the market, it increased the competition among airports and airlines and due to this fact new prospects for passengers as well as airports and airlines arises. Moreover, the low-cost carriers play an important role for family reunions and seasonal commuters, triggering the growing demand from those who wish to visit them. Therefore, the aim of this research is to analyze the passenger profile flying with Low Cost Carrier and those with Fixed Cost Carrier. This research has implications for Pristina Airport as well in designing their market strategies.

SOCIO ECONOMIC ENVIRONMENT

Pristina is situated in the Western Balkans and it is a known region for political and ethnic unrest. However, since the war has ended in 1999, the macroeconomic situation in this area has picked up and it remained relatively stable, but continually challenged by political uncertainties. The GDP growth in 2015 compared to 2014 is 4% which is above the average annual growth rate of 3% over the last five years and economic growth is recorded mainly due to private consumption which results from high remittances, pension growth and salaries in the public sector. Production capacities are very weak, trade and real estate activities continue to positively influence growth through construction contracts and budget is mainly based on the taxes collected from the import of consumer goods, since the production sector is not to be admired. Foreign investments derive mainly from countries such as Germany, Austria, Switzerland, Turkey, Croatia and Slovenia. The key revenues, of great importance for stimulating growth and reducing macroeconomic imbalances are those generated from emigrants. Most of the emigrants are employed in foreign European countries where they reside and they do not only transfer income to their homeland, but they also visit their homeland very often, during which visit they spend a substantial amounts of money.

The emigrant financial participation plays an important role in foreign investment and the economy in general which has a knock-on effect in the air transport industry as well. Most of the passengers and flights to and from Pristina originate from western Europe, countries where emigrants live and work.

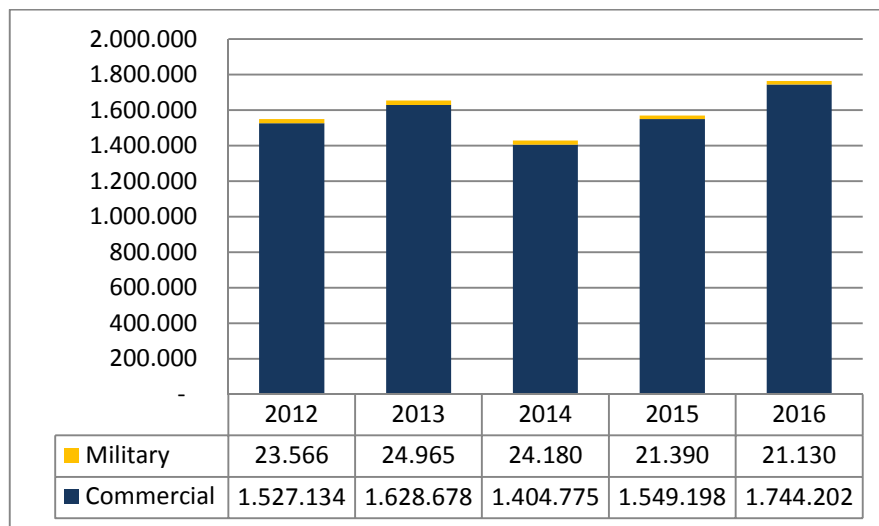
On the other hand, although citizens are not allowed visa-free travel to Europe, locals are largely dependent on traveling to the European Union for work, better access to education, health care and overall improvement of their economic situation. Therefore, the current visa conditionality limits passenger's ability to travel as tourist to Europe. It is worth emphasizing that the local economy, as other emerging economies, comprises a large proportion of the population living in poverty and thus traveling by plane is reasonable only if the ticket price is sufficiently cheaper in comparison with price offered by competitors (other modes of travel).

Here the importance of LCC comes into play where an increase in living standard, in number of LCC's serving the airport and a possible positive economic growth, will affect the demand

for air travel. It is worth mentioning that a new wave of flights is expected to occur, especially after the visa liberalization act which is expected to happen during next two years, similarly like it did happen in Macedonia and Albania, especially during the first year after their visa liberalization act. However, this situation is estimated to last only temporarily until unemployed people find a job of any kind abroad that is either permanent or temporary.

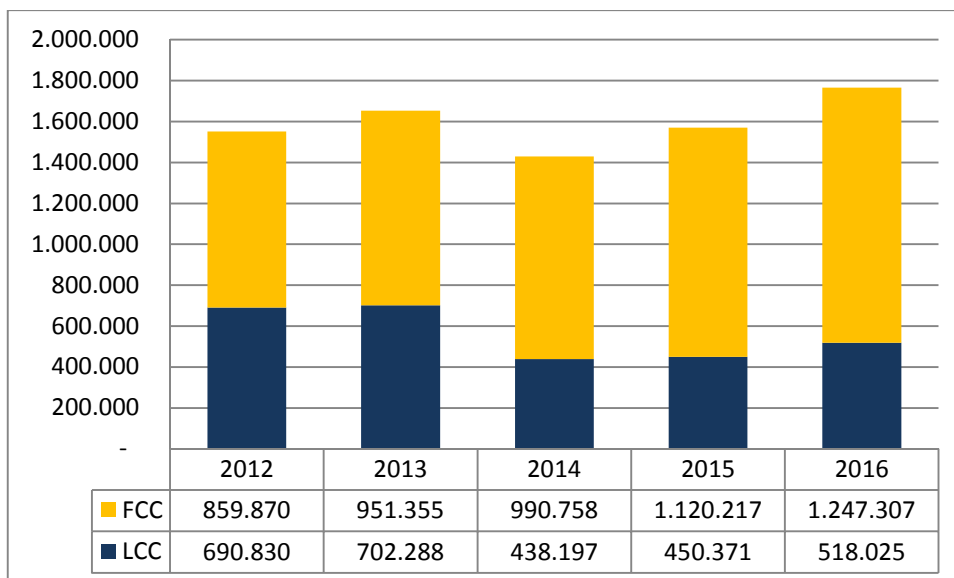
PRISTINA INTERNATIONAL AIRPORT

Pristina International Airport is recently privatized. A brand new 42,000-square-meter passenger terminal building was constructed together with new air traffic control tower and aircraft parking platform designed to serve 7 parking stands at the same time. During last five years, even though in 2014 there was a significant drop off passengers served at the Airport, due to bankruptcy of the Low-Cost Carrier Belle Air, Pristina Airport has recovered fast and marked a significant increase in number of passengers served during last five years, up to 1.7 milion in 2016 (Figure1).



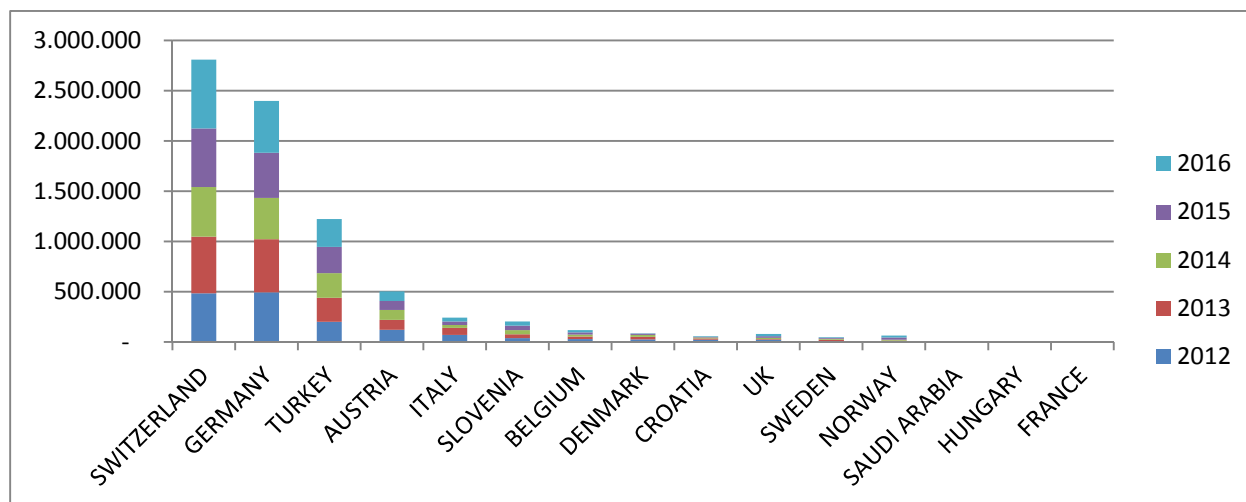
Source: Analysis based on Pristina International Airport Report (2016)
Figure 23 Pristina Airport, passengers served 2012-2016.

The airlines operating at the airport are in general those of mid-sized airlines covering mainly short-distance flights, no longer than three and a half hour flying time and the market share is divided in Full Cost Carriers (FCC) covering 64.8% of the market and Low-Cost Carriers (LCCs) 35.2%, figure 2.



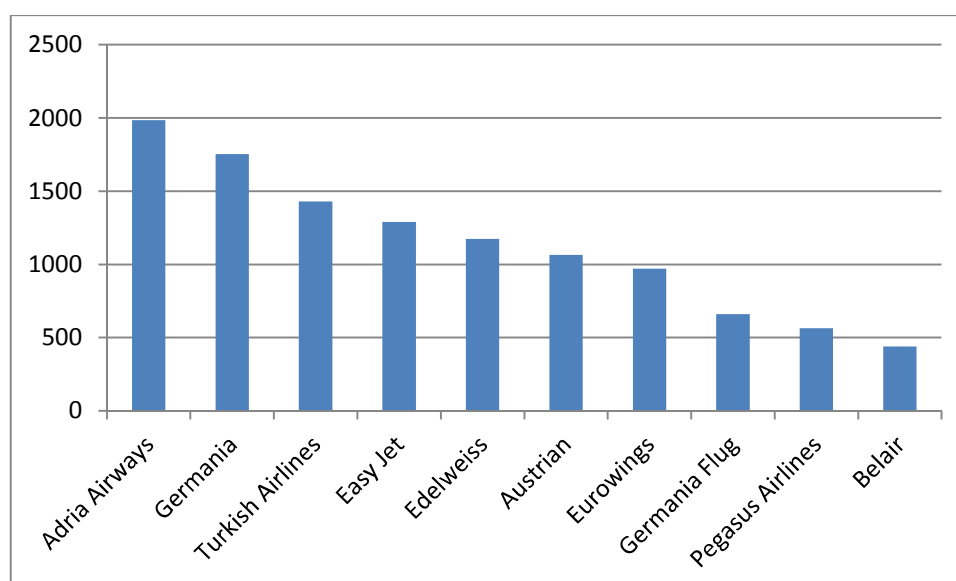
Source: Analysis based on Pristina International Airport Report (2016)
Figure 24 FCC & LCC market share in Pristina.

Regarding destinations served, the market share is divided in 35.75% of passengers visiting Switzerland, 30.52% Germany, 15.58% Turkey, 6.4% Austria and 3.07% Italy, which all together represents 91.32% of all destinations served figure 3.



Source: Analysis based on Pristina International Airport Report (2016)
Figure 25 Top five destinations served from Pristina.

About airlines, the top seven airlines operating during last five years in Pristina are: Adria Airways (with its direct routes from Pristina to Ljubljana, Munich, London, Amsterdam, Zagreb, Malmo, Brussels, Frankfurt, Copenhagen and Basel), Germania and Germania Flug (serving routes to London Gatwick, Dusseldorf, Basel, Geneva, Munich and Zurich), Turkish Airlines (with its route to Istanbul), Easy Jet (Basel, Geneva), Edelweiss (to Zurich), Austrian Airlines (to Vienna) and Eurowings (to Stuttgart and Dusseldorf).



Source: Analysis based on Pristina International Airport Report (2016)
Figure 26 Top seven Airlines operating in Pristina.

Regarding Low-Cost carriers currently operating from Pristina Airport (see table 1), Even though some of these carriers are leaving the market, such as easy-jet with Prishtina - Paris route, other low-cost carriers such as TUIFly, WizzAir, Easyjet Switzerland, SunExpress and Pegasus have been constantly increasing their frequency of flights on high density routes and terminating services on low density routes. For example, Pegasus, the largest Turkish LCC and the fastest growing airline in Europe, offers regular flights from Pristina to Istanbul's secondary airport, Sabiha Gokcen.

LCC	ICAO code	IATA code	Former names	Country of origin
Corendon Airlines	CAI	7H		Turkey
easyJet	EZY	U2		United Kingdom
Easyjet Switzerland	EZS	DS	TEA Basel (1988-1998)	Switzerland
Eurowings	EWG	EW		Germany
Norwegian Air Shuttle	NAX	DY		Norway
Pegasus Airlines	PGT	H9		Turkey
SunExpress	SXS	XQ		Turkey
TUIFly (Belgium)	JAF	TB		Belgium
TUIFly GMBH	TUI	X3		Germany
Wizzair	WZZ	W6		Hungary
Helvetic airways	OAW	2L	Odette Airways (2001-2003)	Switzerland
AtlasJet Airlines	KKK	KK		Turkey
GermanWings	GWI	4U		Germany
Onur Air	OHY	8Q		Turkey

Source: Analysis based on Pristina International Airport Report (2016)

Table 9 Low Cost Carriers operating in Pristina during last five years.

This increase of low cost carriers operating in Pristina and western Balkans has affected the development of competition among airlines and airports in general and it also resulted in significant increase in number of passengers served by the Airports. In Pristina, when

comparing year 2015 with 2016, the Airport has marked an increase of 12% in number of passengers served.

Therefore, this paper seeks to examine the passengers' profile traveling on low-cost carriers (LCC) in comparison with those traveling on fixed cost carriers (FCC), as a pioneer research for the selected airport, which will provide the airport operator with an analysis about passengers' profile, their type of airline preference and information about the impact of different variables in air travel. The results will be of great importance and interest for the airport authorities in their daily decision-making processes and their business development activity in general.

RESEARCH METHODOLOGY

The research methodology applied in this study is combined of qualitative and quantitative nature, where Pristina International Airport was selected as a case study. The secondary data were obtained from the Airport Management Authorities, whereas the primary data were obtained from the survey conducted with departing passengers at Pristina Airport, departure hall. The sample consisted of passengers who traveled on routes where two or more airlines compete with one and each other and one of them was a LCC. The interviews were realized using a pretested and structured questionnaire, with the valuable help of fifteen enumerators. Questions were grouped into two different variable sets, first set, constructed to reveal the socio-demographic characteristics of the passengers (such as age, gender, nationality, occupation and education) and the second set of questions which are related to the travel act itself (ticket price, purpose of the flight, frequency of the flight and passenger preferences) which may influence the choice of airline. The passenger participation in the survey was completely on voluntarily bases and took place during month May, June 2017. This research aims to provide new insights for airport and airline operators when designing their strategies in meeting the growing demand. By applying a Two Step Cluster Analysis we have examined the passengers' profile, traveling on low-cost carriers

Lorik Abdullahu



WORK EXPERIENCE

August 2004 – Present

Air Navigation Services Agency

Air Traffic Controller

November 2004 – Present

Air Navigation Services Agency

On The Job Training Instructor

September 2008 – Present

Air Navigation Services Agency

License Competency Assessor

Oct 2005 - June 2006

Air Navigation Services Agency

ATC Supervisor (TWR&RDR)

June, 2006 – March 2008

Air Navigation Services Agency

Deputy Chief Air Traffic Controller

March 2008 – October 2013

Air Navigation Services Agency

Chief Air Traffic Controller

October 2013 – July 2016

Air Navigation Services Agency

Director of Air Traffic Management department

EDUCATION AND TRAINING

2013 – Ongoing University of Prishtina – Faculty of Economy, department Marketing

PhD Candidate

2009 - 2011, University of Prishtina – Faculty of Economy, department Marketing.

Master of science in economy (MSC), graduated.

1998 – 2007, University Of Prishtina - Faculty of Economy, department Management and Informatics.

Bachelor's Degree (BA) graduated.

(LCC) in comparison with those traveling on fixed cost carriers (FCC). The cluster analysis, also called the segmentation analysis was used to group the members of the population in homogeneous classes or clusters (groups) (Mooi and Sarstedt, 2010). The cluster analysis technique computes the distances between cases and then builds a similarity or proximity matrix based on those distances. The cases that are close to one another are included in the same cluster and the members of every cluster should be like one another and different from the members of the other clusters. In our case, to measure the distance between clusters, we have applied the silhouette measure of cluster cohesion and separation. For distance calculation, this technique uses both, the Euclidian distance and the log-likelihood distance measuring methodology. The Euclidian distance can be used only if all variables are continuous, while log-likelihood distance can be used both for continuous and categorical variables. The two-step cluster analysis can produce solutions based on mixtures of continuous and categorical variables. The variables used in our segmentation process are presented in Table 2. The variable age, employment status, ticket price, purpose of the flight, frequency of flying and flying preference were used to segment the passengers that were flying with LCC and the ones with FCC.

Variables used in the segmentation process			
Variable set	Variable	Values	Scale
Demographic	Age	<18; 19-30; 31-40; 41-50; 51<	Ordinal
	Employment status	Employed vs. Unemployed	Ordinal
	Ticket price		Continues
Travel related	Purpose of the flight	Business, visiting friends and relatives, tourism	Ordinal
	Frequency of flying		Continues
	Flying preference	LCC vs. FCC	Nominal

Own Source

Table 10 Variables used in segmentation process.

DATA ANALYSIS AND INTERPRETATION

Table 3 presents information about passenger's socio demographic characteristics and their differences in terms of passengers who were flying with low cost carriers and those with full cost carriers. The results show that the two groups do not significantly differ in terms of education, however in terms of age; 42.7% of passengers flying with LCC were of young age and 56.3% of middle age. On the other hand, 32.5% of passengers flying with FCC were of middle age and 48.2% of old age. This finding be ample evidence that by increasing age the LCC popularity decreases and vice versa. Therefore, the younger generations experience substantial benefits from the LCC and more affordable air fares. In terms of occupation and gender, there is no significant difference but in terms of travel purpose the results show that 83.5% of passengers traveling with LCC were flying to Visit Friends and Relatives (VFR) whereas 14.6% for business purposes and only 1.9% tourism. Concerning price, a clear majority of passengers 51.5% flying with LCC have paid up to 100€ and 45.6% up to 300€. Unlike LCC passengers, 41% of passengers flying with FCC have paid up to 300€, 38.6% up to 500€ and 19.3% up to 1000€. The frequency of pasengers flying with LCC is 44.7% (2-3 times) and 42.7% (4-5times) whereas the ones flying with FCC 61.4% no more than 1 per year and 31.3% 2-3 times, which indicates that passengers using the LCC tend to fly more frequent than the ones flying with FCC.

This result confirms respondent's preference and popularity towards Low Cost Carriers and indicates that younger generations use the LCC more than FCC, also that they tend to fly more

frequently. As results indicate, the key purpose for most of passengers is to visit friends and relatives and only minority for business and tourism.

Passengers' characteristics		Low Cost Carriers	Fixed Cost Carriers
<i>Socio-demographic characteristics</i>			
education			
	High School	12.6%	18.1%
	University	78.6%	77.1%
	Post graduate	8.7%	4.8%
age			
	<18	1%	0%
	19-30	42.70%	7.2%
	31-40	56.3%	32.5%
	41-50	0%	48.2%
	50<	0%	12%
Employment			
	employed	62.1%	74.7%
	unemployed	37.9%	25.3%
gender			
	female	35%	37.3%
	male	65%	62.7%
purpose of the flight			
	visiting friends and relatives	83.5%	84.3%
	business	14.6%	8.4%
	tourism	1.9%	7.2%
ticket price			
	0-99€	51.5%	1.2%
	100-299	45.6%	41.0%
	300-499	2.9%	38.6%
	500-999	0%	19.3%
	999<	0%	0%
frequency of flying			
	1	5.8%	61.4%
	2-3	44.7%	31.3%
	4-5	42.7%	3.6%
	6<	6.8%	3.6%

Own Source

Table 11 Pristina Airport passenger's socio demographic characteristics

To further distinguish the characteristics of passengers, by applying the TSCA, we have generated four segments of passengers which were derived by using passengers flying with LCC and those with FCC as cluster descriptors (Table 4). The silhouette measure of cluster cohesion and separation is .3 indicating a fairly good cluster model.

Segments for passengers traveling with LCC&FCC

Cluster	S1 young age, employed, diaspora	S2 old age, employed diaspora	S3 middle age employed diaspora	S4 middle age unemployed diaspora
SIZE	31.2%	16.7%	28%	24.2%
age	(19-30) 86.2%	(41-50) 100%	(31-40) 98.1%	(31-40) 75.6%
Employment	employed 74.1%	employed 100%	employed 100%	unemployed 100%
frequency	3.3	1.4	2.8	2.6
purpose	89.7 VFR	93.5 VFR	86.5 VFR	66.7 VFR
price	169.20 €	346.60 €	237.50 €	249.24 €
Evaluation (traveling with)	75.9% LCC	100% FCC	61.5% LCC	60% LCC

Own Source

Table 12 Passenger distinctive characteristics, Two Step Cluster Analysis

The results indicate that segment one includes 31.2% of the sample, consisting of passengers traveling with LCC. This segment named young age diaspora represents novice passengers of young age travelers that are employed. The later fly up to 4 times a year (high frequency) and in average they pay up to 169€ for their ticket. This indicates that younger generations are well informed about LCC, in general they are more practical and witty and they also do consider the cost of services being offered.

Segment 2, includes 16.7% of the total sample which consists 100% of passengers flying with FCC. This segment is named old age diaspora and it represents passengers who mainly live and work abroad. The significance of this segment is that they do not travel more than once a year and they pay a relatively high price for their ticket, up to 346€. These results indicate that older age passengers fall into the group of low frequency passengers and they are not well informed regarding types of air carriers available, also not very good at utilization of latest e-services offered online. It must be highlighted that since they are employed, due to working arrangements, often they are limited on flying dates and as a conclusion this is the reason why they are paying a higher cost of flying tickets.

Segment 3, includes 28% of the sample and it is made of middle age employed passengers flying with LCC. The significance of this segment is that they fly up to three times a year, mostly to visit friends and relatives and they pay up to 177€. This segment shows that middle age group of passengers, highly values the suitability of the LCC, they consider the advantages of fast and practical services offered online, competitiveness and above all the cost of services. Therefore, for this group of passengers we can conclude that education plays an important role in utilization of services offered by LCC.

Finally segment 4 represents 24.2% of the sample and it consists of middle age unemployed passengers flying with LCC. Passengers from this segment tend to fly relatively on high frequency, up to three times a year and on average they pay up 200€ for their tickets. Like with other three segments this segment as well is driven by the emigrant's family members who wish to visit them abroad. Since this segment consists from unemployed passengers, it is indicative that passengers from this group are not limited in planning and flying dates, for example due to annual leave etc. Therefore, passengers from this group have more time available to search for

more information on lower prices and on what type of the carriers are available out there for the trip.

The results of the ANOVA analysis indicate that all variables are significantly different, except purpose of flying, across the identified segments (see table5). It can be observed that the F-ratios for all the variables are significant as their corresponding p-values are less than .05, except the purpose of flying group.

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
LCC&FCC	Between Groups	12.234	3	4.078	22.005	.000
	Within Groups	33.728	182	.185		
	Total	45.962	185			
employed vs not employed pass	Between Groups	29.524	3	9.841	161.065	.000
	Within Groups	11.121	182	.061		
	Total	40.645	185			
age group	Between Groups	52.828	3	17.609	39.651	.000
	Within Groups	80.828	182	.444		
	Total	133.656	185			
frequency of flying	Between Groups	81.372	3	27.124	13.559	.000
	Within Groups	364.090	182	2.000		
	Total	445.462	185			
price of the ticket purchased	Between Groups	645995.666	3	215331.889	8.137	.000
	Within Groups	4816273.925	182	26463.044		
	Total	5462269.591	185			
purpose of flying	Between Groups	1.183	3	.394	1.593	.193
	Within Groups	45.053	182	.248		
	Total	46.237	185			

Own Source

Table 13 The ANOVA results for the LCC&FCC segments.

DISCUSSION AND CONCLUSION

The stimulating competition and lowering of the fares in air services, enabled air transport market to grow significantly. Even though the EU Visa regime is still applicable for citizens, the number of passengers traveling by air during last five years has been continually increasing.

The results of the analysis validate the hypothesis that LCC induce a new segment of passengers that consider the cost of air services being offered in the market and it consists of young and middle age passengers which are employed. The results reveal that age and education plays an important role in utilization of services offered by LCC and there is only a minority of middle age unemployed passengers who use the LCC. Therefore, the segment of passengers using LCC is encouraged mainly by the price factor whose travel purpose is to visit friends and relatives at their homeland.

On the other hand, passengers flying with fixed costs carriers could be generally classified into the segment of employed old age passengers that don't travel that often and pay a relatively a high-ticket price. These results indicate that older age passengers flying with FCC lack knowledge and information about latest e-services offered by the LCC and for a change, their flying purpose despite leisure is also work, which leads to the conclusion that this might be the reason why they are paying a higher cost of flying tickets and why they are not flexible on their flying dates.

From this study, we conclude that our passengers consist mainly from young and middle age generation of emigrants and this fact leads us to the hypothesis that with more and more integration of younger generations into Western society, one shall expect that links to the homeland will be increasingly abolished and the knock-on effect will be that number of passengers flying to and from Pristina will decrease.

REFERENCES

- Barbot, C. (2009). Airport and airlines competition: Incentives for vertical collusion. *Transportation Research Part B: Methodological*, [online] 43(10), pp.952-965. Available at: <http://www.sciencedirect.com/science/article/pii/S0191261509000472> [Accessed 13 Nov. 2017].
- Başar, G. and Bhat, C. (2004). A parameterized consideration set model for airport choice: an application to the San Francisco Bay Area. *Transportation Research Part B: Methodological*, [online] 38(10), pp.889-904. Available at: <https://www.sciencedirect.com/science/article/pii/S0191261504000074> [Accessed 13 Nov. 2017].
- Dobruszkes, F. (2006). An analysis of European low-cost airlines and their networks. *Journal of Transport Geography*, [online] 14(4), pp.249-264. Available at: <http://www.sciencedirect.com/science/article/pii/S0966692305000566> [Accessed 13 Nov. 2017].
- Dobruszkes, F. (2009). New Europe, new low-cost air services. *Journal of Transport Geography*, [online] 17(6), pp.423-432. Available at: <http://www.sciencedirect.com/science/article/pii/S096669230900074X> [Accessed 13 Nov. 2017].
- Fourie, C. and Lubbe, B. (2006). Determinants of selection of full-service airlines and low-cost carriers—A note on business travellers in South Africa. *Journal of Air Transport Management*, [online] 12(2), pp.98-102. Available at: <http://www.sciencedirect.com/science/article/pii/S0969699705001055> [Accessed 13 Nov. 2017].
- Graham, A. (2006). Have the major forces driving leisure airline traffic changed?. *Journal of Air Transport Management*, [online] 12(1), pp.14-20. Available at: <http://www.sciencedirect.com/science/article/pii/S096969970500092X> [Accessed 13 Nov. 2017].

- JARACH, D. (2005). *AIRPORT MARKETING, Strategies to cope with the new millennium environment*. 1st ed. New York: Ashgate Publishing, pp.1-51.
- Lin, H. and Huang, Y. (2015). Using analytic network process to measure the determinants of low cost carriers purchase intentions: A comparison of potential and current customers. *Journal of Air Transport Management*, [online] 49, pp.9-16. Available at: <http://www.sciencedirect.com/science/article/pii/S0969699715000940> [Accessed 13 Nov. 2017].
- Martínez-García, E., Ferrer-Rosell, B. and Coenders, G. (2012). Profile of business and leisure travelers on low cost carriers in Europe. *Journal of Air Transport Management*, [online] 20, pp.12-14. Available at: <http://www.sciencedirect.com/science/article/pii/S0969699711000925> [Accessed 13 Nov. 2017].
- Mooi, E. and Sarstedt, M. (2010). *Cluster Analysis. In: A Concise Guide to Market Research..* 1st ed. Berlin, Heidelberg: Springer International Publishing AG, pp.237-284.
- O'Connell, J. and Williams, G. (2005). Passengers' perceptions of low cost airlines and full service carriers: A case study involving Ryanair, Aer Lingus, Air Asia and Malaysia Airlines. *Journal of Air Transport Management*, [online] 11(4), pp.259-272. Available at: <http://www.sciencedirect.com/science/article/pii/S096969970500013X> [Accessed 13 Nov. 2017].

ORGANIZATIONAL IMAGE – KEY FACTOR IN ETHICAL COMMUNICATION WITH THE TARGET AUDIENCE

Nicoleta Dospinescu²⁰⁷

Abstract: *The organizational image is an important part of a brand's capital and the first interface with the target audience, one that generates recognition, trust, loyalty. For this reason it is a value and deserves all the attention in its creation. As the business environment is constantly effervescent and needs a trusted bank partner, we analyzed the image capital and the techniques used to create it for the two internationally prestigious banks, Raiffeisen Bank and BRD. The ways and techniques of Public Relation and Advertising used by practitioners are the issues to be analyzed. The quantitative research, based on the questionnaire as a tool of inquiry, wanted to determine the differences in perception of the brand image of the two banking institutions among the target customers. Promotion methods are essential for this study. We aim to identify the effective communication techniques through which the two banking institutions in question manage to create loyal clients.*

Key Words: *Brand, Notoriety, Loyalty, Trust, PR, Advertising, Ethics*

LITERATURE REVIEW

More and more acclaimed voices in the field support the fact that public relations has the greatest influence in marketing, creating image and notoriety, not excluding the role of advertising, but only reinforcing the idea of supporting existing products/organizations on the market. Effective communication is the basis for success. The image of an organization appears as the result of the communication process both inside and outside the organization. The role that the image has is an intermediary between organizations and people. The power of the image lies in the fact that it is necessary in the process of communication by orientating people's attitudes, behaviors, opinions and actions both in the non-social and social environment. The brand of an organization is formed by the PR's efforts, and advertising should be used only after a brand has become known.

A brand is a promise, a set of fundamental principles. A brand is the image and reason of a company to be. When a brand makes a promise that contains associations such as relevancy and differentiation, it must also take on the promise. In the context of business and branding, the identity of a company is what it says about it - the product or services it provides, the quality it delivers to its customers, the competitive advantage of the firm. Brand image is about how the company is perceived by the audience. The challenge for companies is to give the public the expected and accepted image.

The brand can be defined as a set of symbolic values that differentiate a product, service, person or place from another identical functional entities [1], [2], [3]. Secondly, a brand triggers associations that unite symbolic values into an external ideal [4]. Third, a brand makes a promise, generally one or more of the following three types of promises: functional, symbolic and experiential [5].

²⁰⁷ Alexandru Ioan Cuza University, Iasi, Romania

However, the *strategic* development of programs with a brand identity aimed at changing health beliefs and behaviors based on psychological and behavioral theory is relatively new [6]. Social and health branding emerged from and represents an evolution in behavioral theory. It integrates Social Cognitive Theory [7] and the Theory of Planned Behavior (TPB) [8], and provides a way of conceptualizing and applying this social cognitive theory concept of modeling and a mechanism to explain the adoption of beliefs about the object being branded [9], [10].

[11], with regard to the concept of image, claims that this is an essential aspect of the organization, much subtler and more penetrating. Creating an image is creating an external mirage. What is most amazing about the image-building process is the assumption that the image is needed.

It should be understood that PR and advertising come from the same root, and that many times one or the other can be chosen to bear the main burden of a campaign [11]. It requires advertising for special events and successful promotional activities. Some important elements that might be used in PR activities are mentioned in the "Creating Powerful Brands" paper. Thus, in order to establish a good relationship between the organization and the target audience, the following attributes are required [12]: brand affection; consumer relationship with brand and sentimental affinity; brand to be a part of everyday life; the commitment of consumers to be loyal to the brand in both good and bad times; consumers need to understand the brand; to feel it as a trusted partner; to evoke their pleasant emanations and to create a nostalgic attachment.

In conclusion, value added is built over time through consumer satisfaction with the brand and its consolidation through PR and advertising.

The analyzed organizations

In this paper, two banking companies from Romania, namely Raiffeisen Bank and the Romanian Bank for Development (BRD), will be analyzed. Raiffeisen Bank is a universal banking company, a top company in the Romanian market, with a wide range of services and products, superior in quality terms. It has had a surprising evolution, increasing its portfolio of customers step by step. BRD ranks second in the list of banks listed in our country. It is one of the most significant groups of European banks. The difference between the two is the way to get into the market.

Raiffeisen Bank is based on the quality of its client portfolio, which is much better than the market average, while BRD is in the forefront of product innovation. Raiffeisen Bank's strategic objective, namely to be a leader in sustainable financial and risk management, is highlighted by how the members of this organization are addressing corporate responsibility. Liability towards stakeholders includes long-term consolidation of financial activity through robust, solid corporate governance and business ethics based on corporate values and code of conduct. An important result of these actions is the added value of financial activity, which will be possible by preserving trust between the co-stakeholders, by designing related cause marketing projects and by strengthening the image. Through the PR, Raiffeisen Bank aims to engage in a dialogue with the public.

By comparison, the BRD is the follower of the bidirectional and asymmetric / two-way asymmetric PR type promoted by Edward L. Bernay. In this case, the bank's objectives are important, as feedback is useful in bidirectional communication, but only to build the right way of persuasion, those messages appropriate to the target audiences in order to adopt a certain attitude desired by the enterprise.

RESEARCH METHODOLOGY

The purpose of the present study is to identify the differences in perception of the clients of the two banking companies in question regarding the image projected through the various communication tools. Following the analysis, we will know which promotion methods are more effective.

The objectives of the research are as follows:

- Identifying the source of the difference in image perception of the Raiffeisen Bank and BRD brand image
- Identifying the most effective communication techniques and channels used for product / service exposure.
- Identifying the elements that would cause customers to interrupt their collaboration with the bank.

In this study, in order to collect the necessary data, we used as a method the quantitative research, based on the street survey, having as a tool the questionnaire. It contains 14 questions, which make it possible for the respondent to accurately state the position of the brand, the image perception of the brand. The investigation was carried out on a sample of 60 people in Romania, being conducted between 5 and 12 August 2017.

RESEARCH RESULTS

The filter query has selected people who are customers of the two banks, so I know them to a certain extent. The banking services they have used over time are as follows: approximately 38% of respondents use electronic banking services; about 13% use student cards; about 11% use cards in lei

In close agreement with this question is the following regarding the degree of satisfaction with the banking products and services used. From the data presented, we can see that only 23% of the respondents are very satisfied with the products and services used. Although about 30% of the sample said they are satisfied, the management of the organizations should always think about ways to increase customer satisfaction.

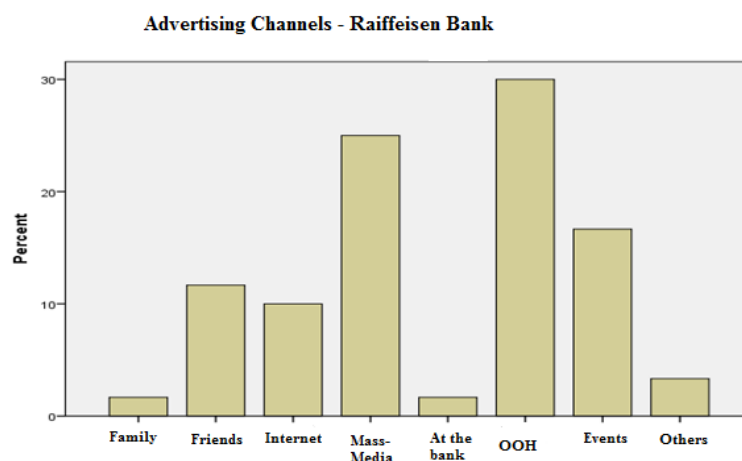


Figure 1. Raiffeisen Bank promotion channels

Based on the answers to the next question, the effectiveness of the promotional tools used by the two banking institutions, Raiffeisen Bank and BRD, was found. It was found that street

advertising (30%) and media (25%) were the most effective methods of promoting the use of PR specialists for Raiffeisen Bank. Various events, such as concerts or sponsorships, are ways to consider.

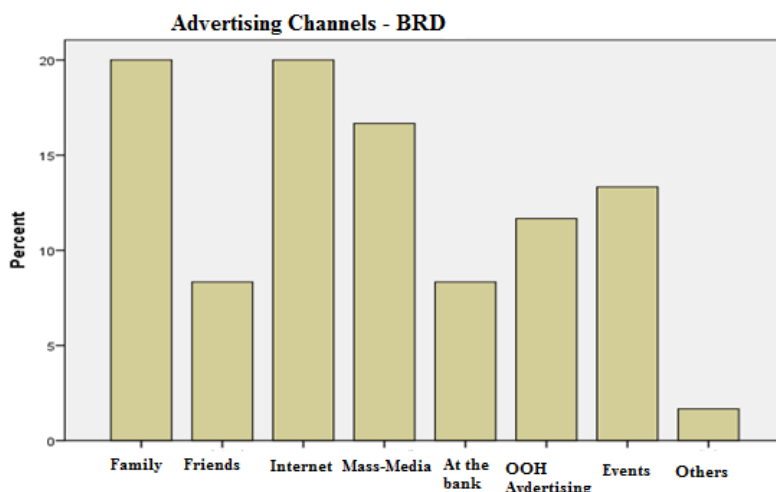


Figure 2- Promotional Channels BRD

By comparison, PR practitioners at BRD have used the Internet more to reach the organization's customers, with 20% of respondents choosing this information about this institution. Another source of information that customers call is the family (20%), as can be seen from the data illustrated in figure 2 below.

Regarding the clients' reasons for choosing to cooperate with Raiffeisen Bank and BRD, the following results are noteworthy (fig.3,4). The most important reason behind the choice of Raiffeisen Bank is the time and the way of solving the problems, this variant being chosen by 25% of the sample. Most people want to solve the difficulties quickly, in an efficient way. From the data we can see that this institution fulfills this requirement, along with a varied portfolio of products and services, which accounted for 16% of the respondents' choice. It is important for a client to have a multitude of features to meet their needs.

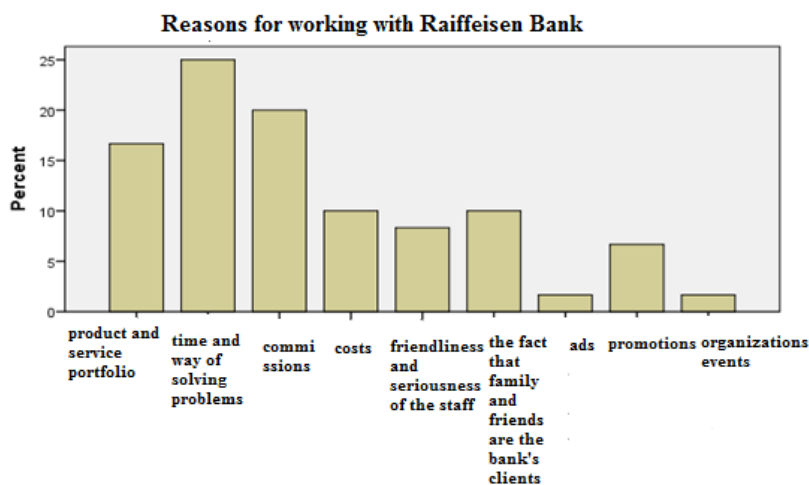


Figure 3. Reasons for working with Raiffeisen Bank

From Figure 4 we can see that, with regard to BRD, the main reason customers choose to collaborate with them is the applied commissions. This was observed according to the

respondents who chose this reason for 28%, followed by 20% what was the choice regarding the promotions offered by this bank.

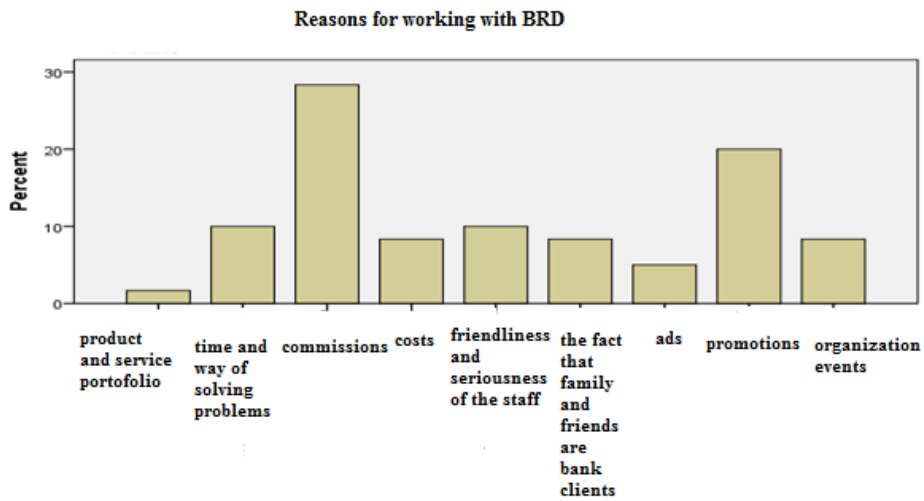


Figure 4. Reasons for working with BRD

The following question gave answers to customer perceptions about the campaign messages of the two banks concerned.

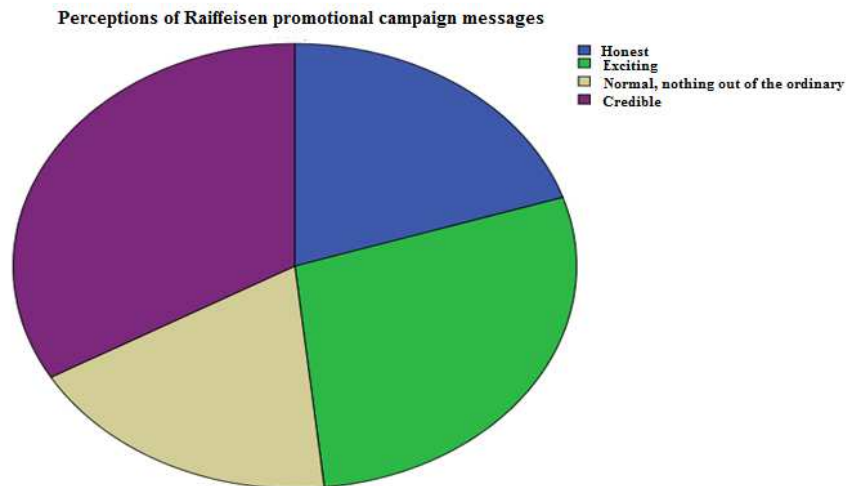


Figure 5. Feedback on Raiffeisen Bank campaign messages

As we can see from the illustration above, 33% of the respondents considered the messages of the Raiffeisen campaigns to be credible and 28% rated them as captivating. PRs of this organization wanted the messages sent to the public to be transmitted with emotion, to be credible, and the recipients, the clients in this case, to feel the transparent and sincere attitude of society. Based on the data collected, we can say that the result desired by PR specialists has been obtained. By comparison, 35% of respondents have classified BRD's messages as "ordinary and nothing out of the ordinary." The questioned people were asked if the prizes won by Raiffeisen Bank increase the credibility of the bank. The answer was an interesting one: 47% of them agreed to this. The main reason that could cause the interruption of the cooperation or would prevent the call from Raiffeisen Bank was indicated by the interviewees very clearly. Approximately 57% of the respondents indicated the commissions.

In the case of BRD, the reason is for the poorly qualified and unskilled staff, which was indicated by 24% of the respondents. It is quite plausible that people want to be treated properly by bank employees.

Interestingly, for both banks, customer confidence is great and there is no reason to end the collaboration with them.

CONCLUSIONS

Starting from the research objectives, we can conclude that the brand image of the two banks is a stable one, offering trust to customers, regardless of their age and education. The sources of brand image perceptions of Raiffeisen Bank and BRD, by customer categories, bring to the fore the organizational profile outlined in the mind of the target audience.

Raiffeisen Bank is especially perceived as a "credible", "sincere" bank. Aspects appreciated by customers as motivating are: "time and how to quickly and efficiently solve the problems", "acceptable commissions", "product and service portfolio", "family and friends are clients of the bank", and "courtesy of staff". These profoundly human aspects create a strong attachment with tradition. BRD is perceived by customers as an "ordinary" bank, "with nothing out of the ordinary." Reasons why customers are customers of this bank are related to "commissions" and "promotions" that are commercial, rational rather than emotional aspects. The connection with the bank is strictly professional. The second objective was to identify the most effective communication techniques and channels used in the exposure of products / services. From the survey we can conclude that Raiffeisen Bank appealed more often to street advertisements, events and involvement of friends of potential clients. Preferred channels are the media.

In the case of BRD, the marketing team appealed more often to new media channels, but considered it appropriate to capitalize on the media facilities. Also, direct communication channels through family and events have a good representation.

For the third objective, we identified those essential issues that would cause customers to discontinue their collaboration with the bank. So in the case of Raiffeisen Bank "high commissions" (57%) would be an impediment. Please note that customer confidence in the bank is high. And in the case of BRD, the problem would be "low qualified and unskilled staff", stated by 24% of the respondents. We can also point out that trust in the bank is high and is not a reason to renounce its services.

Therefore, a ethical and empathic communication of banks with the target audience, based on a symmetric bidirectional model, would be useful in creating an honest brand identity and appreciating long-lasting partnerships in forming relationships. This would help boost confidence in the banking institution, create essential loyalty in today's effervescent business world.

Nicoleta Dospinescu is a Ph.D., Lecturer at University "Alexandru Ioan Cuza" from Iasi, Romania. She wrote 3 books in Public Relations area, and over 30 scientific articles. Her main domains of interests are in: Branding Management, Events Planning, Negotiation in Business and Corporate Social Responsibility.



REFERENCES

- [1] L. de Chernatony, R. Bravo, I. Buil and E. Martinez, "Managing brand identity: effects on the employees," *International Journal of Bank Marketing*, vol. 35, no. 1, pp. 2-23, 2017.
- [2] L. de Chernatony, E. Wallace and I. Buil, "Brand orientation and brand values in retail banking," *Journal of Marketing Management*, vol. 29, no. 9-10, pp. 1007-1029, 2013
- [3] L. K. Keller, *Strategic brand management: building, measuring, and managing brand equity*, Upper Saddle River, NJ: Pearson/Prentice Hall, 2008.
- [4] E. Douglas, J. Blitstein, D. Vallone, S. Post and W. Nielsen, "Systematic review of health branding: growth of a promising practice," *Transl Behav Med*, vol. 5, no. 1, pp. 24-36, 2014.
- [5] W. Park, J. Jaworsky and D. MacInnis, "Strategic Brand Concept – Image Management," *Journal of Marketing*, vol. 50, pp. 135-145, 1986.
- [6] W. Evans, J. Blitstein, J. Hersey, J. Renaud and A. Yaroch, "Systematic review of public health branding," *Journal of Health Communication*, vol. 13, no. 8, pp. 721-741, 2008.
- [7] A. Bandura, *Social Foundations of Thought and Action: A Social Cognitive Theory*, 1st ed., Prentice Hall, 1986.
- [8] I. Ajzen, "The theory of planned behavior," *Organizational Behavior and Human Decision Processes*, vol. 50, no. 2, pp. 179-211, 1991.
- [9] W. Johnson-Taylor, A. Yaroch, S. Krebs-Smith and A. Rodgers, "What can communication science tell us about promoting optimal dietary behavior?," *Journal of Nutrition Education and Behavior*, vol. 39, no. 2, 2007.
- [10] R. Hornik and B. Kelly, "Communication and diet: an overview of experience and principles," *Journal of Nutrition Education and Behavior*, vol. 39, 2007.
- [11] L. Blumenthal, *The Practice of Public Relations*, Canada: Macmillan, 1972, p. 119.
- [12] M. McDonald and L. de Chernatony, *Creating Powerful Brands*, Oxford: Butterworth-Heinemann, 2003, p. 143.

COMPARISON OF COPING STRATEGIES CONSIDERING TO SELECTED SOCIO-DEMOGRAPHIC CHARACTERISTICS OF EMPLOYEES

Tatiana Lorincová²⁰⁸

Abstract: *The presented paper deals with the analysis of selected coping strategies considering to gender and size of organization in which individual employees work. The aim of the paper is to compare the ways of managing and processing the stressful situations, as well as their variability with regard to the group of respondents and the size of organization (small and medium organization). The research was conducted by using two methodologies, namely Brief COPE from Carver (1997) and SVF 78 by Janke and Erdmann (2003). The research sample consisted of 130 respondents aged 19 to 63 (mean age 40.38 with a standard deviation of 6.73), namely 53.8% of males and 47.2% of women. The research sample consisted of executive employees (49.2%) and managers (50.8%) working in a small and medium-sized organization. The research results were analyzed by t-test for two independent samples, namely the individual stress management strategies were compared. At the level of perseverance, self-blaming, religiosity and spirituality, and NEG we found statistically significant gender differences. Comparison of employees working in a small and medium-sized organization has demonstrated the existence of statistically significant differences in levels of underestimation, negation, ventilation and self-blaming. The most common strategy of stress management was the strategy of self-blaming, given the analyzed socio-demographic characteristics of the respondents.*

Key words: *coping strategies, gender, size of organization*

1. INTRODUCTION

The research study deals with the issues of coping strategies in terms of gender and size of organization (small and medium organization) in which individual employees work. Baumgartner [1] considers stress as a complex of mental or physical condition of a person in undesirable situations, further defines it as a reaction of the organism to stress factors or as a negative factor, situation or circumstances affecting the individual. "The workload can be understood as the worker's work demands, the way the worker manages them, and how these claims affect the worker's psyche [2].

Author [3] defines coping as an effort to minimize, tolerate, manage or reduce the unusually high, burdensome or burdensome requirements of an internal or external environment, and also varying streams between the requirements.

Author [4] divides the techniques of stress management into active and passive. The active techniques of stress management include sublimation (transformation of socially unsatisfied instincts into socially acceptable), aggression (the most effective technique of managing frustration, conflict or problem situations), compensation, identification (heroism improves self-confidence), and attention or obedience behavior. Passive techniques include regression

²⁰⁸ Department of Managerial Psychology, Faculty of Management, Prešov University in Prešov Konštantínova 16, 080 01 Prešov, Slovakia

(the method of returning an individual to a certain stage of life, e.g. into childhood), denied, isolation, j. escape into loneliness or daytime dreaming (avoidance or escape from reality).

2. METHODOLOGY

The main goal of the research is to compare strategies how to manage stress and their variability in the context of gender and size of organization (small and medium organization).

Hypothesis 1: We assumed statistically significant gender differences in the level of coping strategies.

Hypothesis 2: We assumed statistically significant differences in the level of coping strategies between employees working in small organization and employees working in medium organization.

3. RESEARCH SAMPLE

Research sample consisted of 130 respondents aged from 19 to 63 years (average age was 40.38 with standard deviation 6.73). The proportionality of gender was uneven - the sample contained 53.8 % men and 47.2 % women. The research sample consisted of 49.2% executive employees and 50.8% managing employees working in small and medium organization.

M.A. Tatiana Lorincová, PhD.

She reached Master degree in Psychology at the Faculty of Arts of Šafárik University in Košice. In 2014 she successfully completed internal PhD. study in Social Psychology and Psychology of Work at the Department of Psychology, at the Faculty of Arts of Šafárik University in Košice. She currently works at the Department of Managerial Psychology at Faculty of Management of University of Prešov in Prešov. She is teaching Social psychology, Psychology and Organizational behavior. Scientific research focuses on the social psychology in relation to management, the field of Business psychology and she also covers various aspects of Talent management. She is a member of ISSBD (International Society for Study of Behavioral Development).

4. RESEARCH METHODS

We used two self-reported questionnaires for research purpose called Brief COPE developed by [5] and SVF 78 developed by [6].

4.1 Brief COPE

The Brief COPE [5] is a self-report questionnaire used to assess a number of different coping behavior and thoughts a person may have in response to a specific situation. It is made up of 14 subscales: self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioural disengagement, venting, positive reframing, planning, humour, acceptance, religion, and self-blaming. After reading a situationally-specific scenario, 28 coping behaviours and thoughts (2 items for each subscale) are rated on frequency of use by the participant with a scale of 1 (—I haven't been doing this at all) to (—I've been doing this a lot). Internal reliabilities for the 14 subscales range from $\alpha = 0.57 - 0.90$ [5].

4.2 SVF 78

We used the Czech version of the German Stress coping style questionnaire SVF 78 [6] and [7]. Stress coping style questionnaire contains 78 statements about dealing with stress and using coping strategies. The respondent evaluates each item using a 5-points Likert scale, ranging

from “Not at all” to “Very likely”. The 78 items are divided into 13 subscales, each representing a particular way of reacting to a stressful event: Underestimation, Guilt rejection, Tilt, Substitutional satisfaction, Control of situation, Control of reaction, Positive self-instruction, Need for social support, Active avoidance, Flight tendency, Rumination, Resignation, Self-blaming. Internal reliabilities for the 13 subscales range from $\alpha = 0.77 - 0.94$.

5. RESEARCH RESULTS

The objective of the research is to analyze selected socio-demographical characteristics (gender and size of organization) in the context of coping strategies. The research results were processed in statistical program IBM SPSS 20.00 and assessed by t- test for two independent samples. Table 1 illustrates statistically significant values.

<i>Coping strategies</i>	<i>Gender</i>	<i>n</i>	<i>Men</i>	<i>Standard deviation</i>	<i>t</i>	<i>Degree of freedom</i>	<i>p</i>
<i>Rumination</i>	Men	60	2.71	0.778	2.761	128	0.007
	Women	70	2.33	0.788			
<i>Self-blaming</i>	Men	60	2.10	0.749	2.462	128	0.015
	Women	70	1.80	0.642			
<i>NEG</i>	Men	60	2.20	0.561	2.708	128	0.008
	Women	70	1.94	0.565			
<i>Religion and spirituality</i>	Men	60	3.73	1.694	3,112	128	0.002
	Women	70	2.80	1.686			

Table 1 Comparison of selected coping strategies in the context of gender

Results analysis of the research show statistically significant differences in the level of rumination between women and men. Men dispose with higher level of rumination than women. We found statistically significant gender differences in the level of self-blaming. Men dispose with higher level of self-blaming than women. T- test for two independent samples showed statistically significant differences in the level of set of negative strategies NEG (flight tendency, rumination, resignation, self-blaming). Men dispose with higher level of strategy NEG than women. And finally were found statistically significant gender differences in the level of strategy religion and spirituality, where women dispose with higher level of religion and spirituality than men.

<i>Coping strategies</i>	<i>Size of organization</i>	<i>n</i>	<i>Mean</i>	<i>Standard deviation</i>	<i>t</i>	<i>Degree of freedom</i>	<i>p</i>
<i>Underestimation</i>	Small organization	48	2,13	0,696	-	128	0,026
	Medium organization	48	2,46	0,733	2,262		
<i>Guilt Rejection</i>	Small organization	48	2,53	1,013	-	128	0,003
	Medium organization	48	3,17	1,043	3,028		
<i>Tilt</i>	Small organization	48	2,91	1,075	-	128	0,033
	Medium organization	48	3,40	1,139	2,166		
<i>Self-blaming</i>	Small organization	48	2,97	1,118	-	128	0,042
	Medium organization	48	3,46	1,207	2,062		

Table 2 Comparison of selected coping strategies in the context of size of organization

Results analysis of the research show statistically significant differences in the level of underestimation between employees working in small organization and employees working in medium organization. Employees working in medium organization dispose with higher level of underestimation than employees working in small organization. We found statistically significant differences in the level of guilt rejection between employees working in small organization and employees working in medium organization. Employees working in medium organization dispose with higher level of guilt rejection than employees working in small organization. T- test for two independent samples showed statistically significant differences in the level of self-blaming between employees working in small organization and employees working in medium organization. Employees working in medium organization dispose with higher level of self-blaming than employees working in small organization. And finally were found statistically significant differences in the level of self-blaming, where employees working in medium organization dispose with higher level of self-blaming than employees working in small organization.

6. DISCUSSION AND CONCLUSION

In this chapter we will interpret the research findings according to comparison of selected socio-demographic characteristics (gender and size of organization) in relation to ability of managing and dealing with stress.

We assumed statistically significant differences in the level of selected coping strategies in the context of gender. We found statistically significant gender differences in four cases (rumination, self-blaming, NEG and religion and spirituality). Men dispose with higher level of rumination, self-blaming and NEG than women. On the other hand women dispose with higher level of strategy called religion and spirituality than men. Previous research showed that the coping mechanism which are religious/spiritual beliefs had helped individuals make sense of the caregiving experience. It should be noted that, in our conceptual model, we assumed a direct association between stressors and religious/spiritual coping [8]. Sex differences have also been found in the use of coping strategies. College women reported greater use of emotion-focused coping strategies including expressing feelings, seeking emotional support, denial, acceptance, and positive reframing than college men [9], [10], [11]. College men, however, reported greater use of some types of emotion focused strategies such as mental disengagement through the use of alcohol than college women [12].

Our research findings showed the importance of coping mechanism called religion and spirituality, which helped women in significantly higher level how to deal with stressful situations in managerial work.

We assumed statistically significant differences in the level of selected coping strategies in the context of size of organization. We found statistically significant differences in four cases (underestimation, guilt rejection, tilt and self-blaming). Employees working in medium organization dispose with higher level of underestimation, guilt rejection, tilt and self-blaming than employees working in small organization. Successful coping with change is likely to be perceived as important to transforming organizations. As a result, those who cope well with change should receive higher performance ratings and achieve higher levels of extrinsic career success. [13] considered extrinsic success in terms of salary and ascendancy. Ascendancy consists not only of previous movement up the organizational hierarchy (job level) but also of prospective movement, such as is not the case when executives perceive that they are plateaued in their organization [14]. Employees working in medium organization dispose with higher

level of selected coping strategies than employees working in small organization and it means that employees working in medium organization are better in adopting to changes in organization.

The most common coping strategy was the self-blaming strategy in the context of selected socio-demographic characteristics of the respondents (gender and size of organization).

ACKNOWLEDGMENT

The research project presented in this article is supported by grant project **0033PU-4/2017 – KEGA (Implementation of interpersonal skills in the context of the Psychology of business - innovation of contents and teaching)**.

REFERENCES

- [1] Frankovský, M. et al., 2012. *Vybrané kapitoly sociálnej psychológie pre manažérov*. Prešov: Prešovská univerzita. ISBN 978-80-555-0547-3.
- [2] Mikuláščík, M., 2007. *Manažerská psychologie*. 1. vyd. Praha: Grada Publishing. ISBN 978-80-247-1349-6.
- [3] Křivohlavý, J., 1994. *Jak zvládat stres*. Praha: Grada Avicenum. ISBN 80-7169-121-6.
- [4] Bartuňková, S., 2010. *Stres a jeho mechanismy*. 1. vyd. Praha: Karolinum. ISBN 978-80-246-1874-6.
- [5] Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the Brief COPE. *International Journal of Behavioral Medicine*, 4(1), 92-100.
- [6] Janke, W., & Erdmannová, G. (2003). *Strategie zvládaní stresu*. SVF 78. (Transl. J Švancara). Praha: Testcentrum.
- [7] Janke, W. & Ersmann, G. (2002). *Eine Kurzformdes Stressverarbeitungsfragebogens SVF 120*. Manual. Götiingen: Hofgreffe.
- [8] Chang, B. H., Noonan, A. E. & Tennstedt, S. L. (1998). The role of religion/spirituality in coping with caregiving for disabled elders. *Gerontologist*, 38(4), 463-470.
- [9] Eaton, R. J., & Bradley, G. (2008). The role of gender and negative affectivity in stressor appraisal and coping selection. *International Journal of Stress Management*, 15(1), 94–115.
- [10] Ptacek, J. T., Smith, R. E., & Dodge, K. L. (1994). Gender differences in coping with stress: When stressor and appraisals do not differ. *Personality and Social Psychology Bulletin*, 20(4), 421–430.
- [11] Stanton, A. L., Kirk, S. B., Cameron, C. L., & Danoff-Burg, S. (2000). Coping through emotional approach: Scale construction and validation. *Journal of Personality and Social Psychology*, 78(6), 1150–1169
- [12] Kieffer, K. M., Cronin, C., & Gawet, D. L. (2006). Test and study worry and emotionality in the prediction of college students' reasons for drinking: An exploratory investigation. *Journal of Alcohol and Drug Education*, 50(1), 57–81.
- [13] Judge, T. A., Boudreau, J. W., & Bretz, R. D. (1994). Job and life attitudes of male executives. *Journal of Applied Psychology*, 79, 767-782.
- [14] Chao, G. T. (1990). Exploration of the conceptualization and measurement of career plateau: A comparative analysis. *Journal of Management*, 16, 181-193

COPING STRATEGIES OF MANAGERS AND NON-MANAGERS

Lucia Zbihlejšová²⁰⁹
 Miroslav Frankovský²¹⁰
 Zuzana Birknerová²¹¹

Abstract: *Work-related stress is currently considered to be one of the biggest problems in the work environment. Literature offers, on the one hand, a wealth of insights into the links among the working conditions, occupational stress and emotional well-being. On the other hand, however, little is said about the stress coping strategies of managers as the main actors involved in the formation of working conditions. The aim of the proposed paper is therefore to find out whether there are any statistically significant differences in the assessment of the selected behavioral strategies in coping with demanding situations between managers and non-managers. A differential analysis was conducted on the sample of 340 respondents (129 managers and 211 non-managers) on the basis of the data obtained by means of two methodologies for detecting the coping strategies: Brief Cope [1] and CISS [2]. The results of the analysis confirmed the existence of statistically significant differences between managers and non-managers in assessing the individual coping strategies of managers in demanding managerial situations. On the basis of the results obtained, it can be concluded that in terms of assessment of behavior in demanding situations, managers use the problem-solving strategies more extensively, whereas non-managers are more oriented at the avoidance, emotional relaxation, and social support strategies, as compared to managers.*

Key words: *coping, coping strategies, manager, non-manager*

1. INTRODUCTION

Work-related stress is currently considered the second biggest problem of the working environment in the European Union. Every fourth EU citizen becomes a victim of the work stress at least once in a working lifetime [3]. According to available research, 50% to 60% of absence from work is associated with the work-related stress [4]. It represents a huge loss for the human psyche as well as an impaired economic performance of a person. In 2002, the European Commission declared that annual expenditure connected to the work-related stress in the EU amounted to 20 billion Euro per year [5].

In the context of managerial environment, it is possible to argue that stress involves the process of transmitting a certain infection, while the manager's mood is perceived as the "contagion". Research in this area focuses on studying how managers' moods affect individuals as well as the emotional tone in a group [6], [7].

²⁰⁹ Department of Intercultural Communication, Faculty of Management, University of Prešov in Prešov, Konštantínova 16, 080 01 Prešov, Slovakia

²¹⁰ Department of Managerial Psychology, Faculty of Management, University of Prešov in Prešov, Konštantínova 16, 080 01 Prešov, Slovakia

²¹¹ Department of Managerial Psychology, Faculty of Management, University of Prešov in Prešov, Konštantínova 16, 080 01 Prešov, Slovakia

Behavior of managers, such as support, empowerment, and high-quality relationship with their employees, can help prevent stress while improving stress management and emotional well-being for employees [8]. Stress among managers and employees can be affected by the workplace relationships with colleagues, employees and supervisors. Reference [9] argues that good relationships between the members of any group are a key determinant for the health of individuals as well as the entire organization.

Available studies focus primarily on the measurement of stress from an intrapersonal point of view and in relation to the perception of stressors by individuals or the stress reactions of individuals [10]. Current research, however, draws little attention to the interpersonal stress relationships within organizations, and it is possible to conclude that there is still a lack of knowledge about understanding the stress dynamics, i.e. how the stress and emotional well-being of managers can affect the stress and well-being of non-managerial workers.

The aim of the presented contribution is to enrich the knowledge in the area of coping with demanding situations by managers based on an analysis of differences in the assessment of the selected strategies of behaving in stressful, i.e. demanding situations between managers and non-managers.

2. COPING

Although the definition of stress is a question of many debates [11], a number of authors agree that stress is an unpleasant emotional experience related to elements of fear, horror, anxiety, irritability, annoyance, anger, sadness, misery and depression [12], [13].

In general, coping, i.e. stress management, is defined as a constantly changing cognitive and behavioral effort to cope with a certain internal and/or external requirement that is assessed as a tax or overrun of the individual's resources [14]. Coping, especially emotional coping, is sometimes confused with the defense mechanisms, although it has three different basic cognitive characteristics of defensive mechanisms (i.e. conscious, deliberate, and revisionist [15]). There are different approaches to coping with stress which are in literature generally known as coping strategies.

It is assumed that the individual differences in the strategies influence the process of coping and are represented by two concepts. First, it is the research on the continuum of dispositional and situational approaches. In this concept there are, on the one hand, stable coping strategies (dispositional) that can be used without the need to refer to the requirements of particular

**Mgr. Lucia Zbihlejová,
PhD.**

She is an assistant professor at the Faculty of Management of the University of Prešov in Prešov, Slovakia where, as a member of the Department of Intercultural Communication, she devotes herself to the studies and research on managerial skills and competences in connection with the linguistic and cultural aspects of managerial work. As a British and American Studies graduate, she also teaches English for Tourism and Business English. Her science and research activities and publication outputs are focused primarily on the stress coping strategies and leadership styles. Her research is published in scientific monographs, scientific journals and other publications listed and indexed in Web of Science and Scopus.



stressful events [16]. On the other hand, people use different situational behavioral responses based on the nature of the situation (e.g. manageability, predictability), assessment of the situation (primary or secondary estimation), or their own resources [14]. The second concept focuses on certain personality traits (such as optimism, neuroticism) that can predict or correlate with certain coping behaviors.

Coping with stress and the burnout syndrome are the subject of many studies (e.g. [17], [18]). In the field of leadership research, coping strategies are often studied in connection with organizational changes, different expectations from the role, or loss of employment. One author [19] explored how mid-level management copes with organizational changes and revealed several coping strategies studied before and after the organizational change. Other authors [20] describe how managers cope with the loss of employment. They found out that job loss was attributed to the framework conditions, such as globalization or the coping strategies used. Another author [21] conducted a conflict research in middle management and found that the high-performing managers use more complex coping strategies than the lower-performing managers.

However, there are only few studies dealing with the coping strategies relating to bad management (e.g. [22]). Instead, individual aspects of a particular area with regard to business management are often presented.

Thus, it is clear that stress is not only about people who are under the leadership pressure, but also about those, who hold the position of the manager to a relatively large extent (taking into account the responsibility and the requirements imposed on their activities [23]).

The following report is, therefore, aimed at detecting the possibility of using particular coping strategies by managerial workers and examining the possible differences in their perception and assessment between the managers and the non-managerial workers.

3. RESEARCH

The aim of the presented research was to enrich the field of knowledge related to demanding, stressful situations and coping with these situations by managers. The presented contribution

Doc. PhDr. Miroslav Frankovský, CSc.

He is an associate professor, the Vice-dean for Science and Research at the Faculty of Management, University of Prešov in Prešov, Slovakia, a member of the International scientific committee of the Faculty as well as of the whole University of Prešov in Prešov, and also a member of the International scientific committee of Dubnica Institute of Technology in Dubnica nad Váhom, Slovakia. In his scientific research he focuses on social intelligence, coping with demanding situations and cognitive distortions in the context of personality of a manager. He has been a research member of 16 scientific grants, both international and domestic. The results of his scientific-technological projects are published in scientific monographs, scientific journals and other publications listed and indexed in Web of Science and Scopus. He teaches and guarantees the following subjects: Psychology, Social Psychology, Methodology and Methods of Social Research, Coping with Demanding Situations, Organizational Behavior, Quantitative Methods of Research in Economics and Management, and Social Research Methodology in Management.



relates to the identification and specification of differences in the assessment of the selected coping strategies by managers and non-managers.

4. RESEARCH SAMPLE

The research file consisted of 340 respondents, of which 129 were managers (37.9%) and 211 were non-managers (62.1%). The sample of 129 managers consisted of 55 men (42.6%) and 74 women (57.4%) aged between 19 and 54 years ($M = 29$ years, $SD = 8.601$ years). 103 managers (79.8%) were from the private economic sector and 26 managers (20.2%) were from the public sector. The sample of 211 non-managers consisted of 69 men (32.7%) and 142 women (67.3%). 93 non-managers (44.1%) were from the private economic sector and 34 non-managers (16.1%) were from the public sector, and the option "other" was marked by 84 non-managers (39.8%).

5. RESEARCH METHODS

Two methodologies were used to conduct the presented research. They are described in the following part of the paper.

1) CISS [2]

The Coping Inventory for Stressful Situations is a questionnaire by Endler and Parker [2] for measuring multidimensional coping. The task for the respondents is to evaluate each of the 48 questionnaire items on a 5-point Likert scale ranging from (1) "Not at all" to (5) "Very much." Respondents should also indicate to what extent they engage in these types of activities when they find themselves in a difficult, distressing or worrying situation. A multidimensional approach to assessment of coping with stressful situations provides great precision in prediction of the preferred coping strategies.

The original CISS defines three dimensions of stress management (coping):

1. *Task-oriented* = describes an intentional, task-centered efforts to address the problem by its cognitive restructuring or by trying to change the situation. The main focus is on tasks or planning and on attempts to solve the problem.
2. *Emotion-oriented* = describes emotional responses that are person-centered. The goal is to reduce stress (but this is not always successful). Reactions include emotional responses (e.g. I scold myself for being too emotional, angry, tense), excessive interest in oneself, and

Doc. PaedDr. Zuzana Birknerová, PhD., MBA

She is as an associate professor at the Faculty of Management, University of Prešov in Prešov, Slovakia, where she works in the position of the Head of the Department of Managerial Psychology. She also teaches the following subjects: Organizational Behavior, Methodology and Methods of Social Research, Social Psychology, Basics of Coaching in Business Management, Basics of Managerial Psychology and Sociology. So far, she has been Director of 4 research grant projects, Deputy Director of 4 research grant projects and a successful team member of 3 research grant projects. She has a rich collection of publication outputs aimed at social phenomena such as social and emotional intelligence and their related constructs which she focuses on usually in the context of managerial work. The results of her scientific projects are published in scientific monographs, scientific journals and other publications listed and indexed in Web of Science and Scopus.



fantasizing. In some cases, a particular reaction actually increases stress (e.g. I'm very upset, tense). The reaction is person-centered.

3. *Avoidance* = describes activities and cognitive changes the aim of which is to avoid a stressful situation. This situation can occur by trying to distract oneself by means of other situations or tasks (task-centered) or by social distraction (person-centered) as a means of alleviating stress.

Based on our research, another dimension was revealed after the factor analysis on the presented sample of respondents. The fourth extracted factor was labeled as *Social support*, which represents coping aimed at finding support in others. It can be a search for a solution to the problem on the one hand, but also avoidance through social interaction on the other.

2) bCOPE – Brief COPE [1]

Brief COPE (bCOPE) is a shortened version of the COPE questionnaire [1]. COPE is a multidimensional self-assessment tool based on two theoretical models: Lazarus's [14] stress model, and the behavioral self-regulation model. It consists of 15 subscales, each representing a different coping strategy. At the higher level of the theoretical hierarchy, these 15 coping strategies are divided into three different coping styles: problem-oriented coping, emotion-oriented coping, and maladaptive coping.

The short version of the COPE questionnaire, Brief COPE, was later introduced to address the difficulties associated with responding to a large 60-question questionnaire. In deciding which items to keep from the full version of the COPE questionnaire in its shortened version (in which each subscale contains only two items), the author [1] has been guided by a strong factorial loadings from the previous factor analyses as well as the clarity of items and meaningfulness for the patients from the previous research. When creating a reduced set of items, the author also changed some of the scales (mainly due to the fact that some of the original scales had a dual focus) and left out those that did not seem to be important among previous patients. He also added one scale which had not been part of the original inventory, namely a 2-item degree of "Self-blame" because this reaction was important in one of the authors' previous works [1]. Brief COPE therefore contains the following 14 subscales (coping strategies): Religion ($\alpha = 0.82$), Substance use ($\alpha = 0.90$), Active coping ($\alpha = 0.68$), Planning ($\alpha = 0.73$), Positive reframing ($\alpha = 0.64$), Acceptance ($\alpha = 0.57$), Humor ($\alpha = 0.73$), Use of emotional support ($\alpha = 0.71$), Use of instrumental support ($\alpha = 0.64$), Self-distraction ($\alpha = 0.71$), Denial ($\alpha = 0.54$), Venting ($\alpha = 0.50$), Behavioral disengagement ($\alpha = 0.65$) and Self-blame ($\alpha = 0.69$).

6. RESEARCH RESULTS

Differences in assessment of the coping strategies between the managers and the non-managers were analysed by means of t-tests for two independent selections (in one case the Mann-Whitney U-test was used) in the statistical software SPSS 20. The acquired results confirmed the existence of statistically significant differences between the managers and the non-managerial workers in assessment of the coping factors of the methodologies CISS and bCOPE (Tables 1a and 1b, Figures 1 and 2).

CISS	Position	M	t - test	p
Emotion-oriented	Manager	2.66	-4.693	.000
	Non-manager	3.04		
Task-oriented	Manager	3.88	2.650	.008
	Non-manager	3.62		
Avoidance	Manager	2.27	-2.467	.014
	Non-manager	2.57		
Social support	Manager	3.19	-1.985	.050
	Non-manager	3.39		
bCOPE	Position	M	t - test	p
Self-distraction	Manager	2.22	-1.962	.050
	Non-manager	2.38		
Active coping	Manager	2.80	2.054	.041
	Non-manager	2.65		
Denial	Manager	1.85	-3.254	.001
	Non-manager	2.11		
Use of emotional support	Manager	2.46	-1.450	.148
	Non-manager	2.59		
Use of instrumental support	Manager	2.41	-1.402	.162
	Non-manager	2.52		
Behavioral disengagement	Manager	1.89	-1.579	.116
	Non-manager	2.03		
Venting	Manager	2.42	1.559	.120
	Non-manager	2.31		
Positive reframing	Manager	2.79	1.957	.050
	Non-manager	2.66		
Planning	Manager	3.04	2.231	.026
	Non-manager	2.87		
Humor	Manager	2.21	.471	.638
	Non-manager	2.16		
Acceptance	Manager	2.65	.648	.517
	Non-manager	2.60		
Religion	Manager	1.88	-1.388	.166
	Non-manager	2.03		
Self-blame	Manager	2.47	-1.606	.109
	Non-manager	2.59		

Table 1a: Assessment of the factors of CISS and bCOPE by managers and non-managers

bCOPE	Position	M	MDN	Mann-Whitney U	Wilcoxon W	Z	p
Substance use	Manager	1.351	1.00	12335.00	20085.00	-1.034	.301
	Non-manager	1.443	1.00				

Table 1b: Assessment of the bCOPE factor Substance use by managers and non-managers

On the basis of the results obtained it may be claimed that in terms of the assessment of behavior in demanding situations of managers and non-managers, the managers achieved higher scores

than the non-managers in the CISS methodology factor Task-oriented. On the other hand, in the other three factors of the CISS methodology, higher scores were recorded by the non-managers, as well as in the bCOPE factor Self-distraction. Within the given methodology, the managers scored higher than the non-managers only in one of its factors – Positive reframing. In the rest of the surveyed factors, no statistically significant differences were recorded.

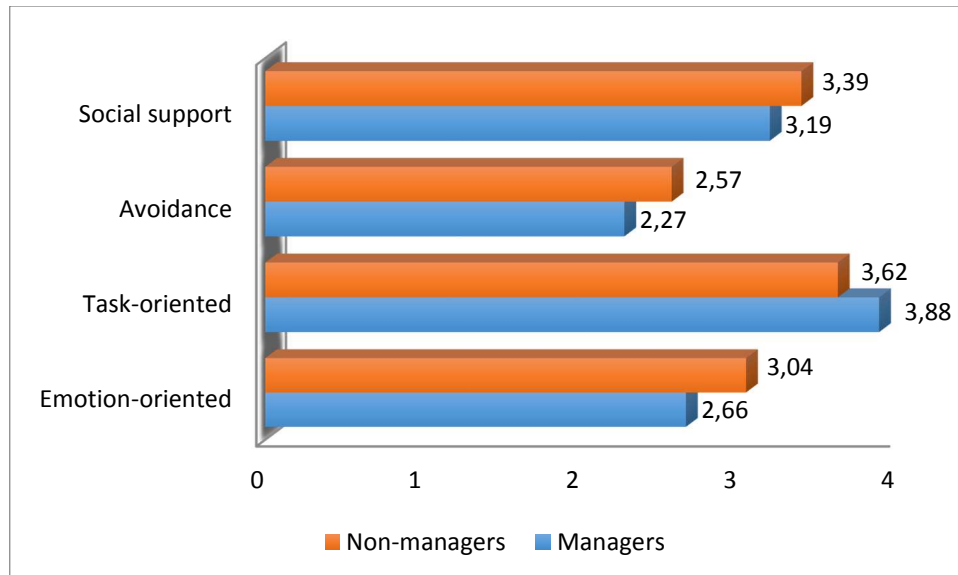


Figure 1: Comparison of assessment of the CISS factors between managers and non-managers

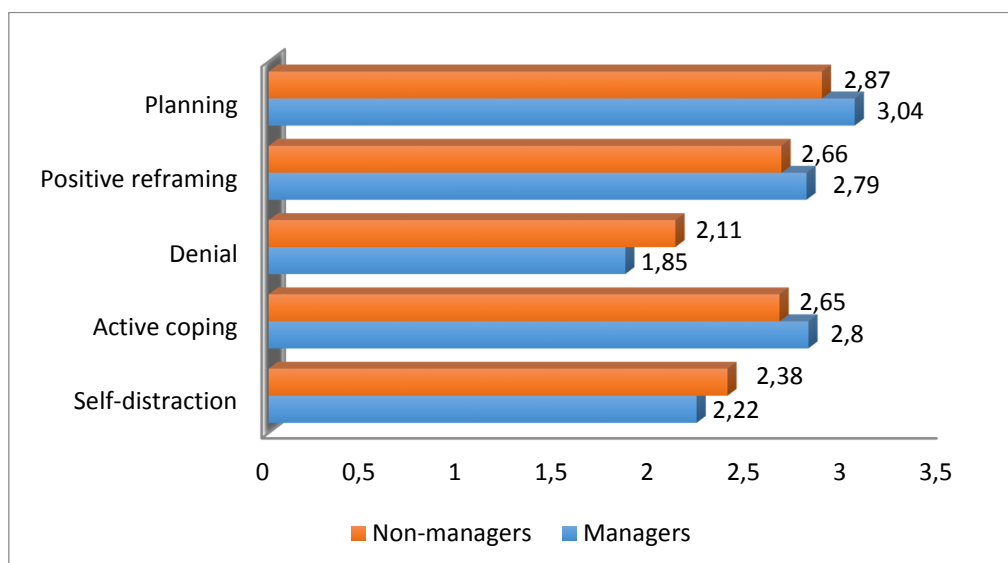


Figure 2: Comparison of assessment of the bCOPE factors between managers and non-managers

These results testify to the fact that managers have a greater tendency to cope with stress by focusing on the task and tackling the problem, while non-managers tend to react to stress emotionally, resolve the demanding situation by seeking support among their social contacts, or deliberately avoid the solution. They often focus their attention on any other activity that can mitigate the demanding situation, but does not actively solve the problem.

7. DISCUSSION AND CONCLUSION

The obtained results confirmed the existence of statistically significant differences between managers and non-managers in assessing the coping factors of the CISS and bCOPE methodologies.

The stated aim of the contribution was formulated on the basis of the research findings which, on the one hand, confirmed the existence of links among working conditions, occupational stress and the emotional well-being of employees (e.g. [24], [25], [26], [27] and others). On the other hand, these findings do not provide information about the strategies that managers, as the main actors involved in shaping the working conditions, use to cope with stress. Results of the differential analysis carried out have confirmed the existence of statistically significant differences between managers and non-managers in the assessment of the individual strategies of behavior of managers in demanding situations of managerial work.

On the basis of the results obtained, we can conclude that in terms of the assessment of behavior of managers and non-managers in demanding situations, the managers achieved higher scores than the non-managerial workers in the CISS methodology factor Task-oriented, as well as in the bCOPE factor Positive reframing. Findings from a similar research [28] suggest that managers are "more active" (i.e. instrumental, optimistic, effective, and using more preventative coping tools) in coping than the administrative workers. Other authors add that the effectiveness of stress coping strategies at the workplace includes several aspects ([29], [30], [31] and others) that affect management as well as the non-managerial components of the organization ([32], [33]). However, managers tend to cope with these impacts particularly by focusing on the problem and addressing the problem [34], unlike the non-managers, who have a tendency to respond to a demanding situation emotionally, and seek support among their social contacts [35], or deliberately avoid the solution [22].

The often focus on any other activity that can mitigate the demanding situation, but does not actively solve the problem. This fact was confirmed by the results of the analysis of the CISS methodology factors Emotion-oriented, Avoidance, and Social Support, in which the higher scores were recorded by non-managers, same as in the bCOPE factor Self-distraction. In the other examined factors of the bCOPE methodology, no statistically significant differences were recorded. Another research [28] corresponds to some extent with our findings – the author has found out that the administrative workers tend to use a coping strategy of moving away from the situation, they are more anxious and depressed and have more significant somatic symptoms than managers. On the other hand, managers perceive more support in their work environment, fewer job demands and day-to-day difficulties than the administrative workers.

In conclusion, it is possible to supplement the knowledge we have gained by the findings of other studies that have confirmed the existence of links among the working conditions, occupational stress and emotional well-being (e.g. [24], [25], [26], [27]). Managers/leaders play a major role in defining an environment in which employees prosper and experience well-being ([36], [37]). Our research, however, demonstrates that experiencing well-being as well as coping with demanding situations are not issues relating to the non-managerial workers exclusively, but are associated with the work of managers as well. Therefore, the presented results confirm the meaningfulness of studying and conducting research also on the coping strategies of managers.

ACKNOWLEDGEMENTS

This research was conducted thanks to the support of the grant project KEGA No. 003PU-4/2017.

REFERENCES

- [1] Carver, C. S. (1997) You want to measure coping but your protocol's too long: Consider the Brief COPE, *International Journal of Behavioral Medicine* 4, pp. 92-100.
- [2] Endler, N. S., Parker, J. D. A. (1990) *Coping Inventory for Stressful Situations (CISS): Manual*, Multi Health Systems, Toronto.
- [3] ETUC, UNICE, UEAPME, CEEP (2004) *Work-related stress. Framework agreement on work-related stress* [online], [acc. 2016-02-23], Available at: http://etuce.homestead.com/News/2008/March2008/ETUCE_implementation_guide_WR_S_EN.pdf
- [4] European Agency for Safety and Health at Work (2005) *Expert forecast on emerging physical risks related to occupational health and safety*, EA-OSHA, Bilbao, Spain.
- [5] Levi, L., Levi, I. (2002) *Guidance on work-related stress: Spice of life or kiss of death?*, Office for Official Publications of the European Communities, Luxembourg.
- [6] Johnson, S. K. (2008) I second that emotion: Effects of emotional contagion and affect at work on leader and follower outcomes, *Leadership Quarterly* 19, pp. 1-19.
- [7] Sy, T., Cote, S., Saavedra, R. (2005) The contagious leader: Impact of the leader's mood on the mood of group members, group affective tone, and group processes, *Journal of Applied Psychology* 90, pp. 295-305.
- [8] Schaufeli, W., Enzmann, D. (1998) *The burnout companion to study and practice: A critical analysis*, Taylor & Francis, London.
- [9] Selye, H. (1974) *Stress without distress*, 3rd ed., Hodder & Stoughton, Philadelphia, PA.
- [10] Ben Porath, Y. S., Tellegen, A. (1990) A place for traits in stress research, *Psychological Inquiry* 1, pp. 14-17.
- [11] Ganster, D.C., Schaubroeck, J. (1991) Work stress and employee health, *Journal of Management* 17, pp. 235-271.
- [12] Folkman, S., Lazarus, R. S. (1991) Coping and emotion, In: A. Monat, R. S. Lazarus, eds., *Stress and Coping: An anthology*, Columbia University Press, New York, pp. 207-227.
- [13] Motowidlo, S. J., Packard, J. S., Manning, M. R. (1986) Occupational stress: Its causes and consequences for job performance, *Journal of Applied Psychology* 71, pp. 618-629.
- [14] Lazarus, R. S., Folkman, S. (1984) *Stress, appraisal, and coping*, Springer, New York.
- [15] Miceli, M., Castelfranchi, C. (2000) Further distinctions between coping and defence mechanisms?, *Journal of Personality* 69, pp. 287-296.
- [16] Carver, C. S., Scheier, M.F., Weintraub, J. K. (1989) Assessing coping strategies: A theoretically based approach, *Journal of Personality and Social Psychology* 56(2), pp. 267-283.
- [17] Yip, B., Rowlinson, S., Ling Siu, O. (2008) Coping strategies as moderators in the relationship between role overload and burnout, *Construction Management and Economics* 26, pp. 869-880.
- [18] Lewin, J., Sager, J. (2008) Salesperson burnout: A test of the coping-mediational model of social support, *Journal of Personal Selling and Sales* 3, pp. 233-246.
- [19] Armstrong-Stassen, M. (2006) Determinants of How Managers Cope with Organizational Downsizing, *Applied Psychology: An International Review* 55(1), pp. 1-26.
- [20] Mendenhall, R., Kaniel, A., Spindel, L. J., Hart, C. M. D. (2008) Job Loss at Mid-life: Managers and Executives Face the "New Risk Economy", *Social Forces* 87, pp. 186-209.

- [21] Marginson, D., Bui, B. (2009) Examining the Human Cost of Multiple Role Expectations, *Behavioral research in accounting* 21(1), pp. 59–81.
- [22] Dauber, D., Tavernier, A. (2011) Coping with ineffective leadership, *IACCM 2011, June, 29 – July 1, Ruse: Bulgaria* [online], [acc. 2015-05-05], Available at: https://www.wu.ac.at/fileadmin/wu/o/iaccm/Abstracts/2011_Dauber_Tavernier_Ineffective_Leadership.pdf
- [23] Rajnoha, R., Štefko, R., Merková, M., Dobrovič, J. (2016) Business Intelligence as a Key Information and Knowledge Tool for Strategic Business Performance, *E+M Ekonomie a Management*, 19(1), pp. 183-203.
- [24] De Jonge, J., Bosma, H., Peter, R., Siegrist, J. (2000) Job strain, effort-reward imbalance and employee wellbeing: A large-scale cross-sectional study, *Social Science & Medicine* 50, pp. 1317-1327.
- [25] Cox, T., Griffiths, A., Rial-González, E. (2000) *Research on work-related stress*, Rep. No. 203, European Agency for Safety and Health at Work, Bilbao, Spain.
- [26] De Lange, A. H., Taris, T. W., Kompier, M. A. J., Houtman, I. L. D., Bongers, P. M. (2004) The relationships between work characteristics and mental health: Examining normal, reversed and reciprocal relationships in a 4-wave study, *Work & Stress* 18, pp. 149-166.
- [27] Grawitch, M. J., Gottschalk, M., Munz, D. C. (2007) The path to a healthy workplace: A critical review linking healthy workplace practices, employee well-being, and organizational improvements, *Consulting Psychology Journal: Practice and Research* 58, pp. 129-147.
- [28] Long, B. C. (1998) Coping With Workplace Stress: A Multiple-Group Comparison of Female Managers and Clerical Workers, *Journal of Counseling Psychology* 45(1), pp. 65-78.
- [29] Dewe, P., Cox, T., Ferguson, E. (1993) Individual Strategies for Coping with Stress at Work: A Review, *Work and Stress* 7(1), pp. 7-15.
- [30] Siu, O. L., Lu, L., Cooper, C. L. (1999) Managerial Stress in Hong Kong and Taiwan: A Comparative Study, *Journal of Managerial Psychology* 14(1), pp. 6-25.
- [31] Boyd, N. G., Lewin, J. E., Sager, J. K. (2009) A Model of Stress and Coping and Their Influence on Individual and Organizational Outcomes, *Journal of Vocational Behaviour* 75(2), pp. 197-211.
- [32] Lee, J. K. L. (2003) Job Stress, Coping and Health Perceptions of Hong Kong Primary Care Nurses, *International Journal of Nursing Practice* 9, pp. 86-91.
- [33] Chang, E. M. L., Bidewell, J. W., Huntington, A. D., et al. (2006) A Survey of Role Stress, Coping and Health in Australian and New Zealand Hospital Nurses, *International Journal of Nursing Studies* 44(8), pp. 1354-1362.
- [34] Rowley, S., Hossain, F., Barry, P. (2010) Leadership through a gender lens: How cultural environments and theoretical perspectives interact with gender, *International Journal of Public Administration* 33(2), pp. 81–87.
- [35] Carver, C. S. (2011) Coping, In: R. J. Contrada, A. Baum, eds., *The Handbook of Stress Science: Biology, Psychology, and Health*, Springer Publishing Company, New York, pp. 220-229.
- [36] Nielsen, K., Yarker, J., Brenner, S. O., Randall, R., Borg, V. (2008) The importance of transformational leadership style for the well-being of employees working with older people, *Journal of Advanced Nursing* 63, pp. 465-475.
- [37] Rasulzada, F., Dackert, I., Johansson, C. R. (2003) Employee well-being in relation to organizational climate and leadership style, In: S. Giga, P. Flaxman, J. Houdmont, M. Ertel, eds., *Occupational health psychology: Flexibility, quality of working life and health, Proceedings of the Fifth European Conference of the European Academy of Occupational*

Health Psychology, Berlin, November 20-21, 2003, University of Nottingham, I-WHO, Nottingham, pp. 220-224.

NON-MATERIAL STRATEGIES FOR MOTIVATION OF EMPLOYEES IN IT SECTOR

Lidija Lesko Bošnjak²¹²

Mirela Mabić²¹³

Damir Musa²¹⁴

Abstract: *One of primary tasks of management is motivation of employees. For the successful performance of this task it is necessary to define a motivation system that will, besides the material strategies, include efficient non-material motivation strategies. The aim of this paper is to research, first of all, impact of non-material factors on the motivation of employees in the IT sector, as well as to study the implementation of these factors with the aim to ensure employment and stay of quality workers.*

Key words: *Motivation of employees, non-material strategies, IT sector*

1. INTRODUCTION

The basic starting point for motivation practice in contemporary organisation is the knowledge that working motivation will be bigger if an employee is able to satisfy more of their diverse needs. Thereby, it is necessary to have in mind that people wish also to satisfy their so called higher - order needs beside fundamental, existing needs through their work. Therefore, a comprehensive and quality motivation system, in addition to material strategies, has also to include different non-material incentives for work will fulfil the mentioned needs.

There are two fundamental motivation strategies mentioned in theory and used in practice: material and non-material. Material strategies are primary realised through different financial forms: salaries, bonuses, financial awards, financial supports [1]. They are directed toward securing and improving financial status of employees and financial compensation for work [2]. Non-material motivation strategies that organisation can develop and apply are: job shaping, management style, participation of employees, flexible working time, acknowledgement and feedback etc [1, 3, 4]. Both types of motivation strategies have a significant impact on the company and both are used to improve performance, decrease costs and increase revenue in order to remain competitive and meet increasing change in environment [5, 6]. Lately, special attention has been paid to non-material strategies because they are the strongest comparative advantages a company may have and competition cannot imitate it or copy it easily [5].

The aim of this paper was to research impact of non-material strategies on motivation of employees in organisation within IT sector in the territory of Bosnia and Herzegovina.

²¹² Faculty fo Economics, University of Mostar, Matice hrvatske bb 88 000 Mostar BiH

²¹³ Faculty fo Economics, University of Mostar, Matice hrvatske bb 88 000 Mostar BiH

²¹⁴ JP Hrvatske telekomunikacije d.d. Mostar, Kneza Branimira bb, 88 000 Mostar, BiH

METHODOLOGY

Empirical research was conducted in 2015. It covered 112 respondents from 37 organizations in the territory of Bosnia and Herzegovina. A sample of organizations was obtained from the public register of organizations in Bosnia and Herzegovina. A questionnaire composed of two parts (general and specific part) was used as a research instrument. The general questions included questions about the respondent, the work and organisation in which they work: gender, age, marital status, qualifications, organisation ownership, number of employees, work position / position, length of employment. The specific part of the questionnaire related to the non-material strategies of motivation contained a number of motivational factors that respondents should rank according to their importance (Table 1) and a set of statements for examining the attitudes of respondents about their work and satisfaction with the current method of non-material motivation (Table 2.) A Likert scale of 5 grades was used for the ranking, and it had the following range of meanings: 1 - disagree / not important tp 5 - completely agree / very important.

Table 1. Motivational factors

ID	Motivation factor
m1	Interesting and challenging job
m2	Possibility of advancement
m3	Discretion
m4	Flexible working time
m5	Job security
m6	Involvement in processes
m7	Employee-level empathy

Source: author's preparation

Table 2. Statements about satisfaction with the method of non-material motivation

ID	Statement
ns1	My superiors respect my comments, suggestions and ideas
ns2	I am involved in business processes at the work
ns3	The job I do raises the level of my confidence
ns4	The organisation I work in cares about me.
ns5	I am satisfied with communication between employees
ns6	The organisation I work in enables me to adjust the job with my needs
ns7	My company allows me to work at home
ns8	The organisation recognises my effort and rewards me often in a non-material way.
ns9	At the work I have certain level of independence and possibility to decide
ns10	At the work I have possibility to learn and acknowledge.
ns11	In the organisation I work in, I have positive atmosphere and working environment
ns12	My work time is flexible
ns13	I get praise and recognition for a well-done job
ns14	My superior has understanding for my personal needs and problems
ns15	My company appreciates (recognises) innovation and creativity

Source: author's preparation

An online survey was conducted using Google Drive options. The completion of questionnaire lasted for 8-10 minutes. The descriptive analysis was carried out in SPSS for Windows (version 17.0, SPSS Inc. Chicago, Illinois, USA) after control of the data. The results are expressed as the number and the percentage (%) and the mean (M) and the standard deviation (SD).

Sample characteristics are presented in Table 3.

Table 3. Characteristics of respondents and their companies

Characteristic	Modality	n	%	Characteristic	Modality	n	%
Dob	≤ 30	25	22.3	Number of employees	1-10	26	23.2
	31-40	51	45.5		11-50	21	18.8
	41-50	25	22.3		51-250	12	10.7
	> 50	11	9.8		> 250	53	47.3
Gender	Male	87	77.7	Ownership of the company	privately	71	63.4
	Female	25	22.3		state/public	41	36.6
Married	yes	82	73.2	Manager	yes	28	25.0
	no	30	26.8		no	84	75.0
Education	high school	23	20.5	Length of employment	do 5	23	20.5
	bachelor	15	13.4		6-10	23	20.5
	master	68	60.7		10-20	55	49.1
	MSc, PhD	6	5.4		20	11	9.8

Source: author's preparation according to the results of empirical research

RESULTS AND DISCUSSION

Importance of motivator

Means, mode and ranks of importance for the non-material motivators are shown in Table 4, while Graph 1 shows the distribution of the respondents by importance of the non-material motivators (not important, important, very important).

Table 4. Non-material motivators

Motivator	[min-max]	D	M (SD)	CV (%)	rank
m1	[2-5]	5	4,4 (0,66)	15,08	2
m2	[3-5]	4	4,29 (0,67)	15,51	3
m3	[2-5]	4	4,09 (0,77)	18,73	5
m4	[1-5]	5	3,82 (1,09)	28,58	7
m5	[2-5]	5	4,54 (0,71)	15,64	1
m6	[2-5]	4	3,93 (0,74)	18,94	6
m7	[2-5]	4	4,13 (0,85)	20,61	4

D – mode; M (SD) – mean (standard deviation); CV - coefficient of variation

Source: author's preparation according to the results of empirical research

Answers from respondents show that the most important non-material factor is the job security. This result is expected since it is about the factor that is one of the most important preconditions of human security that is increasingly vulnerable by more dynamic and uncertain event both in business and general environment. Characteristics of job take the second place of importance, i.e. respondents expect that job is interesting and challenging since this motivates them to continually discover and learn new things and exceed their so far results. The following motivator is significantly related to this, and that is the possibility of advancement as by obtaining new knowledges and skills respondents obtain the conditions for advancement. It is important to respondents that their superiors show certain empathy. Freedom to decide, involvement in processes and flexible working time are among the least important motivators in the group. This motivators also have mean at about 4 that however shows that they are pretty important to respondents even though they lose little importance in comparison to other motivators.

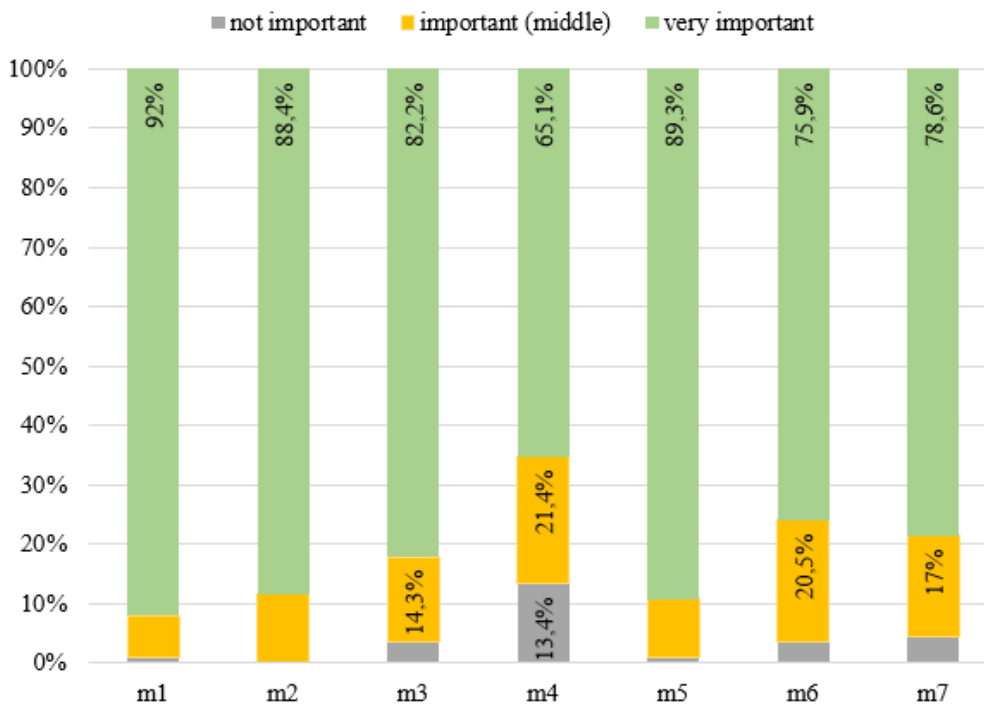
As Graph 1 shows, a significant proportion of rating "not important" is only recorded in the "flexible working time" motivator. Even though, while thinking about job, it may seem to people that it is very significant and important to have possibility to adjust working time with their obligations and needs, it often appears that defined working time, in which employees are required to carry out business obligations, is more favourable to employees. In fact, flexible working time can often be deceptive because it is given to individual to determine when to work. This method of work requires good time management abilities because otherwise results may fail.

In the IT industry flexible working time does not mean only possibility to choose time when to come to and go from work within certain time intervals, but also the possibility to work shorter or longer on some days. Of course, assuming the compulsory weekly working time is done.

Lidija Lesko Bošnjak is employed at the Faculty of Economics at the University of Mostar in the capacity of Associate Professor at the Management Department. Fields of interest:



Business Organization, Organization Design Methodology, Organizational Behavior Management, Human Resources Management and Strategic Human Resources Management. She has published about 25 scientific and professional papers, participated in several projects as well as at several domestic and international symposiums. She is co-author of two books: *Essentials of Human Resources Management* (2013), and *Business Organization* (2016)



Graph 1. Distribution of the respondents by importance of the non-material motivators
Source: author's preparation according to the results of empirical research

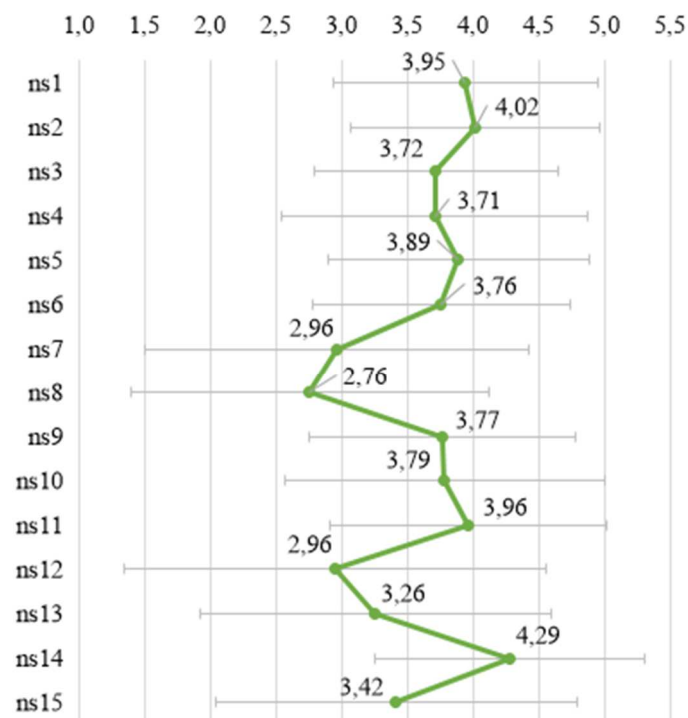
Attitudes of respondents about non-material motivation strategies

Table 5 shows the distribution of respondents by agreeing / disagreeing with the statement about the non-material strategies in their organisations. Means (and standard deviation) for these statements are shown in Graph 2.

Table 5. Distribution of respondents by agreeing / disagreeing with the statement about the non-material strategies

ID	Disagree	Neutral	Agree
ns1	9,00%	16,10%	75,00%
ns2	6,30%	22,30%	71,40%
ns3	9,00%	23,20%	67,90%
ns4	16,90%	16,10%	67,00%
ns5	10,70%	17,90%	71,50%
ns6	9,80%	30,40%	59,80%
ns7	40,20%	17,90%	42,00%
ns8	47,30%	17,00%	35,70%
ns9	11,60%	22,30%	66,10%
ns10	16,00%	14,30%	69,60%
ns11	8,10%	22,30%	69,60%
ns12	45,60%	12,50%	42,00%
ns13	29,50%	21,40%	49,10%
ns14	7,20%	9,80%	83,00%
ns15	27,70%	21,40%	50,90%

Source: author's preparation according to the results of empirical research



Graph 2. Means for statement about the non-material strategies

Source: author's preparation according to the results of empirical research

Means and proportion of respondents agreed with the statement show that the best rated statement is: *"My superior has understanding for my personal needs and problems."* This shows that respondents work in organisations whose managers are aware that taking care on personal needs and problems of their employees contributes to organisation success. In fact, despite many technological achievements, employees are the ones who are driving the whole economy and require special attention of their superiors. The care of superiors for their IT employees is also supported by the following statements: *"I am involved in business processes at the work"*, and *"My superiors respect my comments, suggestions and ideas"*. This shows that participations are integral part of business life of the IT employee regardless which IT activities are involved (new software development, maintenance, control...).

Mirela Mabić works at the Faculty of Economics, University of Mostar at the Department for Business Informatics. Her fields of interest are Business Information Systems, the Practical Application of Software and Web Technologies both in Business and in Education, Business and Computer Literacy, Digitalization and Computerization, Quality of Higher Education and Applied Statistics. She is (co)author of a large number of professional and scientific papers.



On the other hand, the minimum agreement is determined at the statement: *"Organisation recognises my effort and often rewards me on some non-material way"*. This result shows that importance and power of non-material motivating is not recognised yet enough, and there is much more space for development and application of diverse non-material strategies that need to be upgrade to the material ones. Two more statements have relatively low mean (<3): *"My organisation allows me to work at home"*, *"My working time is flexible"*, and it was expected for this statements to be highly rated since IT sector is the one that enables adjustment of working time to employees. The reasons for this are in fact that respondents are from companies that use information technologies for the most part of the 8-hour working time within set time limits. Therefore, it cannot be expected that IT employees differ significantly from other employees by their working time.

Damir Musa is employed in JP Hrvatske telekomunikacije d.d. Mostar. Areas of his interest: Human Resource Management, Motivation Strategy, Business Information Systems, Strategic Human Resources Management, Organization Design and Behavioral Models.



Although deprived for flexible working time, respondents show by other statements that some non-material strategies are partially (only partially) practiced in their companies. This primary concerns care on employees, quality of communication, respect and acceptance and possibility of additional learning and enrichment of knowledge, skills and abilities.

CONCLUSION

Motivated employees are one of the most important presumptions of successful business. Therefore, management needs to know how to motivate employees not only to do their job, but also to use as much as possible of their potentials at work place in order to contribute to greater individual and organisation success. The solution of this task implies monitoring and analysing

the needs, wishes and expectations of employees and forming the adequate motivation system accordingly.

The results of conducted research have shown that, on the one hand, employees in the IT sector consider non-material strategies important for their working motivation. On the other hand, they consider that management still does not use power of these strategies (especially ones concerning flexibility of working place and time, and monitoring and recognition of success) and these techniques play an important role in the employment and retention of quality workers. Therefore, managers, not only in the IT sector but in all sectors, need to use non-material strategies of motivation more intensively and continually combine it with material strategies, because their combination is the only effective way to achieve a productive level of employee motivation.

REFERENCE

- [1] Lesko Bošnjak, L., Klepić, Z. (2013) *Osnove menadžmenta ljudskih potencijala*, Ekonomski fakultet, Sveučilište u Mostaru, Mostar.
- [2] Omazic, M. A., Klindžić, M, Vlahov, D. M. (2011) *The Role of Material and Non-Material Rewards in Reducing Barriers to Change Acceptance*, International Conference on Economics, Business and Management, IAC S IT Press, Mannila, pp. 10-14.
- [3] Bahtijarević-Šiber, F. (1999), *Management ljudskih potencijala*, Golden marketing, Zagreb.
- [4] Musa, D. (2015) *Utjecaj nematerijalnih strategija motiviranja na fluktuaciju zaposlenih*, magistarski rad, Ekonomski fakultet, Sveučilište u Mostaru, Mostar.
- [5] Glamuzina, M (2013) *Motivation and Management's Effectiveness – How to Increase Effectiveness Through Developing Managers' and Employees' Motivation in Bosnia And Herzegovina*, DIEM : Dubrovnik International Economic Meeting, Vol.1 No.1.
- [6] Lasić, M. (2012) *Suvremeni pristupi istraživanju i upravljanju motivacijom za rad*, Journal of Economy and Business, Ekonomski fakultet Mostar, pp. 95-112.

A COMPARATIVE ANALYSIS OF THE ROLE OF HRM FUNCTION AND ITS CONTRIBUTION TO THE COMPANIES' PERFORMANCES IN SERBIA

Agneš Slavić²¹⁵
Nemanja Berber²¹⁶
Radmila Bjekić²¹⁷

Abstract: *The aim of this work is to present the development of the role of HRM function in Serbian companies in the period between 2008 and 2015. From the data of international Cranet research obtained in 2008 and 2015 we will focus on the strategy formulation process, the role of HR in it, determine the type of linkage between HR and strategic management function and its influence on the companies' performance indicators. In the first research period 50 companies and their HR practice was analysed, while in 2015 we obtained results from 158 organisations. The paper will present the existence of the organizations' mission statement, business strategy and HR strategy, as well as the existence of HR department and the presence of HR manager at the Board of Directors and its involvement in the formulation of the organization's business strategy in both research periods. Our hypothesis is that there is a significant correlation between the strategic role of HRM function and the companies' performance indicators. Besides, we propose that in 2015 HRM function has a strategic role in the higher proportion of Serbian companies, than it had in 2008. The obtained research results in 2008 and 2015 prove our presumptions, as HR function in Serbian companies in 2015 has a more strategic role than it had in 2008, and it significantly contributes to companies' performances.*

Key words: strategic human resource management, organizational performances, Serbia, Cranet

INTRODUCTION

In the period of global competition and radical economic changes human resources and their intellectual capital become a vital resource for the entire business system and development of organizations (Buller and McEvoy, 2012). Employees' competence, knowledge, skills and experience contribute not only to the company's financial and marketing success, but also to broader (environmental and social) considerations. As a creative and innovative asset of each company, people play a leading role in creating and maintaining its competitive advantage. Only highly trained, properly motivated employees, with constant and continuous improvement of their new business skills, can meet these challenges imposed by the new business environment that is characterized by risk and uncertainty (Berber, 2011).

215 University of Novi Sad, Faculty of Economics, Department of Management Segedinski put 9-11, 24000 Subotica, Republic of Serbia

216 University of Novi Sad, Faculty of Economics, Department of Management Segedinski put 9-11, 24000 Subotica, Republic of Serbia

217 University of Novi Sad, Faculty of Economics, Department of Management Segedinski put 9-11, 24000 Subotica, Republic of Serbia

Human resource management is understood as the concept of managing organization's people thought different and very sophisticated activities such as planning, staffing (recruitment, selection and orientation), training, career development, performance management, compensation and benefits, leaving the organizations, industrial relation and the like. With an adequate structuring of the HRM sector, organizations can provide significant improvements in business in terms of higher performances (Berber et al., 2014; Huselid, 1995) and the competitive advantage of organizations (Campbell et al., 2012; Wright and McMahan, 2011; Progoulaki and Theotokas, 2010; Lado and Wilson, 1994; Schuler and MacMillan, 1984).

The aim of this work is to present the development of the role of HRM function in Serbian companies in the period between 2008 and 2015 and its influence on organizational outcomes. From the data of international Cranet research obtained in 2008 and 2015 we will focus on the strategy formulation process, the role of HR in it, determine the type of linkage between HR and strategic management function and its influence on the companies' performance indicators. In the first research period 50 companies and their HR practice was analysed, while in 2015 we obtained results from 158 organisations. The paper will analyse the existence of the organizations' mission statement, business strategy and HR strategy, as well as the existence of HR department and the presence of HR manager at the Board of Directors and its involvement in the formulation of the organization's business strategy in both research periods.

THEORETICAL BACKGROUND

The modern human resource management (HRM) literature and the actual management practice both emphasize the strategic approach to company's most important assets, its human resources. Strategic human resource management is an approach that defines how the organization's goals will be achieved through people by means of HR strategies and integrated HR policies and practices. According to Armstrong (2007) human resource management is a strategic and coherent approach to the management of an organization's most valuable assets – the people working there, who individually contribute to the achievement of its objectives. Ananthram et al. (2013) state that the maximum value of human capital is realized when 'a coherent system' of HR strategies and processes is implemented, inferring the need for the horizontal alignment (or fit) of HRM processes and their vertical alignment with business strategies and functions. This approach accords with overall strategic HRM theory, as it reflects a focus on organizational (rather than individual) performance, emphasizes the role of HRM systems as solutions to business problems, and therefore contributes to building sustainable competitive advantage. Rasmussen et al. (2010) emphasize that HRM's vertical alignment with organizational strategy may support effective organizational change, but may also increase the professional standing of HRM practitioners, a development captured in the idea of HRM being a 'business partner' (Ulrich, 1997). Strategic human resource management (SHRM) research focuses on evaluating the congruence among business strategies, HR policies, and organizational effectiveness (Chow et al., 2013).

Ross (2006) noted that the growth of interest in SHRM has been linked to increased competition, globalization, changing markets, new technologies, and the notion that a firm's performance is linked to its organization. SHRM emphasizes the HR system, as an internally coherent set consistent with the firm's corporate strategy, rather than individual HR practices, as a driver of organizational performances. According to Chow et al. (2013) this is similar like the high performance work system (HPWS), which is understood as a system consisting of a set of HR practices that can provide a firm a competitive advantage. In high performing organizations HRM is treated as a set of complementary practices aligned with the firm's goals

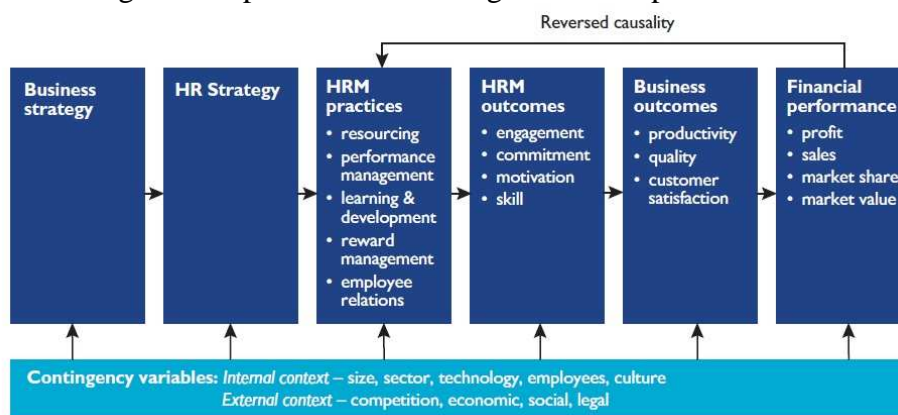
and strategies. In their research from Singapore they found that Investment HRM (built around extensive training and development on human capital) and Inducement HRM (built around incentives, performance-based pay) were significant predictors of organizational performance while Involvement HRM (built around industrial democracy and self-management work teams) was not significant.

One of very important issues when HRM and firms' strategic management is in question is the type of the linkage between HR system and strategic management. Noe et al. (1997) distinguish four types of linkage between the top management's strategy formulation-implementation process and the HRM function, claiming that the last option (integrative linkage) is the best, contributes to the organizational outcomes the most:

- Administrative linkage – the HR function is focused on day-to day activities, the strategic business planning exists without any input from the HR department.
- One-way linkage – the firms' strategic business planning function develops the strategic plan and then informs the HR function from the plan. The role of HR function is to design HR programs that implement the strategic plan.
- Two-way linkage – the formulation of business strategy occurs in three sequential steps. First, the strategic planning team informs the HR department of the various strategies, the company is considering. Then, the HR executive analyzes the human resource implications of various strategies and presents the results to the strategic planning team. Finally, after the strategic decision has been made, the strategic plan is passed on to the HR executive, who develops HR programs to implement it.
- Integrative linkage – it is a dynamic and multifaceted linkage based on continual rather than sequential interaction. In most cases, the HR executive is an integral member of the strategic planning team, giving input in the whole process. HR function is built right into the strategy formulation and implementation processes.

Similarly, Buller and McEvoy (2012) proposed that HRM practices which generate, reinforce, and sustain organizational capabilities and culture, job-specific group competencies and norms, and individual knowledge, skills, and abilities (KSAs), motivation, and opportunity, all aligned with strategy and with one another, lead to increased organizational performances. The model of the impact of HRM on organizational performances, which take into account all contingency variables, is shown in Figure 1.

Figure 1 Impact of HRM on organizational performance



Source: Armstrong, 2009, p. 143.

Regarding the relation between HRM and SHRM with organizational outcomes and performances Buciuoniene and Kazlauskaite (2012) found a positive relationship between certain CSR-related HRM practices and performance outcomes. Flexible work arrangement, communication about strategy and performance outcomes to employees and the use of methods for employees to communicate their views to management were found to be related with the service quality and environmental matters. Empirical results from a sample of 223 Chinese enterprises indicated that SHRM has a positive impact on firms' product innovation and this relationship is stronger for firms with a developmental culture (Wei et al., 2011) while in Turkey SHRM and selection/development practices have direct and positive effects on financial/market performance and operational performance (Gurbuz & Mert, 2011). Regarding specific HR activities of employees' training, based on Cranet data 2008-2010 period, the importance of training expressed by the percentage of annual payroll costs spent on training do not significantly influence organizational outcomes expressed by productivity, profitability, service quality and rate on innovations. The extensiveness of training expressed by the training days per year for different employee categories partly influences the companies' performances. Training effectiveness has a weak positive influence on the organizational outcomes in the examined four CEE countries, Serbia, Slovakia, Slovenia and Hungary (Slavić & Berber, 2014). Štangl Šušnjar and Berber (2014) found a statistically significant differences between those organizations that offer incentive pay for their professionals relative to those organizations that do not used incentives, in terms of organizational performances (service quality, productivity, profitability and the rate of innovation). Leković and Berber (2014) found that European private companies that inform their employees about business strategy, financial results and organization of work have higher levels of their organizational performances. These two researches were conducted on the sample of 25 European countries (including Serbia), in 4236 organizations.

In the developed market economies with modern HRM practice, HR function is linked to company's mission, vision and strategy, and its success is measured through numerous organizational performance indicators. As management practice depends on context, it is important to understand the internal and external challenges of companies in different countries and to adopt the adequate techniques in achieving the HRM's double aim: the companies' success and the employees' satisfaction.

HRM in Serbia

The Republic of Serbia is located at the crossroads of Central and Southeast Europe, covering 88 361 km². According to the results of the Census performed in 2011, Serbia has 7 120 666 inhabitants. While the Serbian economy suffered from isolation during the 1990s, the last ten years of political and macroeconomic stability have rapidly transformed Serbia into the most attractive business environment in Southeast Europe. In 2011 the GDP of Serbia was 45 064 million \$, while the GDP per capita add up to 6080 \$. Last year the inflation was 12.5, while the unemployment rate 22,4%. The presented data undoubtedly show that Serbia is facing serious economic and social problems (Slavic & Berber, 2013).

Milikić, Janićijević and Petković (2008) analyzed the position of HRM in Serbia based on interviews with HRM managers and HRM directors in 38 selected Serbian companies. They found that the role of HRM function is very weak, but a growing number of companies are introducing HRM departments. The majority of these recently established HRM departments have limited functions – mostly performing administrative tasks.

Based on Serbian Cranet data from 2008 Leković and Šušnjar (2009) claim that the majority of HRM responsibilities (staffing, compensation) are in the line managers' authority, but the main responsibility for these HRM issues is, indeed, in the hands of top managers.

In researches from near past Vemić-Đurković et al. (2013) found that banking organizations that have better HRM practices possess a more competitive workforce and achieve better organizational performances, which further highlight the need for a more systematized and institutionalized use of human resources within commercial banking sector in Serbia.

Slavić and Berber (2013) found that Serbian SMEs have an integrative linkage between HR function and the strategy formulation process and that the HR manager is a member of the top management team. Also, the obtained data from Cranet research in 2008/2010 period showed a significant relationship between the role of HR in strategy formulation and the companies' profitability.

The most recent empirical study of Bogičević Milikić et al. (2010) in 144 organizations showed that the HRM concept, as such, still does not exist in the observed Serbian companies. In their theoretical overview Bogičević Milikić et al. (2012) emphasized the findings about HRM in Serbia:

- strategic orientation of HRM is still not fully present among selected companies;
- lack of professional competence of the head of personnel/HR department is evident, since they are mostly recruited from the non-personnel positions either from or outside the organization;
- rare use of external providers for various HR services;
- increased role of line managers in HRM as the consequence of downsizing HR departments has not been found, since over-employment of HR departments is present in almost all observed companies;
- emphasized link between HRM and organizational performance has not been found,
- more emphasis on individual forms of interaction and representation in Serbian companies has not been found either - the role of trade unions is very weak and communication with all employee categories is inadequate and insufficient either through the individual or collective forms of interaction and representation,
- there is no evidence of a reorientation from a primarily humanistic to a more organizationally driven value system (Bogićević Milikić et al., 2012, p. 457).

The study revealed some signs of positive change in Serbian HRM because they found that the HRM function was organized within the separate department, with the HR manager who possess university degree in subject areas other than Law. Also, HR departments are included in making major policy decisions regarding HR issues, written policy in some HR areas, such as pay and benefits, recruitment and selection and training and development exist in organizations, more HR staff have university degree instead of clerical staff, etc. (Bogićević Milikić et al., 2012, p. 457).

Based on the above mentioned we proposed our general hypothesis:

H0: *Strategic role of HR in companies contributes to organizational success expressed by profitability, productivity, rate of innovation, service quality and environmental matters.*

Also, since we gathered new data on Serbian HRM development, now it is possible to make comparative analysis between two periods, 2008 and 2015, and we proposed next hypothesis:

H1: *HRM got higher strategic role in Serbian organizations in 2015 in comparison with previous period of development from 2008.*

METHODOLOGY

The applied methodology of the survey was formulated and has been developed by the research fellows of CRANET (Cranfield Network on Comparative Human Resource Management) founded by five countries in 1989. It has become the basis of regular comparative surveys on HR policy and practice in Europe and in an increasing number of countries worldwide. The survey is conducted approximately every four years (Steinmetz et al., 2011) in over 40 countries of the world (Lazarova et al., 2008). The aim of the research is to provide high quality data for the purposes of academic, public and private sectors, as well as for students of human resource management, and to create new knowledge about human resource management practices in different countries of the world. The questionnaire was divided into six parts/sections:

- HRM activities in organization,
- staffing,
- employee development,
- compensation and benefits,
- industrial relations and communication, and
- organizational details.

The Cranet research methodology has remained remarkably standard since the early surveys. Despite some methodological limitations, Cranet studies have brought important empirical data since 1990, providing insights into the development of human resource management practices in member countries, whose number is growing steadily, and to the theoretical development of the field of comparative human resource management (Karoliny et al., 2009).

The aim of this work is to present the development of the role of HRM function in Serbian companies in the period between 2008 and 2015. From the data of international Cranet research obtained in 2008 and 2015 we will focus on the strategy formulation process, the role of HR in it, determine the type of linkage between HR and strategic management function and its influence on the companies' performance indicators. In the first research period 50 companies and their HR practice was analysed, while in 2015 we obtained results from 158 organisations: 104 companies from the private sector and 54 organizations from the public sector. The paper will present the existence of the organizations' mission statement, business strategy and HR strategy, as well as the existence of HR department and the presence of HR manager at the Board of Directors and its involvement in the formulation of the organization's business strategy in both research periods. We will compare the interviewees' ranking of their product/service quality, productivity, profitability, innovation rate and environmental matters in 2008 and 2015. Statistical techniques used to explore the data were descriptive statistical methods and Mann-Whitney's nonparametric test. The analysis was performed by using SPSS V21 and MS Excel V2013.

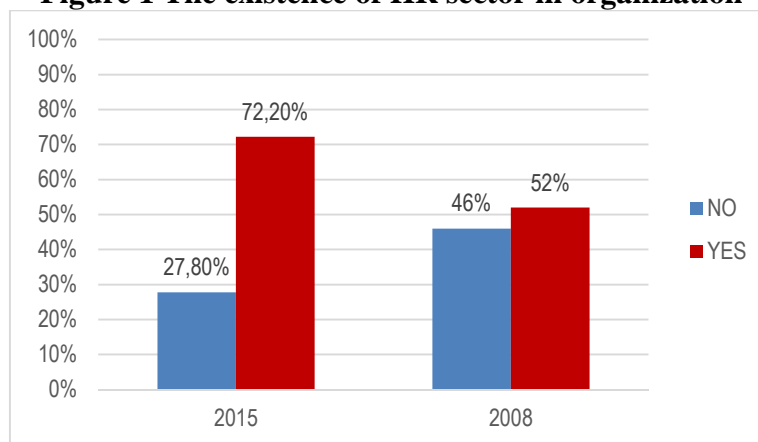
First, we explored and compared the changes in the strategic role of HR in Serbian organizations, using descriptive statistical method and figures to present these data. Then, we used Mann-Whitney's nonparametric test to explore the differences between organizations that have more developed strategic role of HR and those that do not, regarding organizational performances. Variables on strategic role of HRM in Serbian organizations were categorical (dummies) where response "yes" was coded as 1 and response "no" as 0. The level of integration of HR into strategy formulation was coded as: 1-not consulted, 2-on

implementation, 3-through subsequent consultation, 4-from the outset, and 0-organization does not possess business strategy. Organizational performances are presented as: 1-very low, poor performances to 5-outstanding results.

RESULTS

Figure 1 presents the data about whether Serbian companies have a HR department. We can conclude that there are some improvements on these issues since the majority of Serbian organizations (72%) have a HR department/sector while only 28% do not have this kind of sector. Compared to the previous period, this is positive development because the percentage of organizations that possess HR sector was increased from 52% to 72%. The existence of HR sector in organizations may propose that employees' practices and activities are more formalized and developed.

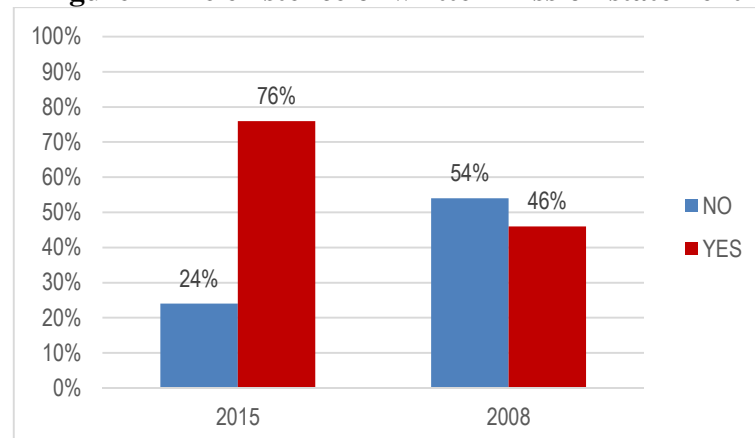
Figure 1 The existence of HR sector in organization



Source: Authors' calculation

The second figure presents the data about companies' mission statement in two periods of Serbian Cranet research. The majority of Serbian organizations developed a written mission statement in 2015. It proves that the majority of Serbian organizations have understood the importance of strategic approach to their goals. Compared to the previous data, this can be understood as the improvement, since 46% organizations in Serbia in 2008 had written missions and 54% of them did not have mission statement or had it in one unwritten form.

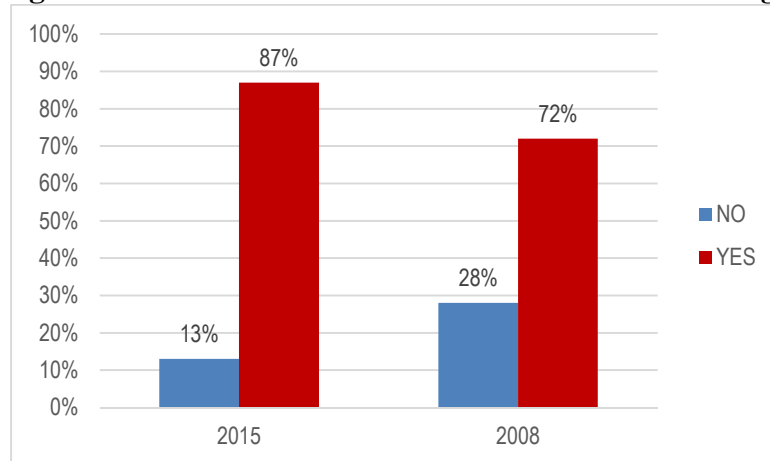
Figure 2 The existence of written mission statement



Source: Authors' calculation

Figure 3 presents the data on the existence of written business strategy. Almost all of the interviewed companies have a business strategy in 2015 (87%). In comparison with 2008 period, we can see slight improvement since 15% more organizations have written business strategy in 2015. The domination of a detailed, written business strategy indicates a more sophisticated approach to the strategy formulation process.

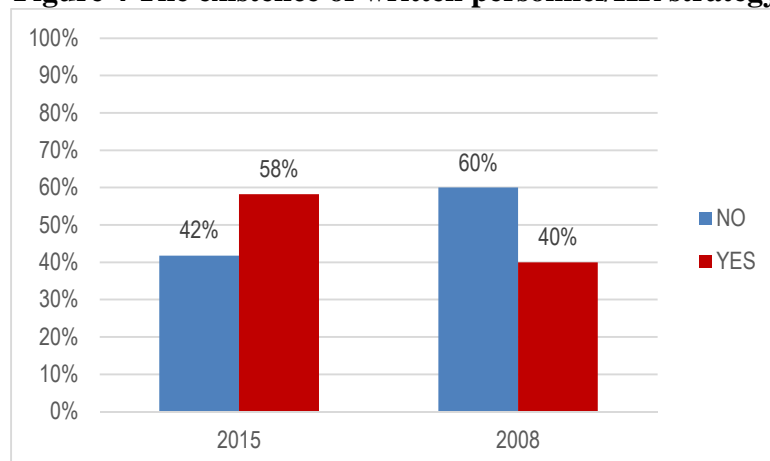
Figure 3 The existence of written business/service strategy



Source: Authors' calculation

Figure 4 presents the existence of written personnel/HR strategy. The obtained data show that about 58% of Serbian companies have formulated a written HR strategy, while about 42% of them do not have a written HR strategy. Compared to the previous data, this is the improvement, since 40% of organizations in Serbia in 2008 had written HR strategies while 60% of them did not have HR strategy or they had it in unwritten form. These unwritten forms are too flexible and those do not represent a clear and unambiguous direction for managers.

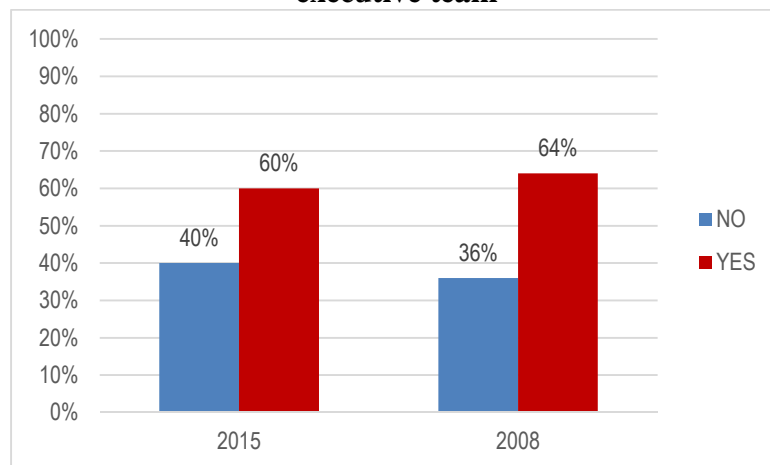
Figure 4 The existence of written personnel/HR strategy



Source: Authors' calculation

Figure 5 presents the position of the person responsible for HR on the board or equivalent top executive team. The obtained data from 2015 show that in about 60% of Serbian companies HR manager is included in top management team, while 40% of organization claim that HR manager is not part of executive team. Compared to the previous data there is no significant changes since in 64% organizations in Serbia in 2008 HR manager was a member of executive team.

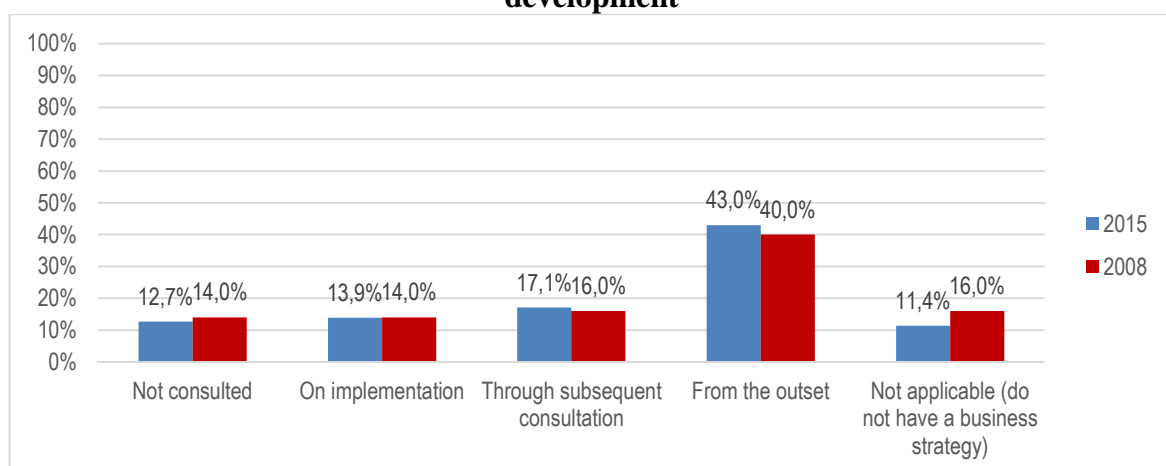
Figure 5 The position of the person responsible for HR in the board or equivalent top executive team



Source: Authors' calculation

Figure 6 presents the stage of the involvement of the person responsible for HR in strategy development. The obtained data in 2015 show that HR manager was included in strategy formulation from the outset in about 43% of Serbian companies. It indicates that there is an integrated linkage between the strategic planning function and the HRM department, so it is already, or soon will become a strategic partner of the top management. The other three forms of linkage between strategic planning and HRM function are present in the analyzed companies, too, but in a minor part. About 17% of the companies use two-sided linkage (or a linkage through a subsequent consultations), 14% use one-sided (on implementation), and 13% use administrative linkage (not consulted). In 11% of organizations there is no business strategy. Compared to the previous data there is no significant changes since in 40% organizations in Serbia in 2008 involved their HR managers in strategy development. It is important to see is that the percentage of those organizations that do not consult HR managers is decreasing (from 14% in 2008 to 13% in 2015).

Figure 6 The stage of the involvement of the person responsible for HR in strategy development



Source: Authors' calculation

For the exploration of the differences of the level of organizational performances we have used Mann-Whitney's nonparametric test. The integration between HR function, expressed by the

person responsible for HR function has a seat on the executive team was used as independent and the companies' success as dependent variable. The results are shown in Table 1 and 2.

Table 1 The ranks for Mann-Whitney U Test – Position of HR manager

	Position of the person responsible for HR have a place on the board or equivalent top executive team	N	Mean Rank	Sum of Ranks
Rating of service quality	No	61	70,02	4271,00
	Yes	93	82,41	7664,00
Rating of level of productivity	No	61	63,01	3843,50
	Yes	92	86,28	7937,50
Rating of Profitability	No	60	64,09	3845,50
	Yes	93	85,33	7935,50
Rating of Rate of innovation	No	60	68,49	4109,50
	Yes	92	81,72	7518,50
Rating of Environmental matters	No	59	65,10	3841,00
	Yes	92	82,99	7635,00

Source: Authors' calculation

The results of Mann-Whitney's nonparametric test show that there are statistically significant differences regarding the presence of the person responsible for HR function at the strategy formulation process and the performances of the company. In the case of the level of productivity, profitability and environmental matters differences between those organizations where the HR manager is in the executive team are statistically significant ($U_{\text{productivity}}=1952.500$, $p=0.001$; $U_{\text{profitability}}=2015.500$, $p=0.002$; $U_{\text{env.matters}}=2071.000$, $p=0.009$), and organizational performances are higher than in organizations where HR manager is not in the executive team. Companies where HR manager has a seat on the Board of Directors have a greater Mean rank for productivity (MR=86.28), profitability (MR=85.33) and environmental matters (MR=82.99) than those companies where HR manager is a member of the strategic planning team for productivity (MR=63.01), profitability (MR=64.09) and environmental matters (65.10). In case of service quality and rate of innovation we have not found any significant differences.

Radmila Bjekić is Teaching Assistant at the Faculty of Economics in Subotica, University of Novi Sad, Republic of Serbia. She is assistant for scientific area of Management and student of doctoral studies at the Department of Business Economy and Management – module Entrepreneurial Management at the Faculty of Economics in Subotica, University of Novi Sad. She teaches exercises for the courses of Organizational Theory and Organizational Design (undergraduate studies). She is author and coauthor of scientific and professional papers in the fields of human resource management and organizational design that are presented at national and international scientific meetings or published in national and international journals



Table 2 The Mann-Whitney U Test – Position of HR manager

Test Statistics ^a					
	Rating of service quality	Rating of level of productivity	Rating of Profitability	Rating of Rate of innovation	Rating of Environmental matters
Mann-Whitney U	2380,000	1952,500	2015,500	2279,500	2071,000
Wilcoxon W	4271,000	3843,500	3845,500	4109,500	3841,000
Z	-1,798	-3,401	-3,059	-1,876	-2,613
Asymp. Sig. (2-tailed)	,072	,001	,002	,061	,009
a. Grouping Variable: Does the person responsible for HR have a place on the board or equivalent top executive team?					

Source: Authors' calculation

For the exploration of the differences of the level of organizational performances we have used Mann-Whitney's nonparametric test. The existence of written mission statement in organization was used as independent and the companies' success as dependent variable. The results are shown in Table 3 and 4.

Table 3 The ranks for Mann-Whitney U Test – Mission statement

	The existence of written Mission Statement	N	Mean Rank	Sum of Ranks
Rating of service quality	No	37	66,18	2448,50
	Yes	118	81,71	9641,50
Rating of level of productivity	No	37	61,92	2291,00
	Yes	117	82,43	9644,00
Rating of Profitability	No	36	67,71	2437,50
	Yes	118	80,49	9497,50
Rating of Rate of innovation	No	36	56,01	2016,50
	Yes	117	83,46	9764,50
Rating of Environmental matters	No	36	64,21	2311,50
	Yes	116	80,31	9316,50

Source: Authors' calculation

The results of Mann-Whitney's nonparametric test show that there are statistically significant differences regarding the existence of written mission statement and the performances of the company. In the case of the level of service quality, productivity, rate of innovation and environmental matters differences between those organizations which possess written mission statement are statistically significant ($U_{\text{service.quality}}=1745.500$, $p=0.05$; $U_{\text{productivity}}=1588.000$, $p=0.009$; $U_{\text{rate.innovation}}=1350.500$, $p=0.001$; $U_{\text{env.matters}}=1645.500$, $p=0.041$), and organizational performances are higher than in organizations which do not have written mission statement. Companies which have a written mission statement have a greater Mean rank for service quality (MR=81.71), productivity (MR=82.43), rate of innovation (MR=83.46) and environmental matters (MR=80.31) than those companies that do not have these statements for service quality (MR=66.18), productivity (MR=61.92), rate of innovation (MR=56.01) and environmental matters (MR=64.21). In case of profitability we have not found statistically significant difference.

Table 4 The Mann-Whitney U Test – Mission statement

Test Statistics ^a					
	Rating of service quality	Rating of level of productivity	Rating of Profitability	Rating of Rate of innovation	Rating of Environmental matters
Mann-Whitney U	1745,500	1588,000	1771,500	1350,500	1645,500
Wilcoxon W	2448,500	2291,000	2437,500	2016,500	2311,500
Z	-1,959	-2,604	-1,587	-3,367	-2,049

Asymp. Sig. (2-tailed)	,050	,009	,112	,001	,041
a. Grouping Variable: Does your organisation have a written Mission Statement?					

Source: Authors' calculation

Table 5 and 6 represent the results of the exploration of the differences in the level of organizational performances regarding the existence of written HR strategy. We have used Mann-Whitney's nonparametric test to explore these differences. The existence of written HR strategy in organization was used as independent while the companies' success as dependent variable.

Table 5 The ranks for Mann-Whitney U Test – HR strategy

	The existence of written Personnel/HRM Strategy	N	Mean Rank	Sum of Ranks
Rating of service quality	No	65	70,90	4608,50
	Yes	91	83,93	7637,50
Rating of level of productivity	No	64	68,55	4387,50
	Yes	91	84,64	7702,50
Rating of Profitability	No	64	70,18	4491,50
	Yes	91	83,50	7598,50
Rating of Rate of innovation	No	64	62,00	3968,00
	Yes	90	88,52	7967,00
Rating of Environmental matters	No	63	63,50	4000,50
	Yes	90	86,45	7780,50

Source: Authors' calculation

The results of Mann-Whitney's nonparametric test show that there are statistically significant differences regarding the existence of written HR strategy and the performances of the company. In case of the level of productivity, rate of innovation and environmental matters differences between those organizations which possess written HR strategy are statistically significant ($U_{\text{productivity}}=2307.500$, $p=0.019$; $U_{\text{rate.innovation}}=1888.000$, $p=0.000$; $U_{\text{env.matters}}=1984.500$, $p=0.001$), and organizational performances are higher than in organizations which do not possess HR strategy. Companies which have a written HR strategy have a greater Mean rank for productivity (MR=84.64), rate of innovation (MR=88.52) and environmental matters (MR=86.45) than those companies that do not have HR strategy for productivity (MR=68.55), rate of innovation (MR=62.00) and environmental matters (MR=63.50). In case of service quality and profitability we have not found statistically significant differences.

Table 6 The Mann-Whitney U Test – HR strategy

Test Statistics ^a					
	Rating of service quality	Rating of level of productivity	Rating of Profitability	Rating of Rate of innovation	Rating of Environmental matters
Mann-Whitney U	2463,500	2307,500	2411,500	1888,000	1984,500
Wilcoxon W	4608,500	4387,500	4491,500	3968,000	4000,500
Z	-1,894	-2,348	-1,920	-3,769	-3,366
Asymp. Sig. (2-tailed)	,058	,019	,055	,000	,001
a. Grouping Variable: Does your organisation have a written Personnel/HRM Strategy?					

Source: Authors' calculation

Based on the results of the analyses performed we can conclude that the hypotheses are partially confirmed. General hypothesis **H0** that *strategic role of HR in companies contributes to organizational success expressed by profitability, productivity, rate of innovation, service*

quality and environmental matters is partially proved since Mann-Whitney U Test showed that there are significant differences between organizations, and that organizations which have more developed SHRM actually have greater level of organizational performances. However, not all performance measures were found to be greater in relation to SHRM practice. In case of **H1** that *HRM got higher strategic role in Serbian organizations in comparison with previous period of development* we can confirm it, since all figure shows improvements in these main SHRM questions.

Conclusion

Contemporary HRM is more and more seen as strategic partner in business. Many researches all around the world showed that HR function and activities can contribute to the organizational success. However, in case of emerging economies, like Serbian, the contribution of the SHRM to the organizational outcomes is not explored in greater extent for two reasons:

- First, HRM was underdeveloped in Serbian economy until 2000, and it is still on some early stage of development, especially in public sector, so the strategic approach was even more unplaced in domestic literature and practice.
- Second, there were no collected and systematized large empirical data-set on HRM before first Cranet research in Serbia (before 2008). After 2008, when we collected our first Cranet data for Serbia and became comparable with other countries.

The aim of this paper was to present the research results concerning the strategic role of HR in Serbian companies, based on two research periods, 2015 and 2008. The obtained results show that the majority of Serbian companies have integrated HR function into the strategy formulation process and that the integrative linkage (expressed through the position of the person responsible for HR on the board or equivalent top executive team) has a positive effect on the companies' success (productivity, profitability, and environmental matters). Also, the majority of Serbian organizations have written mission statements and HR strategy, and those organizations achieve higher levels of performances.

Based on the results of the analyses performed we can conclude that the hypotheses are partially confirmed. General hypothesis that strategic role of HR in companies contributes to organizational success expressed by profitability, productivity, rate of innovation, service quality and environmental matters is partially proved since Mann-Whitney U Test showed that there are significant differences between organizations, and that organizations which have more developed SHRM actually have greater level of organizational performances. However, not all performance measures were found to have a statistically significant relation with SHRM practice. In case of H1 that HRM got higher strategic role in Serbian organizations in comparison with previous period of development we can confirm it, since all figure shows improvements in these main SHRM questions.

In order to develop successful country-specific HRM practice local HR managers and academics, as well as foreign investors and HRM managers of multinational companies planning to collaborate with Serbian partners are advised to consider the above described characteristics of Serbian companies and their approach to strategic human resource management.

REFERENCES

1. Anathram S., Nankervis A., & Chan Ch. (2013). Strategic human asset management: Evidence from North America, *Personnel Review*, 42(3), 281-299.
2. Armstrong M. (2007). A handbook of human resource management practice, Kogan Page, London.
3. Armstrong, M. (2009). *Armstrong's Handbook of Human Resource Management Practice*. London: Kogan Page.
4. Berber, N. (2011). Human resource management in function of creating the strategic competitive advantage. In *I International Symposium EMC*, Zrenjanin, Serbia, June 24-25, 93-98.
5. Berber, N., Štangl Šušnjar, G., Slavić, A., & Baošić, M. (2014). Relationship between Corporate Social Responsibility and Human Resource Management-as new management concepts–in Central and Eastern Europe. *Engineering Economics*, 25(3), 360-369.
6. Buciuuniene, I., & Kazlauskaite, R. (2012). The linkage between HRM, CSR and performance outcomes. *Baltic Journal of Management*, 7(1), 5-24.
7. Buller, P. F., & McEvoy, G. M. (2012). Strategy, human resource management and performance: Sharpening line of sight. *Human Resource Management Review*, 22(1), 43-56.
8. Campbell, B. A., Coff, R., & Kryscynski, D. (2012). Rethinking sustained competitive advantage from human capital. *Academy of Management Review*, 37(3), 376-395.
9. Chow, I. H. S., Teo, S. T., & Chew, I. K. (2013). HRM systems and firm performance: The mediation role of strategic orientation. *Asia Pacific Journal of Management*, 30(1), 53-72.
10. Gurbuz, S., & Mert, I. S. (2011). Impact of the strategic human resource management on organizational performance: evidence from Turkey. *The International Journal of Human Resource Management*, 22(8), 1803-1822.
11. Huselid, M.A. (1995). The impact of human resource management practices on turnover productivity and corporate financial performance. *Academy of Management Journal*, 38(3), 635 – 672.
12. Karoliny, Z., Farkas, F., & Poór, J. (2009). In focus: Hungarian and Central Eastern European characteristics of human resource management-An international comparative survey. *Journal for East European Management Studies*, 14(1), 9-47.
13. Lado, A. A., & Wilson, M. C. (1994). Human resource systems and sustained competitive advantage: A competency-based perspective. *Academy of management review*, 19(4), 699-727.
14. Lazarova, M., Morley, M., & Tyson, S. (2008). International comparative studies in HRM and performance–the Cranet data: Introduction. *The International Journal of Human Resource Management*, 19(11), 1995-2003.
15. Leković, B., & Berber, N. (2014). The Relationship Between Communication Practice and Organizational Performances in Organizations from Europe. *Industrija*, 42(3), 101-114.
16. Milikić, B. B., Janičijević, N., & Cerović, B. (2012). Two decades of post-socialism in Serbia: Lessons learned and emerging issues in human resource management. *Journal for East European Management Studies*, 17(4), 445-463.
17. Milikić, B., Janičijević, N., & Petković, M. (2008). HRM in transition economies: the case of Serbia. *South East European Journal of Economics and Business*, 3(2), 75-88.
18. Noe R.A., Hollenbeck J.R., Gerhard B., & Wright P.M. (1997). *Human Resource Management – Gaining a Competitive Advantage*. Chicago: Irwin.
19. Progoulaki, M., & Theotokas, I. (2010). Human resource management and competitive advantage: An application of resource-based view in the shipping industry. *Marine Policy*, 34(3), 575-582.

20. Rasmussen E., Andersen T., & Haworth N. (2010). Has the strategic role and professional status of human resource management peaked in New Zealand. *Journal of Industrial Relations*, 52(1), 103-118.
21. Ross P. (2006). Management strategies in transitional economies – Organisational restructuring and employment relations (ER) at Cesky Telekom. *Employee Relations*, 28(2), 184-200.
22. Schuler, R. S., & MacMillan, I. C. (1984). Gaining competitive advantage through human resource management practices. *Human Resource Management*, 23(3), 241-255.
23. Slavić, A., & Berber, N. (2013). Strategic Human Resource Management at Small and Medium-Sized Enterprises in Serbia. In *Proceedings-11th International Conference on Management, Enterprise and Benchmarking (MEB 2013)* (pp. 93-106). Óbuda University, Keleti Faculty of Business and Management.
24. Slavić, A., & Berber, N. (2013). The Impact of Training on Organizational Outcomes in the CEE Region–Focus on Hungary, Serbia, Slovenia and Slovakia. In *Proceedings-12th International Conference on Management, Enterprise and Benchmarking (MEB 2014)* (pp. 155-168). Óbuda University, Keleti Faculty of Business and Management.
25. Štangel Šušnjar, G., & Berber, N. (2014). Incentive pay and performances of organizations: a research on the basis of the Cranet data in Europe. *Annals of the Faculty of Economics in Subotica*, 50(32), 73-88.
26. Štangel Šušnjar, G., & Leković, B. (2009). Performance–based pay in human resources development. *Strategic Management*, 14(3), 1-14.
27. Steinmetz, H., Schwens, C., Wehner, M., & Kabst, R. (2011). Conceptual and methodological issues in comparative HRM research: The Cranet project as an example. *Human Resource Management Review*, 21(1), 16-26.
28. Ulrich D. (1997). *Human Resource Management Champions*. Harvard Business School Press.
29. Vemić-Đurković, J., Jotić, J., & Marić, R. (2013). A comparative analysis of contribution of human resource management to organizational performance of banks in Serbia. *Industrija*, 41(4), 91-107.
30. Wei, L. Q., Liu, J., & Herndon, N. C. (2011). SHRM and product innovation: Testing the moderating effects of organizational culture and structure in Chinese firms. *The International Journal of Human Resource Management*, 22(01), 19-33.
31. Wright, P. M., & McMahan, G. C. (2011). Exploring human capital: putting ‘human’ back into strategic human resource management. *Human Resource Management Journal*, 21(2), 93-104.

INTERNATIONAL STRATEGIES AND EXPATRIATES MANAGEMENT: DO THEY RUN TOGETHER?

Patrizia Silvestrelli²¹⁸

Abstract: *International Human Resource Management (IHRM) is one of the most crucial business activities that companies have to face for competing worldwide. The literature about this theme is extremely vast and a large number of scholars analyzed the challenging process of selecting and managing human resource (HR) at international level.*

Managing HR requires specific business competences regardless of type of strategies and level of internationalization achieved by a firm. The problem states not only in selecting the appropriate candidate for a position, but also in managing people by planning specific career paths in according to company's needs, organizing international assignments and monitoring the adaptation process of expatriates in foreign countries.

The aim of this paper is to present some critical issues about expatriates. Despite several scholars emphasize the positive implication of international assignments, our goal is to identify also the problems that a company has to deal with in foreign countries, like moving managers worldwide, responding to their expectations and careers goals, especially when expatriates come back to their home country.

Therefore, from the human resource management (HRM) perspective, it is relevant to highlight some crucial questions:

- 1. How does the firm manage international assignments, in respecting expatriates' expectations, culture and motivation?*
- 2. To which extent do international executives adapt to foreign contexts?*
- 3. What about "ethics" in managerial behavior and practices in relation to different work environments?*

This paper is mainly descriptive and based on the literature review concerning IHRM. Moreover, some interviews to top executives working for multinational companies allowed us to gather significant information about their experiences in foreign subsidiaries, drawing the attention to some interesting managerial implications related to international careers.

Our findings highlight that international assignments are crucial for improving the ability to develop and manage relationships within the "network of actors" involved in the company's internationalization. In these terms, expatriates represent the link between the strategic center and peripheral units and, at the same time, the vehicle to disseminate knowledge and innovation. However, the analysis highlights that improvements in managerial performance at the end of international experiences do not always take place. The problem is due to a sort of discrepancy between the will (and need) of companies to internationalize their staff and the HR policies adopted, for example in relation to managers' career paths, expectations and repatriation. This incongruity can compromise both organizational "climate" and effectiveness of international strategies.

Key words: *International Human Resource Management, Expatriates, International Assignments, Worldwide Business Strategy.*

²¹⁸ University of Macerata, Department of Economics and Law, Via Armaroli 43, 62100 Macerata, Italy

1. INTRODUCTION

In today competitive environment, going international represents a necessary condition for companies to growth and, sometimes, even to survive. In fact, foreign environments affect business strategies and often provide firms of resources and opportunities useful to develop new strategic paths (Bond and O’Byrne, 2014).

It is clear that IHRM is one of most critical business activity for making international strategies successful, regardless of the degree of internationalization achieved by a company (Makela, Bjorkman and Ehrnrooth, 2009; Briscoe, Schuler and Tarique, 2012). Choosing international managers – particularly expatriates – represent a difficult process, because they sustain connections and coordination between headquarter and peripheral units, with the aim at implementing appropriate strategies to local contexts without compromising the “homogeneity” of the whole company (Mäkelä, Kinnunen and Suutari, 2015). Moreover, international managers are those entitled to face international relationships with different stakeholders (other companies, local governments, trade unions, etc.) when they approach to foreign countries. In other words, expatriates are the link among divisions and the instrument to spread the corporate culture (Luthans and Doh, 2012).

However, this does not imply that skills and innovation move spontaneously among subsidiaries (Nonaka, 1991; Blume et al., 2010; Poell, 2017), especially if what has to be transferred concerns home-country human resource practices. In this case, the company cannot simply copy the policies adopted in headquarter. A successful replacement depends on how much people working in subsidiaries are able to make own the innovation coming from headquarter, recombining it with the prior related knowledge (Chang, Gong and Peng, 2012). This concerns the absorptive capacity, defined as the “ability to recognize the value

Patrizia Silvestrelli is Associate Professor of International Management at the Department of Economics and Law of the University of Macerata (Macerata, Italy).



She earned a magna cum laude degree in 1997 at the School of Economics, University of Ancona where she gained also Ph.D. Degree in Business Organization and Management in 2001. She was visiting Ph.D. student for three semesters at Darla School of Business, University of South Carolina (USA) where she accomplished the research project for her Ph.D. thesis.

She earned the Assistant Professor position in 2004 at the Business School of the University of Rome “Tor Vergata” where she taught until 2010, when she moved to the University of Macerata.

Patrizia’s research interests are addressed to investigate some significant issues in tourism management, like sustainability, hospitality innovation and cultural heritage enhancement. She dealt also with internationalization issues, focusing on strategic paths and organizational structures for international companies. In particular, she carried on a study about worldwide evolution of consumer electronic industry and strategies implemented by companies operating in that sector, like delocalization, product innovation, promoting and selling.

Patrizia Silvestrelli actually teaches General Management and International Management (undergraduate courses) and International Marketing (graduate course). In the past, she taught several courses as International Trading, Organizational Behaviour, Production & Logistic, Tourist Marketing, Heritage Management. She is lecturer in Masters, Ph.D. and training courses both at academic and professional level.

She is member of the Department of Economics and Law Faculty, Student Career Council, Course of Study Board, Master in “Marketing e Direzione Aziendale” Executive Committee (University of Macerata), Master in Management delle attività turistiche e culturali (University of Roma “Tor Vergata”) and Ph.D. Scientific Committee in Governance and Management for Business Innovation (University Niccolò Cusano, Rome).

of new information, assimilate it, and apply it to commercial ends” (Cohen and Levinthal, 1990, 128).

Without a doubt, bringing the corporate culture into a foreign country is awkward and there are several challenges to be faced in managing international human resources within the parent-subsidiary relationship (Barlett and Ghoshal, 1986; Gupta and Govindarajan, 1991; Bird, Taylor and Beechler, 1998).

One of these challenges regards the fact that companies tend to use the same management policies and practices adopted by home country in the subsidiaries abroad. This means that corporate top managers transfer those methodologies that are known and verified effective in domestic country (Rosenzweig and Singh, 1991). Of course, this “management imprinting” will be as strong as HR practices represent a distinctive competency for the firm (Barney, 1991).

However, transferring policies and practices from headquarter to subsidiaries is an everchanging process, which is mainly based on three factors: a) the degree of coordination among units, b) the way headquarter introduces innovation in foreign divisions, and c) the ability of local managers to embrace new methods (Rosenzweig and Nohria, 1994; Arp, Hutchings and Smith, 2013; Harzing, Pudelko and Reiche, 2015).

Another issue concerns provenance and direction of HRM policies. In most cases, innovations develops in a unidirectional way, precisely it comes from center to peripheral units and, rarely, it arises from affiliates towards center and other subsidiaries (Bird, Taylor and Beechler, 1998). This implies that there is a hierarchical approach in IHRM, according to which management practices used in the headquarter are valid also in other contexts, without taking in consideration cultural diversity and different job environments. On the contrary, successful global companies choose their executives from different countries, giving them international positions – at both center and subsidiary level – to satisfy the need of coordinating business activities worldwide, stimulating organizational learning and responding faster to changes in different contexts (Kogut, 1985; Barlett and Ghoshal, 1989; Recardo, 2017).

This implies that international executives are supposed to own the ability to analyze, develop and manage all relationships within the “network of actors” involved in international activities, with the aim at developing global organizational learning, fostering innovation regardless of geographical boundaries, thus improving business performance (Dalton et al., 2002). At the same time, international assignments may represent an opportunity for managers to improve their managerial skills, since assignments are considered one of the most incisive experience to form global leadership competences (Black et al., 1999; Inceoglu and Bartram, 2012).

In base of what introduced above, it is licit to investigate which are the main factors affecting expatriates recruiting and management on behalf global companies and if IHRM is carried on coherently with international strategies.

2. CHOOSING EXPATRIATES FOR INTERNATIONAL ASSIGNMENTS

Even though companies are aware of the strategic role of international assignments and resort to use them extensively, they do not always note concrete improvements in managerial performance once these experiences turn to end (Harvey, Novicevic and Speier, 2000). The problem is due to the discrepancy between the firms’ choice to internationalize their

management staff and the ways through which they implement HRM policies both before and after international assignments. This incongruity happens at least for two reasons.

Firstly, HR policies respond, basically, to short-term needs, when, on the contrary, they should be more long-time-oriented (Schuler, 1992). In these terms, the IHRM should be a systematic process of decisions aimed at responding not only to current urgencies but also to future needs related to the company's (and people) growth (Barney and Wright, 1998; Briscoe, Schuler and Tarique, 2012).

Secondly, companies often underestimate the importance of managing HR at international level²¹⁹. Some scholars state that one of the main causes of international strategies failure lies in the lack of understanding about cultural diversity (Hemmasi and Downes, 2012). For this reason, the analysis of environmental variables and a scrupulous recruiting are crucial to meet the individuals-company-context relationship (Haak-Saheem and Brewster, 2017). In fact, choosing "global talents" depends on the task they are going to perform, how long the international assignment lasts, the career path and expectations, the degree of integration to local job environment, and, least but not last, the conditions of international labor market²²⁰.

For example, expectations is an important factor affecting the choice of expatriates (Yaconi, 2001). Expectations can influence infra-organizational relationships between executives and their subordinates, level of satisfaction and career development. In fact, human behaviors are guided not only by formal norms, but also by pressures arising from personal expectations, which influence manager's perception about roles, hierarchy and professional growth²²¹. This implies that standardized practices, which do not take into account expectation diversity, may cause a discrepancy between what is formally set for each role and what, on the contrary, managers expect to receive in terms of personal and professional growth (Shortland, 2015).

There are various motivations driving managers to accept international assignments like (Schein, 1977; Miller and Cheng, 1978)

- get more benefits,
- reach a higher position in hierarchical structure,
- improve managerial skills,
- acquire greater responsibilities, - make international experiences.

Concerning the ability to reach prestigious hierarchical positions, a study on a sample of American multinationals highlights that international assignments do not always lead to a concrete career improvement (Tung and Miller, 1990; Shaffer et al., 2012). According to this survey, despite 65% of HR Directors believe that international assignments have a positive impact on career development this evidence is not confirmed by managers interviewed at the end of experiences abroad. In fact, 77% of those ones judge international assignments even

²¹⁹ The majority of IHRM scholars agree on the fact that IHRM should be included in the whole business strategy, because human resources policies not only are instrumental to achieve business goals but also influence organizational assets, useful to implement strategic paths.

²²⁰ We cannot disregard that managers recruiting depends also on the company's organizational asset, economic and financial resources, degree of internationalization, and type of products/services offered (Schuler, 1992). In other words, companies have to deal with a never-ending trade-off between costs for recruiting and training people and organizational efficiency, as well as between need of control and need of adaptation to hostcountries.

²²¹ An interesting study shows that American executives consider the economic benefits as decisive variable for accepting or not an international assignment (Tung and Arthur Anderson, 1997) while German managers attach greater importance to personal growth and acquisition of new skills.

negative for their professional growth and, therefore, from a manager's point of view, they are unattractive and risky (Selmer, 1998).

Such incongruity comes from the fact that companies do not carry out a systematic long-term career planning, suitable not only to uphold managers during international experiences, but also to safeguard their expectations when they return to their home country (Fee, McGrathChamp and Liu, 2013). The lack of both support to expatriates in managing the different assignment stages and planning their professional growth within the organization can disappoint expatriates, compromising, in the worst case, their "loyalty" towards the firm (Cao and Hamori, 2015)²²². In this regard, according to a study carried out by Tung (1998), managers consider the overall international assignments as an opportunity for their own professional growth. However, foreign experiences are lived to improve their career in a boundaryless perspective (Arthur-Rousseau, 1996; Stahl, Miller and Tung, 2002), which means not limited by geographic borders and, above all, not linked to a specific organization (Rode, Huang and Flynn, 2016). In other words, career development is aimed not so much at achieving higher hierarchical positions within the company, but mainly to become "visible" in labor markets and, thus, more attractive to other firms.

Culture is another important factor affecting the choice to move managers worldwide. We cannot disregard that culture diversity can encourage innovation, by improving both managers' competences as well as company performance (Morosini, Shane and Singh, 1998; Fang et al., 2010). However, several studies show that great cultural distance between headquarter and subsidiaries can delay and make difficult expatriates integration to new work environments (Adler, 1997; Selmer, Chiu and Shenkar, 2007). According to literature, managing people worldwide can be achieved through two main approaches (Welch, 1994):

- "free culture" approach, which takes in consideration a substantial homogeneity in managerial policies, even in different countries and cultures;
- "cultured bound" approach, based on the principle that relationships between environmental variables and organizational assets are affected by cultural factors.

Choosing one approach or the other depends on company orientation towards international markets as well as on its culture. For example, American and Japanese multinationals are more geared in recruiting managers worldwide, while Italian companies prefer nationals and German firms are inclined to recruit executives from other European countries. However, the challenge of IHRM does not regard only the choice of parent-country, host-country or thirdcountry nationals (Perlmutter, 1969). Rather, global companies choose individuals who own not only professional skills and competences, but also, above all, empathy, sensitivity in interpreting cultural differences and listening ability.

3. EXPATRIATES ADAPTATION BETWEEN CULTURAL DIVERSITY AND ETHICAL ISSUES

Cultural factors have a deep influence on expatriates' adaptation to foreign contexts. Integration depends not only by personal attitudes, but also by work conditions, like, for example, social relationships that expatriates establish both with colleagues and with people outside the organization (Black, 1988; Black, Mendenhall and Oddou, 1991; Luring, 2013). In this regard, Albrecht and Adelman (1984) argue that social ties can help individuals in managing changes,

²²² In this regard, an interesting study shows that several American multinationals lost between 40% and 55% of their executives three years after they came back in their home country from international assignments (Black et al., 1999).

especially when moving to foreign countries, where social relationships allow to acquiring information about the unfamiliar environment (Selmer, 2002).

Moreover, cultural diversity matters in social relationships. As suggested by Manev and Stevenson (2001), executives tend to build not only formal but also informal relationships (i.e. not strictly job-related) with colleagues who have similar culture (“expressive links”), while they establish mainly formal relationships (“instrumental links”) with colleagues coming from different cultural backgrounds. Cultural similarities is even more important in conflict management, since similar values and familiar behaviors can facilitate discussions regardless of hierarchical positions. In this way, informal relationships strengthen the formal ones and make decision-making process more flexible (Hemmasi and Downes, 2012; Haslberger, Brewster and Hipper, 2013).

Interpersonal relationships are influenced also by hierarchy perception and power distance, which are related to the way expatriates communicate and interact with their colleagues and subordinates (Kirkman et al., 2009; Kossek et al., 2017). “One-way” and “top-down” approaches do not always facilitate communication; rather, they can increase distance between people, even more if they come from different contexts (Adler, 1997). The type of relationship varies in relation to the way people perceive hierarchy, based on their culture and values (Arthur, Herdman and Yang, 2015). Cultural diversity affects also individuals’ deal of initiative and willingness to take positions within formal decision-making processes (Doherty, 2017)²²³. We cannot disregard that expatriates have to face also ethical issues, which may affect their adaptation to foreign contexts (Hofstede, 1984). Following the increasing environmental complexity where changes happen very quickly, it is necessary to establish more control in business activities in terms of both social responsibility and sustainability²²⁴. For this reason, there is an increasing interest by scholars as well as by policy makers and decision makers toward business ethics and ethics within the firm (Hawn and Ioannou, 2016). This means that companies should conduct responsible behaviors not only to external environments (all stakeholders) but also to their internal milieu (i.e. people working in the organization), in order to respond to current and ever-changing needs. However, what does “ethical behavior” really mean? It is hard to find a shared interpretation among firms.

We can say that any firm creates a specific “corporate code of ethics” in the course of its growth paths, defining guidelines for any business activity in relation to the type of goals to be achieved (Dobson, 1990; Manley, 1992). This can improve the firm’s social legitimacy and strengthen its corporate image. However, interaction with different contexts and relationships with other organizations lead companies to face new ethical issues, so that it is sometimes difficult to reconcile their own “ethical standards” with those of other organizations and, even more, in other countries (Johnson and Smith, 1999; Briscoe, Schuler and Tarique, 2012). At the same time, it is not possible to define a “global business ethics” acknowledged and shared worldwide, since ethical principles not only vary from one society to another, but also within the same

²²³ For example, the spirit of initiative is strongly discouraged in Russia and this influenced negatively the relationships with expatriates coming from western countries (May, Young and Ledgerwood, 1998). Cultural differences can also affect “power distance” perception (i.e. hierarchical distance between executive and subordinate roles), which influence relationships between colleagues, directors and subordinates (Harrison et al., 2000). Distance can jeopardize problem solving in conflictual circumstances and provoke uncertainty and awkwardness, therefore slowing down the process of adaptation of expatriates.

²²⁴ The economic development occurred in the last two decades influenced social behaviors and people attitude to needs and life-style, generating economic and social anomalies that undermined ethical principles and develop a more heightened individualism (Luthans and Doh, 2012).

context from both time and space point of view (Donaldson and Werhane, 1993)²²⁵. Following diversities among countries, it is clear that managing ethics issues is challenging from IHRM perspective; there are several important factor to be considered like

- ethical behaviors that should be adopted in subsidiaries,
- degree of adaptation to host country's ethical standards,
- ethical influences in business goals achievement,
- need to join roles and responsibilities through ethical behaviors commonly recognized and accepted.

It is clear that ethical issues are crucial for IHRM. Cultural diversity affects not only recruitment but also expatriates management, as they have to deal with differences in ethics and, at the same time, follow the moral and ethical standards belonging to own company heritage. The role of expatriates is therefore complex, since they have to deal with ethical differences in subsidiaries while respecting the code of conducts promoted by headquarter (Dalton et al., 2002; Fang et al., 2010). At the same time, they have to be flexible and sensitive enough to manage those behaviors, which are not coherent with corporate standards, as a handbook of ethics does not exists (Primeaux, 1992; Selmer, Chiu and Shenkar, 2007). According to all said above, we emphasize the role of managers' moral authority: instead of imprinting ethical standards, managers are entitled to identify common cultural features, in order to create consensus and generate a pool of ethical principles for globalized organizations. In this way, ethics no longer derives from an authoritarian imposition but is the result of an agreement between individuals who share values, behaviors and rules.

In any case, variety of internationalization strategies and type of business do not allow to outlining a IHRM model that can be universally valid. Rather, companies develop their own IHRM system that is consistent to achieve strategic goals at international level, since recruitment for international tasks can be significantly different by the one implemented for home-country activities. Certainly, ever-growing degree of competitiveness and fast changes in international markets obligate companies to manage carefully their expatriates because they represent the tool for facing today increasingly cross-national world.

REFERENCES

- Adler N., 1997, *International Dimensions of Organizational Behavior*, Cincinnati, OH: Southwestern Publishing.
- Albrecht T.L., Adelman M.B., 1984, "Social support and life stress: New directions for communication research", *Human Communication Research*, 11, pp. 3-32.
- Arp F., Hutchings K., Smith W., 2013, "Foreign executives in local organizations: An exploration of differences to other types of expatriates", *Journal of Global Mobility*, 1, pp. 312-335.
- Arthur J.B., Herdman A.O. and Yang J., 2015, "How Top Management HR Beliefs and Values Affect High-Performance Work System Adoption and Implementation Effectiveness", *Human Resource Management*, 55(3), pp. 413-435.

²²⁵ "International business ethics" can be defined as a code of conduct that multinational companies should behave in their relationships with other organizations and individuals worldwide. In any case, we cannot neglect that business ethics is influenced by cultural variables, like values, religion, customs, etc., which can vary significantly among countries (Hoffman-Moore, 1990). For example, managers from socialist countries are less inclined to justify non-ethical behaviors, while the ones coming from capitalist countries tolerate non-ethical conducts (Ralston et al., 1997).

- Arthur M.B., Rousseau D.M., 1996, *The boundary less career: A new employment principle for a new organizational era*, New York: Oxford University Press.
- Barney J.B., 1991, "Firm Resources and Sustained Competitive Advantage", *Journal of Management*, 17, pp. 99-120.
- Barney J.B., Wright P.M., 1998, "On becoming a strategic partner: The role of Human Resources in gaining Competitive Advantage", *Human Resource Management*, 37, pp. 31-46.
- Bartlett C., Ghoshal S., 1989, *Managing across borders: The transnational solution*, Boston, Harvard Business Press.
- Bird A., Taylor S., Beechler S., 1998, "A typology of international human resource management in Japanese multinational corporations: Organizational implications", *Human Resource Management*, 37(2), pp. 159-72.
- Black J.S., 1988, "Work role transitions: A study of American expatriate managers in Japan", *Journal of International Business Studies*, 19, pp. 277-294.
- Black J.S., Gregersen H.B., Mendenhall M.E., Stroh L.K., 1999, *Globalizing people through international assignments*, New York: Addison-Wesley, Longman.
- Black J.S., Mendenhall M., Oddou G., 1991, "Toward a Comprehensive model of international adjustment: An integration of multiple theoretical perspectives", *Academy of Management Review*, 16, pp. 529-544.
- Blume B.D., Ford, J.K., Baldwin, T.T. and Huang, J.L., 2010, "Transfer of training: A metaanalytic review", *Journal of Management*, 36, pp. 1065-1105.
- Bond C., O'Byrne, D.J., 2014, "Challenges and conceptions of globalization: An investigation into models of global change and their relationship with business practice", *Cross Cultural Management: An International Journal*, 21(1), pp. 23-38.
- Bowie N., 1987, "The Moral Obligations of Multinational Corporations", in *Problems of International Justice*, (ed.) Luper-Fay, New York: Westview Press, pp. 97-113.
- Briscoe D., Schuler, R., Tarique, I., 2012, *International human resource management: Policies and practices for international enterprises*, New York, NY: Routledge.
- Cao J., Hamori M., 2015, "The Impact of Management Development Practices on Organizational Commitment", *Human Resource Management*, 55(3), pp. 499-517.
- Chang Y.Y., Gong, Y., Peng, M.W., 2012, "Expatriate knowledge transfer, subsidiary absorptive capacity, and subsidiary performance", *Academy of Management Journal*, 55(4), pp. 927-948.
- Cohen W.M., Levinthal D.A., 1990, "Absorptive Capacity: A New Perspective on Learning and Innovation", *Administrative Science Quarterly*, 35, pp. 128-52.
- Dalton M., Ernst C., Deal J., Leslie J., 2002, *Success for the new global manager: How to work across distances, countries, and cultures*, San Francisco, CA: Jossey-Bass.
- Dobson J., 1990, "The Role of Ethics on Global Corporate Culture", *Journal of Business Ethics*, 9, pp. 481-488.
- Doherty N., 2017, *Understanding the Self-initiated Expatriate: A Review and Directions for Future Research*, *International Journal of Management Reviews*, 15(4), pp. 447– 469.
- Donaldson T., Werhane P., 1993, *Ethical Issues in Business*, Englewood Cliff, NY: PrenticeHall.
- Fang, Y., Jiang, G.L.F., Makino, S., Beamish, P.W., 2010, "Multinational firm knowledge, use of expatriates, and foreign subsidiary performance", *Journal of Management Studies*, 47(1), pp. 27-54.
- Fee A., McGrath-Champ S., Liu H., 2013, "Human resources and expatriate evacuation: A conceptual model", *Journal of Global Mobility*, 1(3), pp. 246-263.
- Gupta A., Govindarajan V., 1991, "Knowledge flows and the structure of control within multinational corporations", *Academy of Management Review*, 16(4), pp.768-792.

- Haak-Saheem W., Brewster C., 2017, “‘Hidden’ expatriates: international mobility in the United Arab Emirates as a challenge to current understanding of expatriation”, *Human Resource Management Journal*, 27(3), pp. 423-439.
- Harrison G.L., McKinnon J.L., Wu A., Chow C.W., 2000, “Cultural Influences On Adaptation To Fluid Workgroups And Teams”, *Journal of International Business Studies*, 31(3), pp. 489-505.
- Harvey M.G., Novicevic M.M., Speier C., 2000, “Strategic global human resource management: the role of inpatriate managers”, *Human Resource Management Review*, 10(2), pp. 153-175.
- Harzing A., Pudelko M. and Reiche B.S., 2015, “The Bridging Role of Expatriates and Inpatriates in Knowledge Transfer in Multinational Corporations”, *Human Resource Management*, 55(4), pp. 679-695.
- Haslberger A., Brewster C., Hippler T., 2013, “The Dimensions of Expatriate Adjustment”, *Human Resource Management*, 52(3), pp. 333–351.
- Hawn O. and Ioannou I., 2016, “Mind the gap: The interplay between external and internal actions in the case of corporate social responsibility”, *Strategic Management Journal*, 37(13), pp. 2569–2588.
- Hemmasi M., Downes M., 2012, “Cultural distance and expatriate adjustment: An empirical assessment of competing hypotheses”, *Journal of International Management Studies*, 12(2), pp. 43.
- Hoffman W.M., Moore J.M., 1990, *Business ethics: Readings and cases in corporate morality*, (2nd ed), New York: McGraw-Hill.
- Hofstede G., 1984, *Culture’s consequences: International differences in work-related values*, Newbury Park, CA: Sage.
- Inceoglu I., Bartram D., 2012, “Global leadership: The myth of multicultural competency”, *Industrial and Organizational Psychology*, 5, pp. 216-247.
- Johnson P., Smith K., 1999, “Contextualizing Business Ethics: Anomie and Social Life”, *Human Relations*, 52(11), pp. 1351-1375.
- Kirkman B.L., Chen G., Farh J.L., Chen Z.X., Lowe K.B., 2009, “Individual power distance orientation and follower reactions to transformational leaders: A crosslevel, crosscultural examination”, *Academy of Management Journal*, 52, pp. 744-764.
- Kogut B., 1985, “Designing global strategies: Profiting from operational flexibility”, *Sloan Management Review*, 27(1), pp. 27-38.
- Kossek E.E., Huang J.L., Piszczek M.M., Fleenor J.W. and Ruderman M., 2017, “Rating Expatriate Leader Effectiveness in Multisource Feedback Systems: Cultural Distance and Hierarchical Effects”, *Human Resource Management*, 56(1), pp. 151–172.
- Lauring J., 2013, “International diversity management: Global ideals and local responses”, *British Journal of Management*, 24(2), pp. 211-224.
- Luthans F., Doh J.P., 2012, *International management*, New York, NY, McGraw-Hill Irwin.
- Makela K., Bjorkman I., Ehrnrooth M., 2009, “MNC subsidiary staffing architecture: Building human and social capital within the organization”, *International Journal of Human Resource Management*, 20, pp. 1273-1290.
- Mäkelä L., Kinnunen U. and Suutari V., 2015, “Work-To-Life Conflict and Enrichment Among International Business Travelers: The Role of International Career Orientation”, *Human Resource Management*, 54(3), pp. 517–531.
- Manev I.M., Stevenson W.B., 2001, “Nationality, Cultural Distance, and Expatriate Status: Effects on the Managerial Network in a Multinational Enterprise”, *Journal of International Business Studies*, 32(2), pp. 285-303.
- Manley W.W., 1992, *The handbook of good business practice: Corporate codes of ethics*, London: Routledge.

- May R., Young C.B., Ledgerwood D., 1998, "Lessons from Russian Human Resource Management Experience, *European Management Journal*, 16 (4), pp. 447-459.
- Miller E.L., Cheng J.L., 1978, "A closer look at the decision to accept an overseas position", *Management International Review*, 3, pp. 25-33.
- Morosini P., Shane S., Singh H., 1998, "National Cultural Distance and Cross-Border Acquisition Performance", *Journal of International Business Studies*, 29, pp. 137158.
- Nonaka I., 1991, "The knowledge-creating company", *Harvard Business Review*, Nov-Dec.
- Perlmutter H.V., 1969, "The Tortuous Evolution of the Multinational Corporations", *Journal of World Business*, January-February.
- Poell R.F., 2017, "Time to 'Flip' the Training Transfer Tradition: Employees Create Learning Paths Strategically", *Human Resource Development Quarterly*, 28(1), pp. 9–15.
- Primeaux P., 1992, "Experiential ethics: A blueprint for personal and corporate ethics", *Journal of Business Ethics*, 11, pp. 779-788.
- Ralston D.A., Holt D.H., Terpstra R.H., Kai-Cheng Yu, 1997, "The impact of national culture and economic ideology on managerial world values: A study of the Unites States, Russia, Japan, and China, *Journal of International Business Studies*, First Quarter, pp. 177-207.
- Recardo R.J., 2017, "Beyond the Administrivia: Incorporating Best Practices to Strengthen Your Human Resources Strategic Plan", *Global Business and Organizational Excellence*, 36(3), pp. 29–41.
- Rode J.C., Huang X. and Flynn B., 2016, "A cross-cultural examination of the relationships among human resource management practices and organisational commitment: an institutional collectivism perspective", *Human Resource Management Journal*, 26(4), pp. 471–489.
- Rosenzweig P.M., Nohria N., 1994, "Influences on human resource management practices in multinational corporations", *Journal of International Business Studies*, 25(5), pp. 229-51.
- Rosenzweig P.M., Singh J.V., 1991, "Organizational environments and the multinational enterprise", *Academy of Management Review*, 16(2), pp. 340-61.
- Schein E.H., 1977, *Career Dynamics*, Addison-Wesley, Reading (Mass.).
- Schuler R.S., 1992, "Strategic Human Resource Management: Linking the People with the Strategic Needs of the Business", *Organizational Dynamics*, Summer, pp. 18-31.
- Selmer J., 1998, "Expatriation: Corporate policy, personal intentions and international adjustment", *International Journal of Human Resource Management*, 9, pp. 9961007.
- Selmer J., 2002, "Practice makes perfect? International experience and expatriate adjustment", *Management International Review*, 42(1), pp. 71-87.
- Selmer J., Chiu R. K., Shenkar O., 2007, "Cultural distance asymmetry in expatriate adjustment", *Cross Cultural Management: An International Journal*, 14(2), pp. 150-160.
- Shaffer M., Kraimer M., Chen Y., Bolino M., 2012, "Choices, challenges, and career consequences of global work experiences: A review and research agenda", *Journal of Management*, 38, pp. 1282-1327.
- Shortland S., 2015, "The Purpose of Expatriation: Why Women Undertake International Assignments", *Human Resource Management*, 55(4), pp. 655-678.
- Stahl G.K., Miller E.L., Tung R.L., 2002, "Toward the boundalyless career: a closer look at the expatriate career concept and the perceived implications of an international assignment", *Journal of World Business*, 37, pp. 216-227.
- Tung R.L., 1998, "American expatriates abroad: From neophytes to cosmopolitans", *Journal of World Business*, 33, pp. 125-144.
- Tung R.L., Arthur Anderson, 1997, *Exploring international assignees' viewpoints: A study of the expatriation/repatriation process*, Chicago, IL: Arthur Anderson.
- Tung R.L., Miller E.L., 1990, "Managing in the twenty-first century: The need for global orientation", *Management International Review*, 30, pp. 5-18.

- Vogel D., 1991, "Business ethics: New perspectives on old problems", *California Management Review*, 34(4), pp. 101-117.
- Welch D., 1994, "Determinants of International Human Resource Management Approaches and Activities: A Suggested Framework", *Journal of Management Studies*, 31(2), pp. 139-164.
- Yaconi L.L., 2001, "Cross-cultural role expectations in nine European country-units of a multinational enterprise", *Journal of Management Studies*, 38(8), pp. 1187-215.

CRITICAL ANALYSIS OF INTERACTIONAL THEORY IN WORKING GROUPS

Maja Vojinović²²⁶

Abstract: *In this article we will deal with the analysis of the theory of communication in organizations, critical analysis of the theory of communication in organizations and the context of contemporary social and media conditions. Without communication there is no organization. Every human act represents a certain way of communication. Successful communication is the basis for the development of the internal organization, but also a key factor for the existence of the uncertain environment, so communication is an important factor in the actions of managers, as well as in the functioning of the entire organizational system. In organizations, business communication is realized inside and outside of it. Communication event within an organization can have two streams: formal and informal. In order for organizational communication to be successful, it is necessary to have knowledge of the language, conduct interactive exercises, and possession of cultural communication skills of all participants and employees in organizations. In the context of contemporary social and media conditions, the development of science and in particular the information - communication technologies, the media become ubiquitous and pervasive factor of social reality. Along with the development of technical and technological base of the media, the conditions of work and creativity are developed and improved in the media. The leaping result in development of the media in the 20th century is mostly felt in modern society, through the emergence of the phenomenon known as - information society, as well as an extremely well-developed media industry worldwide. The dynamic development of the media has expanded the possibilities of its operation, increasing the effects of mass communication to all social structures.*

Key words: *communication, organization, information technology, communication process, media, criticism*

INTRODUCTION

An organization is an important context for studying interpersonal communication. Nowadays, the organization is largely defined as a system. Each organization has its own culture, information networks and organizational relationships. Organizational culture - customs, ways of organizing and communicating groups in the organization. These include common norms, memories, stories, ceremonies and rituals. It is very important to know the culture of the organization in which one operates.

Organizational relationships are the ways people interact with one another. They are the result of formal and informal communication rules within a company or any organization. Formal rules are, unlike informal, usually coded in some way. Formal communication modes are often useless for the transfer of organizational culture or the emergence of new ideas and insights. With open communication channels, we can easily find out what others think.

²²⁶ Faculty of Management, 1a, Njegoševa, Sremski Karlovci, Serbia

1. Communication in organizations

Organizations do not exist without people, and relationships between people do not exist without communication. All organizations are created and organized through a communication process and maintained by people who interact with each other. People need to communicate in order to be able to organize themselves, and then communicate in order to coordinate and control their business activities.

It is hard to find any aspect of a job that does not involve communication. An organization without communication does not exist. Of course, there are those organizations with poor communication, but such are certainly not considered successful. For the efficiency of the organization, effective communication is often required, which is often cited as one of the main reasons for the success of the organization and “whose advantages are numerous” (Cvetanović, 1999).

1.1. Communication channels in the organization

Communication is the basic and most important among employees and therefore based on the ability of men to produce voices that connect in words, and say in sentences, with a certain meaning. With special symbols, voices and words turn into a written language, and hence oral and written verbal communication is distinguished.

"Communication is an important part of managerial activities and the use of appropriate communication modes improves the efficiency of managers at work" (Jarić, 2007). Managers who are using appropriate verbal channels show high efficiency in their work. There are two types of communication channels, both formal and informal. Formal communication follows a chain of command and is considered official. One way of looking at formal communication in organizations is how it runs - down, up, lateral (lateral) and externally.

Maja Vojinović was born on January 5, 1979 in Podgorica. She completed her basic academic studies - four years at the State University, Faculty of Philosophy in Novi Sad, Department of English, where she gained her title Professor of English Language and Literature. Along with English, she studied medicine at the Medical Faculty in Novi Sad for almost three years. She completed her MA in 2010 at the Faculty of Management in Novi Sad by defending her final work: "Comparative study of higher education in Anglo-Saxon countries and Serbia from the aspect of applicable knowledge". Maja Vojinović is a future Doctor of Communication Science at the University of "John Naisbitt" in Belgrade at the Department of Culture and Media. She earned her academic career in 2008 at the Faculty of Management in Novi Sad, under the University of Alpha. Belgrade. Since October 2008 he has worked at the Faculty of Management, headquartered in Sremski Karlovci, Union Nikola Tesla University. The basic research area is foreign languages, communication, translation in written form, management, culture, interdisciplinarity, modern discourse; possesses excellent organizational skills, analytical skills and communication skills. Her interests are languages, knowledge in the field of management, relationships with people and improvement of professional skills. He has experience in individual and team work. She is the author of dozens of scientific and professional papers, some of which have been published in leading international and domestic journals. Member of the Association of ELTA, associations of foreign professors and lecturers throughout our region, cooperates with the "British Council" Institute in Belgrade, UNESCO Chair at the Faculty of Technical Sciences in Novi Sad, member of the "American Corner" in Novi Sad, cooperates with Oxford University Press, Belgrade, Longman Pearson, "Youth Organization", Belgrade, Association "Art without Borders" from Bar, in cooperation with local public broadcasters of Montenegro, is a member of the Artistic Council of the Association "Art without Borders", which has a number of world renowned names in the field of art and culture, in the Organizational Board of the "Association of Diaspora-Scandinavian Artists" : Norway, Finland, Denmark, Sweden, based in Kristianstad, Sweden, took part in a large number of seminars, lectures, international events, conferences, media and PR, and is a signatory of many translating author's university papers.

1.1.1. Communication “down”

The most common form of this communication is the meetings, official letters, organization policies, procedures, instructions and publications of the company. The information sent downwards includes the goals of the company, the instructions for the job, the procedures, and the feedback to work. "Studies show that only 20% of the intended messages sent by top management remain intact until they reach the employees at lower levels" (Cvetanović, 1999). This loss of information occurs for several reasons. First, managers are inclined to overly rely on colorful channels. The avalanche of written material can cause neglect of messages by the subordinate who is overloaded with information. Secondly, oral, face-to-face messages that require more attention and give immediate feedback, are often less used. Managers can send an email to a subordinate on the same floor, instead of going to them and exchanging a few words.

Communication down is the one that follows the hierarchy of authority and which, accordingly, “goes from the superior to the subordinate according to the principle of unity of the command” (Andevski, 2008), all the way to the direct expert of the work in the organization. The basic goals of outgoing communication are to provide advice, information, guidance, instructions and evaluate workers, and to provide members of organization with information on organizational goals and policies.

1.1.2. Communication “up”

Communication upwards means that information are flowing from subordinates to managers. It consists of messages that are sent in ascending lines, from subordinates to bosses. Openness to ideas and the contribution of people at lower levels in the organization is often the mark of a healthy and pleasant company. Effective teams need communication in the same way as communication downwards.

This type of communication includes progress reports, suggestions, notices, questions, suggestions, explanations, requests for help, or decision-making, etc. Communication “up” is significant for the successful work of all organizations. It encourages employees to participate in the decision-making process and accept useful ideas. It also provides feedback on how well the subordinates understand the communication down.

1.1.3. External communication

External communication is the exchange of messages with people outside of the organization, especially with consumers, suppliers and other factors or people who have a share in the success of the company. This communication is often referred to as communication that extends beyond the boundaries, because it crosses the boundaries between organizations and the public.

1.1.4. Lateral communication

Lateral communication is a horizontal flow of information that occurs in and between the departments. The purpose of lateral communication is coordination. This communication is done between members of different departments in the organization and between colleagues in the same department.

Much of the lateral communication that goes beyond the command chain is often done with the knowledge, approval and support of managers who know that lateral communication can free

them from the burden of communication, and also that the imprecision is reduced to a minimum by the competent people being in direct contact.

1.1.5. Channels of informal communication

The channels of informal communication come from the social relationships that develop in the organization. Unofficial sources represent an informal flow of messages in the organization. They are comprised of small groups of people who exchange information in all directions through non-sanctioned organizational channels and networks. "A point of complete connectivity where direct communication is possible to everyone with every other member of the group. It has ten communication channels, and the other networks have only four, and the transverse circle is five or six "(Petković, 2006).

"The most famous form of informal communication is "vine ". The "vine" within the organization consists of several informal communication networks that overlap and cut across multiple places - that is, certain well-informed people do not belong to just one informal network. "Vine" annuls the rank or authority and can link members of the organization in all possible directions - horizontal, vertical, and diagonal "(Babl, 2010).

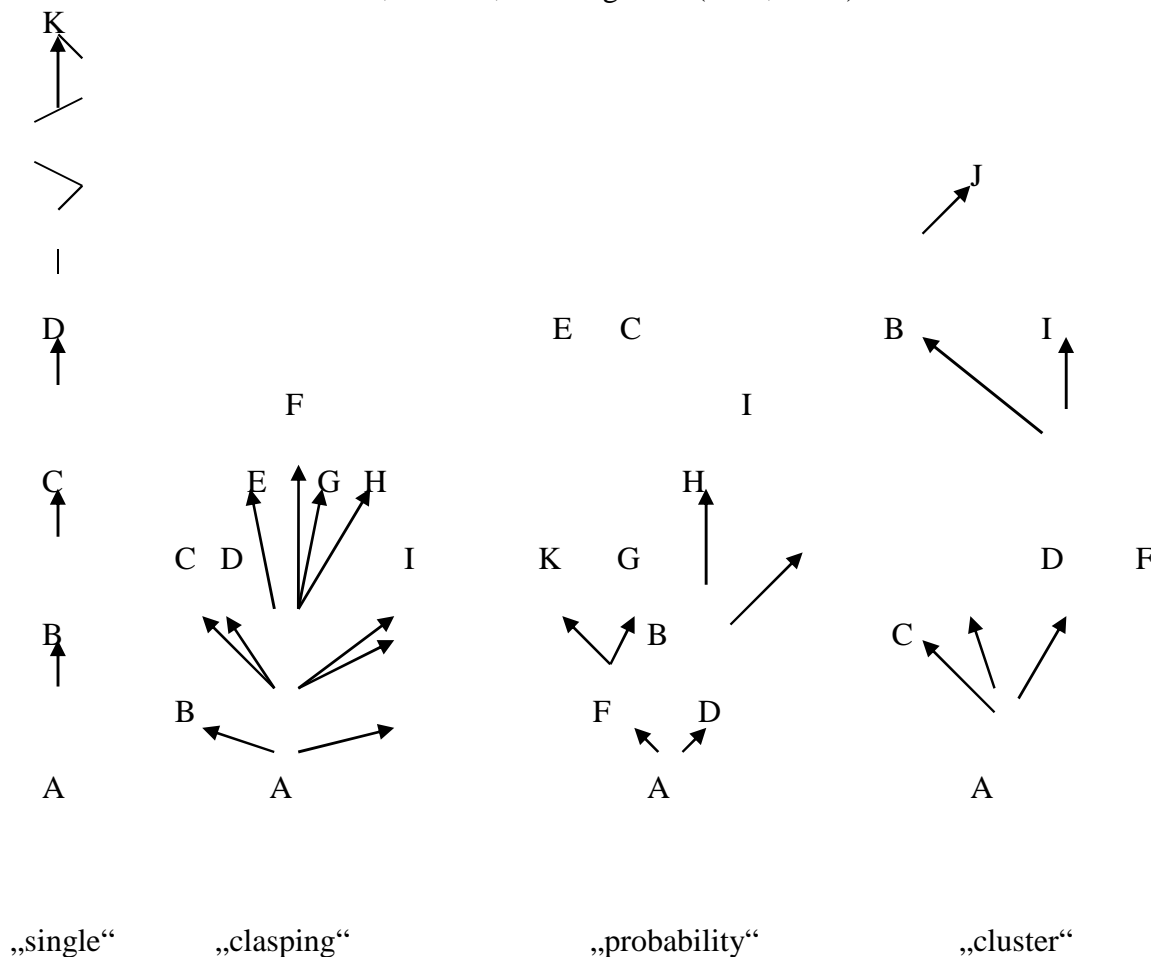


Figure 1: Kinds of chains „Vine“

2. Conflict in organization

Conflict is defined as the conflict of incompatible tendencies and actions in an individual, group, and people, or between individuals, groups and people within competitive or cooperative situations. A great deal of interest in communication is shown by psychologists who emphasize the human problems that occur in the communication process of initiating, transmitting and receiving information. They are aimed at identifying obstacles to successful communication, especially those related to interpersonal relationships.

"Human relation is a source of different resistance, conflict, misunderstanding, imposition of personal interests and interests of formal and informal groups, that is, in the context of different conflicts" (Chomsky, 2002). As the conflict does not go into an open conflict, it needs to be resolved in a timely manner. It is necessary to recognize the causes of conflict and their forms. If there is no timely understanding of the causes and forms of conflict, one will miss the presence and the knowledge of their possible constructive / destructive influence.

"Research shows that managers spend most of their working hours (about 20%) in conflict resolution, which points to the importance of knowing the cause, mechanism and ways of resolving conflicts in organization" (Bal, 1997).

The three possible outcomes of the conflict situation are "one gets and the other loses" (victory - defeat), "one loses the other loses" (defeat - defeat), "one gets the other gets" (win - win decision) (Bal, 1997). From this we conclude that only conflicting process is good and good, which leads to a third outcome: "victory – victory" of the solution.

3. Constructive communication style

Be always ready to listen to other communication actors - in order to be able to make a constructive critique or suggest a solution to the problem, it is necessary to carefully listen to the other party. Careful listening means that while listening all the time, try to understand what the other party wants to communicate, what are his / her motives, intentions, expectations, or desires. So, try to understand another person but from the perspective of that person. It is not easy at all, but it is worth the effort.

Flexibility - your opinions, wishes, and especially feelings should not be expressed always, everywhere and in front of everyone (this is done by arrogant and socially incoherent people). It is neither necessary nor especially wise nor appropriate. Remember, you do not always have to express your attitude, as you do not always have to keep quiet. "When you are thinking about expressing your attitude or feeling, always prioritize well in which society you are, take into account the cultural and social context, whether it is a formal or informal situation, consider the feelings and desires of other people, think about the possible consequences of your actions" (Eko, 1973).

Conclusion

Contemporary professions: management, marketing, journalism, the media, etc. are out of communication among people. Communication and interaction are important within the working team, creating a product, idea or program, but also from the outside, to the public to whom these products are intended.

The basic communication formula of success and the four golden rules of communication, and which are also important for the management of communications, are:

- flexibility, the possibility of a different response to communicative stimulus, where the element of the system that is most flexible will probably also control the entire system;
- skills, where it is emphasized that today is the art of communicating skills that are learned and which must be mastered;
- respect, primarily yourself, then the interlocutor and, ultimately, the situation in which the communication process takes place;
- team work, which emphasizes that today's effective working group does not need heroes, but the future is in systemic thinking and working together, and that today the independence from independence is more and more appreciated.

Finally, it should be emphasized that speaker charisma is a gift that needs to be nurtured because, as the Athens Sophistical School emphasized: "If you have no fire in your soul, you will flutter the flames in the souls of your listeners." "In order not to block our own enthusiasm and flame, we must prepare for public speaking for a long time and patiently, to overcome fears and troubles, discomfort from an unknown environment, from an open space, an authoritative auditorium" (Marković, 2000). Only then will we become a person in the full sense of the word - a person who is ready to share everything he knows and can share with others in a creative, open and tolerant dialogue.

References:

1. Eco, U. (1973): Culture, information, communication, Nolit, Belgrade.
2. Chomsky, N. (2002): Media, propaganda and system, What are you reading?, Zagreb.
3. Cvetanovic, V. (1999): Business Communication, I.P. Marks, Belgrade.
2. Jarić, D. (2007): Organization of Labor and Behavior, (script), Novi Sad.
4. Bal, F. (1997): The Power of Media, Klio, Belgrade.
5. Petković, V. (2006): Human Resources Management, VP PEP, Belgrade
6. Tomić Z. (2004): Communication and the public, Čigoja, Belgrade.
7. Babl, M. (2000): Management, Faculty of Economics, Split.
8. Babl, M. (2010): Managerial Skills, Synergy, Zagreb.
9. Mandić, T. (1995): Communication-psychology of communication, author, Belgrade
10. Marković, M. (2000): Business Communication, Klio, Belgrade.
11. Andevski, M. (2008): Art of Communication, Cekom, Novi Sad.

FRANCHISE SYSTEM PARTICIPANTS AS ENTREPRENEURS AND THEIR CAREER DEVELOPMENT OPPORTUNITIES

Suzana Stefanović²²⁷

Milica Stanković²²⁸

Abstract: *Franchising as an entrepreneurial partnership between franchisors and franchisees gains more and more importance and it is often mentioned as one of the growth strategies for small and medium-sized enterprises. Career management and career models are in the focus of research at the global level. In accordance with the fact that in modern conditions individuals have the biggest role in the development of their careers, entrepreneurs can be considered as pioneers, both in terms of boundaryless career, as well as in terms of protean career. Career management in the franchise system is still insufficiently researched area. This is the reason why this paper will analyze the psychological franchise agreement as a framework for creating modern career, with a focus on the career profiles of participants in a franchise system. The aim of the paper is to emphasize the path of career development of franchisors and franchisees. The paper represents a literature review on this topic, with the contribution of the author, especially in the part of determining the specific career profiles of participants in the franchise system. Findings in paper show that franchisors are closest to the "protean career architect" profile due to the fact that they are guided by personal interests and they direct their own career, with high degree of psychological and physical mobility. On the other hand, franchisees are considered to be "good citizens", because they have greater autonomy in modern business conditions, with an opportunity to launch independent initiatives and to guide their career with a certain degree of freedom, but with the approval of the franchisor. It can be concluded that franchisors and franchisees are keeping up with modern trends and their entrepreneurial orientation is consistent with modern career models.*

Key words: *franchisee, franchisor, franchising system, entrepreneurs, career models, career profiles, psychological contract*

1. INTRODUCTION

Essential changes in today's working environment, such as rapid technological change and the decrease of business stability, have resulted in reduced ability of the individual to continue a career within an organization throughout the entire lifetime with a linear ascending advancement. Previously, the organization has had a primary role in managing the career, but later equal efforts of organizations and individuals were required. Adapting to changes in modern business involves promoting the entrepreneurial spirit and encouraging entrepreneurship, bearing in mind that the characteristics of entrepreneurs coincide with the characteristics of modern career models. The entrepreneurial model of franchising is also a result of modern tendencies, given that in terms of more intensive innovations, participants in franchise systems are increasingly turning to entrepreneurial behavior and in this regard to modern career models.

²²⁷ Faculty of Economics, University of Niš, Trg kralja Aleksandra Ujedinitelja 11, Niš, Serbia


²²⁸ College of Applied Professional Studies Vranje, Filipa Filipovića 20, Vranje, Serbia

The aim of the paper is to find out which career profiles are appropriate for franchisors and franchisees as entrepreneurs, through the analysis of modern career models and considering entrepreneurial model of franchising. The initial hypothesis is that franchising, as a partnership between two types of entrepreneurs - franchisors and franchisees, provides ample opportunities not only for self-employment, as a way to solve the unemployment problem, but also for the career development of participants in the franchising system. After introduction, the second part of the paper refers to the franchising as an entrepreneurial partnership between participants in the franchise system. The third part of the paper explains contemporary approaches to career models and profiles. The next segment indicates possible career profiles for franchisor and franchisees. The last but not the least, relevant conclusions are made based on the analysis of the available literature.

2. FRANCHISING AS ENTREPRENEURIAL PARTNERSHIP AND THE NEW PSYCHOLOGICAL AGREEMENT

Franchising is a concept that includes the replication of standardized business model. The ability of enterprise to adapt to different market conditions becomes a part of the identity of entrepreneurial oriented organization, despite the high degree of standardization in franchise system, and in accordance with changes in the environment [1]. Although, encouraging entrepreneurial behavior, especially for the franchisee, may be considered contrary to the requirements of uniformity, all participants of franchise system still have at least partial flexibility as entrepreneurs and creators of their careers.

Franchising is based on entrepreneurial partnership, given that both franchisor and franchisees can be considered as entrepreneurs according to their particular characteristics [2]. If we consider participants in the franchise system as entrepreneurs,



Suzana Stefanovic is Full Professor of Strategic Management and Business Planning and Policy at the Faculty of Economics, University of Niš in Serbia. She holds an MBS from the Faculty of Economics, University of Belgrade and PhD from Faculty of Economics, University of Niš in Serbia. Dr Stefanovic has research interests in strategic management of SMEs and companies, especially in strategies of networking and cooperation between firms, institutional framework for entrepreneurship development, strategic and business planning, etc. She has participated in many projects funded by the Ministry of education, science and technological development of Republic of Serbia, such as currently open project "Researching contemporary tendencies of strategic management using specialized management disciplines in function of competitiveness of Serbian economy", or project that has been realized in the period 2002-2005 named: "Strategic management of small- and medium-sized enterprises' production in the condition of transition". She also participated in projects that has been granted from the EU, such as several TEMPUS projects, or IPA projects such as "Capacity building for cross-border exchange and cooperation of small and medium enterprises from districts of Nisava, Pirot, Jablanica, and Pcinja, and district of Montana" realized within a framework of "Neighbourhood Program Bulgaria-Serbia 2004". She was a local consultant for the realization of project "Strategy of Development of the City of Niš" which was partially granted by UNHABITAT. She is also active as a external consultant/expert in many NGOs' projects and international projects and programs such as USAID, LEDIB, Protecta, Cluster house from Niš etc. She is the author of two scientific monographs, textbooks for secondary commercial school, and more than 80 papers published in scientific journals, chapters in thematic collections of papers, and Proceedings from national and international scientific meetings, conferences and symposia.

franchisor could be characterized as an innovative and franchisee as an imitative entrepreneur [3]. There is a view that franchisors are certainly considered to be entrepreneurs because they take risks and they have innovative ideas. On the other hand, franchisees have been characterized as an antithesis of entrepreneurs, bearing in mind that they just follow the model developed by the franchisor and operate within the uniformed organization [4]. Franchisees acquire the right to implement the franchise concept to a predetermined area, in a prescribed manner and for a certain period of time. Franchisors constitute franchise agreements and it is not surprising that these agreements generally offer more benefits for franchisors and do not leave a lot of space for franchisees to make decisions on important issues related to business [3]. From another point of view, franchisees can still be regarded as entrepreneurs, bearing in mind that they invest their own capital in the business through fees paid to the franchisor and they have the responsibility for managing their own careers [5]. Of course, with the franchisor's approval, franchisees can express their innovativeness/creativity and strive for the improvement of existing or introduction of new products/services in the franchise system [6]. In that sense, it is a special challenge to determine the role of the franchisor and franchisees in the matrix of modern career profiles.

It can be seen that franchisors are often faced with the dual nature of their positions (Figure 1). On the one side, they can be seen as suppliers, since they are creators of the system and they should provide necessary instructions and guidelines for functioning of the business concept. Franchisors usually constitute franchise agreement, define rights and obligations of participants in the franchise system, which refers to the fact that the role of franchisor can be compared with the role of the employer. Franchisees are contractual party in the franchise agreement, which acquires the right to use the business concept in exchange for appropriate fees. In this regard, franchisees can be considered as customers in relation to the franchisors as suppliers. Also, franchise contractual relationship partly reflects the fact that the franchisees can be treated as an employee within the franchise system. This is because franchisees still need to comply to a large extent with a standardized business concept formulated by the franchisor, despite the existence of a certain degree of independence and autonomy in their operations [7].

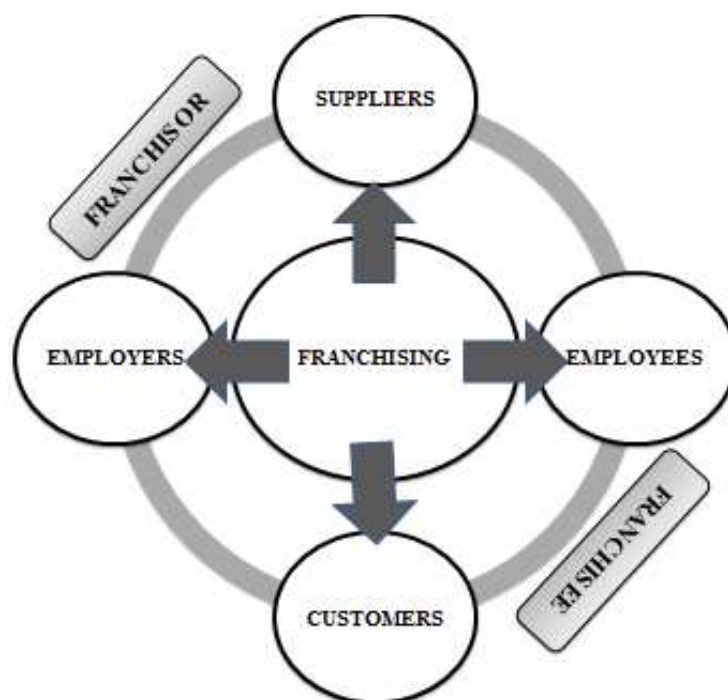


Figure 1: Business relationships in franchising (adapted, based on [7])

Psychological agreement regulates the relations between participants in the franchise system, in addition to the franchise agreement. Psychological agreement can be defined as one that determines what employers and employees want and expect from each other [7]. In the case of franchising, psychological agreement can be defined as a set of reciprocal expectations of participants in the franchise system. Psychological agreements can be divided into: relational and transactional agreements [8]. In the context of a franchise system, the psychological agreement has the characteristics of relational as well as transactional agreements, and usually can be seen as a combination of both, although it is more similar to a new (transactional) type of agreement. Table 1 presents characteristics of relational (old) and transactional (new) psychological contract and their application in franchise system.

<i>Relational (old) contract</i>	<i>Transactional (new) contract</i>	<i>Psychological contract in franchise system</i>
Contract with the organization	Self-contract	Contract with the franchisor with the appropriate degree of autonomy
Career managed by organization	Career managed by an individual (“protean career”)	Career managed by a franchisee with the guidelines provided by the franchisor
Career as a way of earning money for survival	Career as a lifelong series of experiences, skills and changes	Career as a lifelong series of experiences, skills and changes
Development through formal education and training	Development is continuous learning and self-direction	Development is continuous learning and self-direction with formal education and training organized by the franchisor
High degree of financial security	Security through employability	Security through employability
Organization provides lifetime employment	Organization provides a challenging environment for career development	Franchisor provides an opportunity for successful business and career development in a challenging environment
Know-how	Learn-how	Combination of know-how that franchisor provides and learn-how that franchisee gains through franchise business
External success (job security, salary increase)	Psychological (internal) success	Psychological (internal) success

Table 1: Relational and transactional psychological contract - a case of franchising (adapted, based on [7])

3. CONTEMPORARY APPROACHES TO CAREER MODELS AND PROFILES

With the increase in competition and with dynamic changes in the market, the myth of a safe, lifelong employment has become the past, and employees’ careers become unsafe and unpredictable. Modern career is characterized by a much higher level of insecurity and uncertainty than traditional career. Dynamic economic conditions have highlighted the fact that access to career independent from organizational boundaries is justified [9].

Individuals who pursue the model of “boundaryless career” do not have boundaries in their thinking, and they are not tied to one organization, but they choose to take advantages of all the opportunities that are identified in the environment. One of the opportunities from the environment is starting own business in response to the changing environment and unstable conditions for managing career [10].

The attitudes of “protean career” model are related to the fact that individuals are responsible for the success or failure in their career and they have the freedom to choose their career path [11]. The protean career is a new form of career where the individual takes responsibility for transforming his/her career path [12]. Entrepreneurs are completely self contained responsible for their own success or failure in their career, and this is another link between modern career models and entrepreneurial driven career [13].

Protean and boundaryless career are considered “the symbols of a new career”. Although the protean career and boundaryless career are quite different concepts, there are significant similarities between them. In some cases, these two concepts are used as synonyms [14]. The combination of dimensions of boundaryless career and protean career gives us eight career profiles, as it is described in Table 2.

Milica Stanković was born on 28.08.1988. in Skopje, Republic of Macedonia. She received the bachelor's and master's degree from Faculty of Economics, University of Niš, Serbia. During her studies, she had a scholarship Dositeja from Fund for Young Talents and scholarship from Ministry of Education and Science Serbia. In 2017, she gained Ph.D. degree at the Faculty of Economics, University of Niš, Serbia, and her Ph.D. thesis was named „Franchising as a strategy of internationalisation for small and medium enterprises“. From 2012 up to 2016, she was an assistant at the Novi Sad Business School. Since 2016, she is an assistant at the College of Applied Professional Studies Vranje. Milica Stanković is the author and co-author of 43 scientific papers published in journals and presented at international conferences. Her current research interests include franchising, SMEs management, entrepreneurship, internationalization strategies and international management. She is a young associate of the Research Forum of the European Movement in Serbia.



Profile	Mobility level		Other characteristics
	Physical mobility	Psychological mobility	
"Prisoner"	Low	Low	<ul style="list-style-type: none"> ➤ They have low level of compliance with personal values. ➤ They cannot self-direct their career.
"Fortress"	Low	Low	<ul style="list-style-type: none"> ➤ They are satisfied with business conditions that are consistent with their clearly defined personal values. ➤ They are not able to self-direct their career.
"Wanderer"	High	Low	<ul style="list-style-type: none"> ➤ They have low level of compliance with personal values. ➤ They are not able to self-direct their career.

"Idealist"	Low	High	<ul style="list-style-type: none"> ➤ They are guided by personal values in managing their career. ➤ These individuals cannot self-direct the development of their career.
"Organizer"	Low	High	<ul style="list-style-type: none"> ➤ They have low level of compliance with personal values. ➤ These individuals self-direct the development of their career.
"Solid citizen"	Low	High	<ul style="list-style-type: none"> ➤ They are guided by personal values in career management and they are able to self-direct their career.
"Hireling"	High	High	<ul style="list-style-type: none"> ➤ These individuals self-direct the development of their career. ➤ They are adaptive in managing their career across boundaries, but they are not successful in defining their own internal values.
"Protean career architect"	High	High	<ul style="list-style-type: none"> ➤ They self-direct the development of their careers and they are guided by personal values in career management. ➤ Individuals who can achieve career success.

Table 2: Career profiles (adapted, based on [14])

4. SPECIFIC CAREER PROFILES OF THE PARTICIPANTS IN THE FRANCHISE SYSTEM

The relations between participants in the franchise system are very specific, so it is not easy to perceive the franchisors' and franchisees' career development in the modern business conditions. If we try to find a role of franchisors and franchisees in the modern career model, we will observe that franchisors can be creators of boundaryless career, bearing in mind that the entire business concept depends on them. In this sense, psychological changes of career orientation, but also the changes in physical terms (companies relocation) depend on franchisors themselves. Managing boundaryless career corresponds to entrepreneurial minded individuals, which once again confirms the entrepreneurial character of franchisor. On the other hand, we cannot say that franchisees have a traditional type of career, although franchisors as employers can provide them a lot of benefits. Modern business conditions impose greater responsibility for franchisees themselves, so they can have a great impact on their psychological career orientation. However, when it comes to physical mobility of franchisees, we should mention that it is usually restricted by the franchise agreement and by the fact that franchisors are those who are looking for a suitable location for the expansion of their business concept. Also, if franchisees try to change the location of its franchise unit, they could not do so without the approval of franchisors. Therefore, we can say that franchisees' physical mobility is partially limited. For this reason, we can identify franchisees with a third type of individuals who are aware of their employability, but there are particular reasons why they stay with the current employer (franchisors) [15].

When we look at the behavior of individuals in career management in the context of franchising, it is obvious that franchisors can be classified into proactive or those who emphasize "smart" performance. This is because they are, as self-employed persons and creators of the whole

business system, undoubtedly characterized by high level of self-consciousness. On the other hand, given that franchise systems usually have numerous franchisees, the franchisors have to adapt to the external and internal business environment (primarily in terms of adapting to the needs of their franchisees). Historically, it was believed that franchisees only perform franchisor's tasks and that they are strictly limited to the rules dictated by the employer (franchisor) in performing their activities. Nowadays, it cannot be said that franchisees have complete autonomy and there are certain standardized frameworks that still must be respected. Nevertheless, franchise systems are now more flexible. For this reason, we can say that franchisees are characterized by a certain degree of self-awareness and self-directedness in performing their business activities. Therefore, franchisees become more adaptable to environment, so they can be also characterized as proactive participants.

Based on the exposed detailed analysis, and in accordance with characteristics of each career profile, franchisors and franchisees can be classified into one of the available profiles (Table 3). Although it is difficult to specify precisely which profile would fit to whom of the participants in the franchise system, it is possible to find the most similar position for each of them in the table below. Franchisors, as an entrepreneurial minded creators of the franchise concept, are closest to the the "protean career architect" profile due to the fact that they are guided by personal interests and they direct their own career, with high degree of psychological and physical mobility. On the other hand, franchisees are considered to be "good citizens", given that they have an opportunity to launch independent initiatives and to guide their career with a certain degree of freedom, but with the approval of the franchisor. In addition, franchisees are characterized by psychological mobility, but not with the physical mobility. This is because the issue of franchise units location is of great interest for the entire franchise system and it is usually strictly defined in the franchise agreement. In fact, there is a possibility that independent franchisees can find the location for the franchise unit, but before any next step, location must be confirmed by the franchisor. Therefore, franchisors and franchisees are keeping up with modern trends and their entrepreneurial orientation is consistent with modern career models.

<i>Career profile</i>	<i>Protean career</i>		<i>Boundaryless career</i>	
	<i>Self-directed</i>	<i>Values-driven</i>	<i>Psychological mobility</i>	<i>Physical mobility</i>
Prisoner	Low	Low	Low	Low
Fortress	Low	High	Low	Low
Wanderer	Low	Low	Low	High
Idealist	Low	High	High	Low
Organizer	High	Low	High	Low
Solid citizen	High	High	High	Low
Hireling	High	Low	High	High
Protean career architect	High	High	High	High

FRANCHISEE

FRANCHISO

Table 3: Career profiles of participants in franchise system (adapted, based on [16])

5. CONCLUSION

Modern business conditions contribute to significant changes in the field of career management. Globalisation, technological progress and the dynamic terms of business have significantly

affected the shift from traditional to modern career models. The ability to adapt to market conditions becomes a part of the identity in the franchise system as an entrepreneurial-oriented concept. Franchisor and franchisees adapt to changing conditions through modern career models. The psychological contract, in the context of a franchise system, is similar to the "new" transactional type of contract, although it has some characteristics of relational contracts.

The paper determines the position of the franchisor and franchisees in the matrix of modern career profiles. Based on the analysis, it can be concluded that franchisors as entrepreneurial-minded creators of the franchise concept are closest to the "protean career architect" profile, since they are driven by personal values and they self-direct their career, with high degree of psychological and physical mobility. On the other hand, franchisees are considered to be "good citizens", given that they are characterized by self-directedness, personal interests, psychological mobility, but they don't have high level of physical mobility. The fact that franchisor's and franchisee's careers have the characteristics of modern career models indicates the compliance of entrepreneurial orientation of the participants in a franchise system with a modern career trends.

REFERENCES

- [1] Muzyka, D., De Koning, A., Churchill, N. (1995) On transformation and adaptation: Building the entrepreneurial corporation, *European Management Journal*, 13(4), pp. 346–362.
- [2] Stefanović, S., Stanković, M. (2014) Entrepreneurial model of franchising, *Proceedings of the XIV international symposium Symorg 2014*, Faculty of Organizational Sciences Belgrade, pp. 560-567.
- [3] Clarkin, J., Rosa, P. (2005) Entrepreneurial Teams within Franchise Firms, *International Small Business Journal*, Vol. 23, No. 3, pp. 303–334.
- [4] Hoy, F. (2008) Organizational learning at the marketing/entrepreneurship interface, *Journal of Small Business Management*, 46(1), pp. 152–158.
- [5] Ketchen, D., Short, J., Combs, J. (2011) Is Franchising Entrepreneurship? Yes, No, and Maybe So, *Entrepreneurship Theory and Practice*, Vol. 35, Issue 3, pp. 583–593.
- [6] Grunhagen, M., Mittelstaedt, R. (2005) Entrepreneurs or Investors: Do Multi-unit Franchisees Have Different Philosophical Orientations?, *Journal of Small Business Management*, 43(3), pp. 207-225.
- [7] Bockel, C. (2009) *The Franchise Paradox: An Analysis of Control, Consent and Autonomy in Franchise Relationships in Germany*, A thesis submitted in partial fulfilment of the requirements of the For the degree of Doctor of Philosophy, University of the West of England, Bristol.
- [8] Đorđević, B. (2012) *Uspeh u karijeri*, Ekonomski fakultet, Niš.
- [9] Briscoe, J., Finkelstein, L. (2009) The "new career" and organizational commitment: Do boundaryless and protean attitudes make a difference?, *Career Development International*, Vol. 14, No. 3, pp. 242-260.
- [10] Volmer, J., Spurk, D. (2011) Protean and boundaryless career attitudes: Relationships with subjective and objective career success, *ZAF*, 43, pp. 207- 218.
- [11] Ovgu Cakmak-Otluoglu, K. (2012) Protean and boundaryless career attitudes and organizational commitment: The effects of perceived supervisor support, *Journal of Vocational Behavior*, 80, pp. 638–646.
- [12] Baruch, Y. (2004) *Managing careers: Theory and practice*. Harlow, UK: Prentice- Hall.
- [13] Hall, D. T. (2002) *Careers in and out of organizations*, Thousand Oaks, CA: Sage Publications.

- [14] Briscoe, J., Hall, D. (2006) The interplay of boundaryless and protean careers: Combinations and implications, *Journal of Vocational Behavior*, Volume 69, Issue 1, pp. 4-18.
- [15] Hall, D. T., Chandler, D. E. (2004) Psychological success: When the career is a calling, *Journal of Organizational Behavior*, 25, pp. 7.
- [16] Segers, J., Inceoglu, I., Vloeberghs, D., Bartram, D., Henderick, E. (2008) Protean and boundaryless careers: A study on potential motivators, *Journal of Vocational Behavior*, 73, pp. 212–230.

UPCOMING 4TH INDUSTRIAL REVOLUTION IS A NEW CHALLENGE FOR INTER-COMPANY EDUCATION OF EMPLOYEES IN THE CZECH REPUBLIC

Robert Jurča²²⁹
Jindřich Petrucha²³⁰
Petr Koudela²³¹

Abstract: *The goal of the article is to introduce the area of inter-company education in the time period of the upcoming phenomenon of the Industry 4.0. It is clear that our education system is not able to cover all the challenges of this time period. That is why the inter-company education will increase in importance, as a tool of the internal communication in the company. The companies can prepare themselves and to adapt to the risks, processes and also benefits in the best possible way through inter-company education. Our article will introduce the basic theoretical information from the area of the inter-company education development and will describe the methods of education in the inter-company area.*

Key words: *Industry 4.0, inter-company education, internal company communication, human resources, methods of education, robotization, digitalization, company*

1. INTRODUCTION

New upcoming phenomenon, including the overall focus, transformation and modernization of the manufacturing industry using extensive implementation of robots or clever usage of Internet in the production factory, starts appearing in all the areas of the world. We think that all this upcoming system requires definition of the unified nation-wide strategy. It is true for Germany, USA and also for example China. China, in connection to upcoming Industry 4.0, defined the strategy China Manufacturing 2025, in which they defined 94 basic projects of intelligent production. We do not say that Czech Republic should create new standards in this area for Industry 4.0. But we can prepare ourselves in the best possible way and to adapt to these processes. As part of the preparation for implementation of Industry 4.0 we have to analyse all the possible benefits and risks connected to this process and to try to avoid future problems. As well as in the time period of entering the globalized world, also the upcoming 4th Industrial Revolution is the time period which puts emphasis on inter-company education in the companies, on given working position, in normal working activities. But we do not think that many companies in the Czech Republic do not concentrate on such inter-company education, they do not have enough resources, time and place for it and sometimes they even do not know how to do such education. When industrial sector starts implementing so called Industry 4.0, it will not only change the technologies, but also change business strategy, national policy and policy of employment. That is why we should not mistake Industry 4.0 for simple automation of the manufacturing processes. The main benefits of the 4th Industrial Revolution should be time savings, improving the quality of products or possibility to flexibly modify the products. Advanced countries accelerate the implementation process of re-industrialization, while developing states accelerate the process of industrialization. So China faces two big challenges – advanced technologies of the advanced countries and also cheap competition of the

²²⁹ Evropský polytechnický institut, s.r.o., Osvobození 699, 68604 Kunovice, Czech Republic

²³⁰ Evropský polytechnický institut, s.r.o., Osvobození 699, 68604 Kunovice, Czech Republic

²³¹ LOGIMAN, s.r.o., Husinecká 903/10, 13000 Praha, Žižkov, Czech Republic

developing countries, so it is very urgent for them to accelerate transformation of the industry and modernization. Despite the bright prospects, the Industry 4.0 is process requiring long-term implementation. In the early stages even with big investments and great efforts it is possible no great results will be seen. Transferring from Industry 2.0 and Industry 3.0 to Industry 4.0 will bring great challenges [1].

2. ANALYSIS OF THE CURRENT STATE OF THE CZECH REPUBLIC IN THE UPCOMING TIME PERIOD OF THE 4TH INDUSTRIAL REVOLUTION

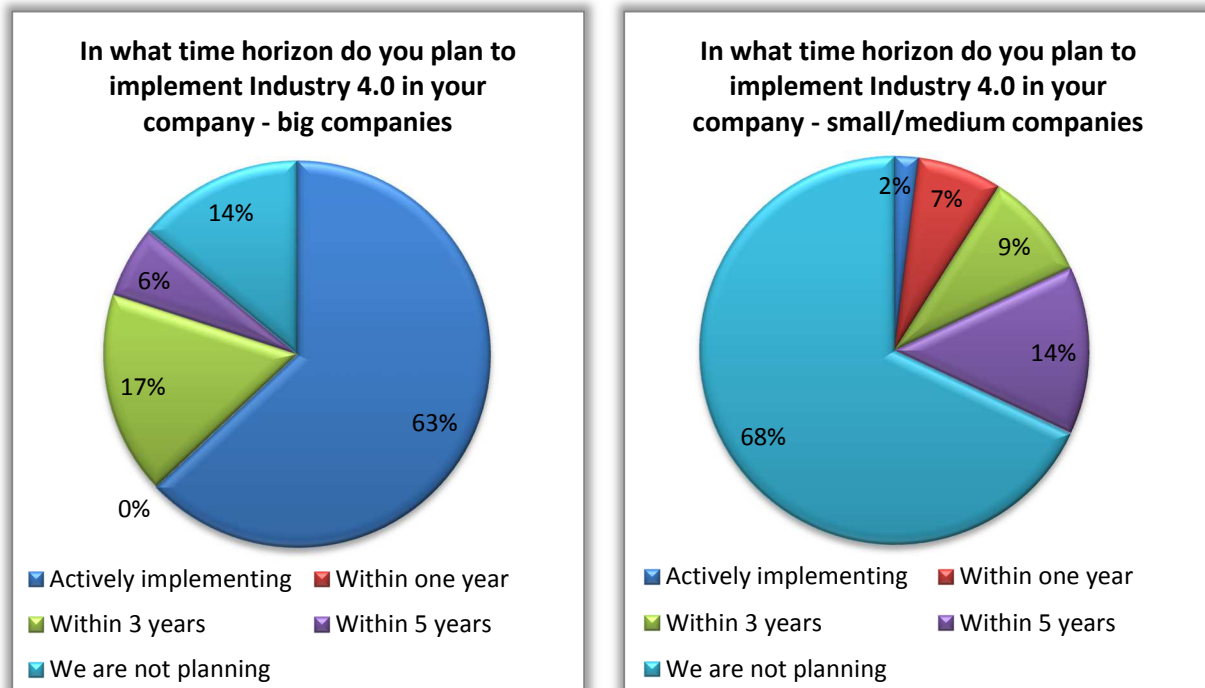
It is right that the representatives of the Czech Republic are working on this upcoming worldwide phenomenon, it reflects our specific situation of the country with great industrial tradition and open economy and that they are trying to identify and continuously find solutions for the possible problems. New industrial revolution, so called Industry 4.0 is at our door and the Ministry of Industry initiated the National Initiative Industry 4.0. The document was written by the team of authors led by the director of the Czech Institute of Informatics, Robotics and Cybernetics of CVUT. Part of this initiative is also following SWOT analysis [2].

Strengths of the Czech Republic in relation to the Industry 4.0	Weaknesses of the Czech Republic in relation to the Industry 4.0
<ul style="list-style-type: none"> • Long tradition of industrial production, solid technical abilities and skills of employees • Relatively favourable level of the innovation performance of the Czech economy among the countries of Central and East Europe • Openness of the economy. • Presence of supra-national companies with corresponding expertise and already existing solutions for the Industry 4.0 area and strong connection to the German and world-wide respected industry and research • Education, especially university education, is perceived by the Czech population as high value • Quality level of the teaching of technical subjects on technical universities • Interest of the state to invest into the support of research and development 	<ul style="list-style-type: none"> • Low knowledge about Industry 4.0, often being mistaken for digitalization only • Still not-existing idea about economic efficiency of the Industry 4.0 implementation that would enable the idea about financing the basic steps (White Book, action plan and other development activities), including the analysis of resources coverage • Quite high present binding of workforce in manufacturing and less qualification requiring positions • Previous high specialization of technical and non-technical branches does not meet the needs of Industry 4.0 vision • Present education system, including university education, is behind the needs of the Industry 4.0 • Low readiness of the institutions of further education, universities and population for quite larger scale of the education of adults and new concept of life-long education • Fragmentation of the research, not enough concentrated towards targeted long-term building of expertise and research-development capacities • Not adequate and still postponed coverage of the whole country with fast Internet • Low readiness of the policy of labour market and social policy for solving new situations • Inadequate investment possibilities of small and medium enterprises • Inadequate communication and informal connection between government, industry and technological development /education systems • All-society unpreparedness for the acceptance of 4th Industrial Revolution
Opportunities of the Czech Republic in relation to the Industry 4.0	Threats of the Czech Republic in relation to the Industry 4.0

<ul style="list-style-type: none"> • Timely starting with the Industry 4.0 • Promoting the state's approach as national priority, instead of individual isolated efforts • Increasing attractiveness of the CR for new foreign investors, stimulation of the increased investments of foreign companies already present in the CR • Possibility to export the results of the research, to participate on technical solutions • Targeted support of small and medium companies in reaching efficient growth of competitiveness • Using „closeness" of the German industry and environment for transferring experiences and solutions • Increasing quality of education system in response to new challenges, including open space for initiative and creativity of teachers who are able to cope with these challenges • Creation of new work opportunities 	<ul style="list-style-type: none"> • Misusing the topic of the 4th Industrial Revolution for populist or marketing purposes • Political misunderstanding of the Industry 4.0 and shattered politics • Still not existing standardization and cybernetic safety in accordance with the world standards • Unpreparedness of the centralized energetic system for the development of decentralized energy sources and development of smart grids • Inadequate and unconnected, or inefficient structure of the research, development and innovations • System of education, retraining and requalification will not be able to implement the changes required for Industry 4.0 implementation • Negative impact on labour market • Emergence of social barriers • Increasing dependence on Germany
--	--

3. APPROACHES TO THE DEVELOPMENT OF INTER-COMPANY EDUCATION IN THE TIME OF THE 4TH INDUSTRIAL REVOLUTION

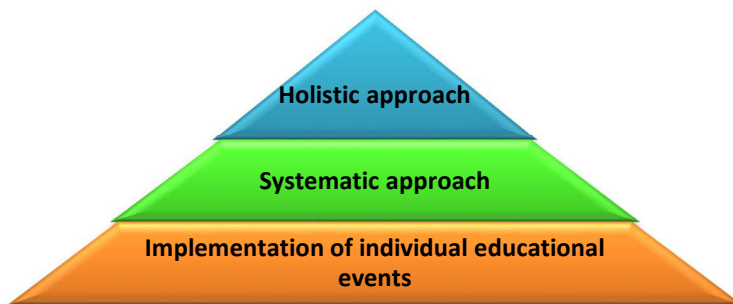
One of the simplest forms of inter-company education can be considered the implementation of individual education meetings that react to the momentary needs of the individuals or the company that lead to removing of the difference between actual and required qualification. This form of inter-company education will not be that important at the beginning of implementation of revolutionary changes through Industry 4.0 and it will be used more in later phases. We can see the actual state of the decisions and readiness for implementation of the 4th Industrial Revolution in the companies in the Czech Republic in following graphs.



Graph No.1: Plan of the Industry 4.0 implementation into big, medium and small companies in the Czech Republic

Source: Ministry of Industry CR, own graphics

We must also think about the fact that due to implementation of robotization and digitalization of the work procedures many of the work activities will be replaced and workforce will become redundant. It is not possible just to let these people go but it is necessary to find some use for this work force. Among the other forms of inter-company education we should establish



Pic. No.1: Pyramid of corporate education.
Source: own

systematic approach which interconnects corporate and personnel strategies with the system of corporate education as one of the systems of personnel work. The highest and the most preferred stage in development and corporate education is holistic approach which implements the principles of learning organization.

It is complex model of the people development within companies of different types.

Development is continuous, employees learn continuously mainly through the everyday experience. Employees become subjects of the development. They have free approach to education, they themselves plan their personal and professional development and they are also responsible for it. Every worker has the same approach to education. The learning organization includes the environment of continuous personal development and education. Industry 4.0 will have a major influence on the job market. The number of working positions in traditional industries should decrease. At the same times about 10 millions of working positions are expected to be created in the area of services and IT. Manufacturing methods and ways of working will be very different from the current ones. The result of this will be change of business models and emergence of the new professions. European companies will need enough qualified employees to be able to implement the demanding process of digitalization. "This will, as a result, lead to positive balance, where Industry 4.0 will compensate the loss of working positions" adds Thomas Rinn. "Digital transformation has already started. If industrial companies do not want to stay in empty space, they have to prepare themselves for the changes brought by Industry 4.0 and they should start working on the strategy of digitalization." The vision of 4th Industrial Revolutions reflects the general trend of the movement towards the knowledge society, which is increasingly supported by the informatization of the branches in the area of production, services and also the working of the

Robert Jurča

Education: 1996-2001: Ing. - Tomas Bata University in Zlín Faculty Management and economy 2008 – 2011: PhD. - Slovenská technická univerzita in Bratislava, Material-technological faculty based in Trnava Practice:

*1990 – 1991 Incoma, s.p., Zlín - Programmer
1991 – 1992 Ingstav, s.p. - Construction engineer*

1992 – 1993 basic military service in Teplice, Prachatice – 2nd Bridge Battalion (squad commander, chemical instructor)

1993 - 1993 SPO, s.r.o., Napajedla - Construction engineer (planner) 1993 – 2001 Frama, private company, Uherské Hradiště – Construction engineer (planner)

2001- today EPI Kunovice, spol. s r. o. – Assistant Professor

2014 – 2015 EPI Kunovice, spol. s r. o. – Head of the department Economic Informatics

Other: 2017 - Member of the Academic Senate EPI Kunovice, spol. s r. o.; 2002 - local chronicler.

state. These upcoming changes will have crucial influence on the future required qualifications and on the labour market as the whole. It is clear now that it is necessary to plan the social impacts of Industry 4.0 implementation from the beginning. As we wrote above, the upcoming Industry 4.0 will have crucial influence on the labour market. And here is the great opportunity for inter-company education (increasing qualification of employees or their re-qualification within the company). The Czech Republic has an advantage in qualification structure of its population where there is minimum of the population with only primary education, but there is also a disadvantage in low share of tertiary educated work force, even within the younger population. This unfavourable development is partly caused by comparison with other countries and also with population and the less demanded lower level of tertiary education by the employers, which is higher vocational and bachelor education. The

companies in the Czech Republic have quite good approach to the education of their employees. The vocational education participation in the Czech Republic in 2010, for which there are the most recent data, provided by the companies included 61% of employees in the whole economy, industrial companies provided education for 65% of their employees and these numbers are above the highest ones in EU. On the other hand the content of these courses and their quality are questionable. But we must say that employers consider further education only in the cases that they are sure of the benefits for the working position of the employees who should be educated. The technological progress is not possible without well qualified labour force. The impact of the 4th Industrial Revolution on labour market will be not only very complex, but also contradictory. The research in the CR was not adequately considered in the past. The impact of automation will necessarily lead to the decrease of less qualified working positions in industry and in other activities, but we can now only speculate on the total loss of this decrease in the CR. At the same time it is not yet clear to what extent and in which areas new work positions will emerge in the economy. Some studies say that up to 50% of working positions in traditional industries is endangered by automation and robotization [3]. Other studies say that this is exaggerative and that technological impacts on employment are overrated and are often conceived very closely and in isolated way, not taking into account flexibility of profession changes and multiplication effects in creation of new working positions brought by new technologies. Start of the 4th Industrial Revolution and the changes in employment are inevitable and it is important to prepare for them in time. The changes caused by start of the 4th Industrial Revolution in the area of demand for labour force will be influenced by many factors that should be identified by the company properly. The base for the analysis of the impacts of such processes on the labour market and social situation should be scenarios for the specific environment of the given state that should answer the following questions:

- In what areas will the work positions emerge and close and how to make sure the employment rate will remain unchanged,
- What will be the requirements for knowledge and skills,

Jindřich Petrucha

He teaches at the European Polytechnic Institute, where he focuses on teaching and the creation of educational materials on the subject of information technology. He deals with programming in C language, the language of PHP, Javascript, which describes the subjects of programming and Internet technologies. Knowledge of informatics applied to projects developed by the EPI information system for recording study department and other support processes. He also focuses on the area of optimization methods using fuzzy logic and neural networks. His doctoral thesis focused on the application of artificial neural networks and time series along with using OLAP technology. In the last period, he deals with the use of mobile technology and Android operating system.

ž

- Where and how will be the knowledge acquired,
- How it is possible to increase the working and profession flexibility while ensuring the adequate wages,
- What changes must be implemented in the area of educational policy, policy of employment, social policy and possible legislation.

To meet the demands for qualification for the 4th Industrial Revolution in the individual sectors that create new technologies and also in the sectors that use those technologies, it will be necessary to substantially improve the whole education system. The present school education does not already cope with the present requirements. For implementation of the Industry 4.0 it will be necessary to have new knowledge and skills in all the areas of social life.

4. WAYS OF FURTHER DEVELOPMENT OF EDUCATION IN THE 4TH INDUSTRIAL REVOLUTION TIME PERIOD

All the human activities in all the areas of human being, social life, work and business is influenced by the Internet in the present time period and will be especially in the future one. It is necessary to concentrate on this area, to modify not only educational programs of the schools of all levels, but also seek new opportunities in this area, to implement inter-company educations that will implement this area into corporate activities. The priorities in preparation for the upcoming 4th Industrial Revolution is to prepare the students and employees to understand the changes brought by this industrial revolution. The main areas are Internet, its change into Internet of Things, knowledge of informatics, new ways of doing business or the ways of social development of future society. Information experts must have deep knowledge of technologies and processes in the given industry for upcoming Industry 4.0. If technical universities do not prepare new educational programs concentrating on education of the Industry 4.0 experts, this responsibility will increasingly fall to the inter-company education. Changes of the education content must be implemented to all the fields of study on all schools, not only technical schools. The changes must be implemented also in the economical law and social studies. Industry 4.0 will change the whole society. Following tasks are important for the implementation of the 4th Industrial Revolution for the business sphere in inter-company education:

- Take care of the maximal development of every employee – to provide material and personal conditions for individual support of all employees as part of their social education, and systematic talent care within the company.
- Try to develop interpersonal and intrapersonal skills of the employees.

Petr Koudela

Education: 1995-2000: Ing. - Tomas Bata University in Zlín Faculty Management and economy 2009-2011 MSc. - Brno International Business School, a.s., Brno (study programme of Nottingham Trent University, United Kingdom) 2009-2011 MBA - Brno International Business School, a.s., Brno- strategic business management Practice:

2000 –2006 Assistant professor at the European Polytechnic Institute Ltd. - language teacher, Vice-Rector for international relations, Head of languages department

2007 –2013 Ekonomservis-Stavby, a.s., Brno- Sales and Economic Manager

2014 –2015 Assistant professor at the European Polytechnic Institute Ltd. - language teacher, Vice-Rector for international relations, Head of languages department

2016 –today LOGIMAN, s.r.o., Prague-Account Manager

ž

- Improve the next development of ICT teaching in related to the field in which the company works. Part of the education should also be orientation on moral aspects of working with information and modern technology.
- Enable all employees to experiment more, but not at the expense of their working tasks.
- Develop another opportunities to use ICT for employees in the company's area of working.
- Increase the cooperation with schools.

CONCLUSION

If the education system in the Czech Republic does not meet and does not adapt to the upcoming trends of the 4th Industrial Revolution, it will be necessary to alleviate or even remove the unfavourable trend through the inter-company education. It is completely irrecoverable that the Industry 4.0 must be implemented into companies. Future technicians will not be able to concentrate only on single industry. They will have to have multi-disciplinary knowledge. The main challenge for implementation of the Industry 4.0 will be the lack of complex talented workers in industry and absence of human resources. Thus employees become subject of the development. They have free approach to education, they plan their personal and professional development and they are responsible for it. Every employee have the same access to education. The learning organization creates the environment of continuous pressure on the personal development and education.

REFERENCES

- [1] Průmysl 4.0 je příležitost a výzva - 24/05/2016 - Control Engineering Česko. Main page - Control Engineering Česko [online]. Copyright © 2007 [quo. 17.10.2017]. Available on: <http://www.controlengcesko.com/hlavni-menu/artykuly/artykul/article/prumysl-40-je-prilezitost-a-vyzva/>
- [2] Ministerstvo průmyslu a obchodu [online]. Copyright © Copyright 2005 [cit. 17.10.2017]. Available on: <https://www.mpo.cz/cz/prumysl/prumysl-ctyri/>
- [3] Frey, C. B., Osborne, M. A. *The Future of Employment: How Susceptible are Jobs to Computerisation*, Oxford, pp. 20-21.
- [4] Clifton, L., Clifton, D., Pimentel, M., Watkinson, P. and Tarassenko, L. (2012). *Gaussian processes for personalised e-health monitoring with wearable sensors*. *IEEE Transactions on Biomedical Engineering*, vol. 60, pp. 193–197.
- [5] Linner, T. and Bock, T. (2012). *Evolution of large-scale industrialisation and service innovation in Japanese prefabrication industry*. *Construction Innovation: Information, Process, Management*, vol. 12, no. 2, pp. 156–178.
- [6] Veres, S.M., Molnar, L., Lincoln, N.K. and Morice, C.P. (2011). *Autonomous vehicle control systems – a review of decision-making*. *Proceedings of the Institution of Mechanical Engineers, Part I: Journal of Systems and Control Engineering*, vol. 225, no. 2, pp. 155–195.

HISTORY AND THE RISE OF COWORKING SPACES IN SLOVAKIA

Zuzana Skorková²³²
Natália Tarišková²³³

Abstract: *The history of coworking spaces in Slovakia is relatively short. But despite this short period of time, coworking has become a stable component even of business environment. Coworking spaces are shared workspaces that are used by various independent individuals as their place of business. Unlike in a typical office environment, people using coworking space are usually not employed by the same organization. The usual clients of coworking space are work-at-home professionals or members of start-up communities. In addition to the workspace, it is also the construction of a network for sharing knowledge and innovation. Another priority is education that helps the coworker advance in their business. Each coworking center is based on five core values, including cooperation, community, sustainability, openness and accessibility. The aim of this paper is to monitor and analyse the history and the present of coworking centres operating in Slovakia, especially in the capital city of Bratislava and to evaluate their opportunities for further development. We used secondary sources of information for the first part of our study. In the second part we used observation method that was applied during our visits in the coworking places in Bratislava. We compared the cost for working from home, from coworking space and office space.. According to our survey there are 38 centres in Slovakia, 12 of them are situated directly in Bratislava. Based on our analysis we can state that coworking centres are not only an alternative to work-from-home but they became strong competitor of usual offices as well.*

Key words: *Coworking space, office, work from home, freelancer, Slovakia*

1. INTRODUCTION

“The classic offices is no longer the place for value creation. The creation of value happens in projects in different places, at different times, independent and without permanent employment. This new type of work happens in new real and virtual places. What is needed are open, digitally connected working spaces that are flexible and can serve as incubators for networking, innovation and production.”

Xing-progile, Coworking space “betahous” (2012), in [15]

It is difficult to define coworking using spatial and organizational characteristics. [14] Spinuzzi [16] defines coworking as an emerging form of work organization that arose out of the needs of telecommuting employees and independent consultants working from home and to overcome isolation and loneliness. Coworking space is relatively new phenomenon. We have analysed the definition of this term. Table 1 represents our findings.

²³²University of Economics in Bratislava, Dolnozemska cesta 1, 852 35 Bratislava, Slovakia

²³³University of Economics in Bratislava, Dolnozemska cesta 1, 852 35 Bratislava, Slovakia

Author	Definition of coworking space
Neuberg, (2005), [13]	Coworking is community for developers who work from home. In coworking, independent writers, programmers, and creators come together in community a few days a week. Coworking provides the office of a traditional corporate job, but in a very unique way.
Friebe - Ramge, (2008), [4]	Workspace, social space, contact space, business space, information space, play space, development space, talking space, large space, idea space, organizing space and showroom.
Jones et al., (2009), [9]	Coworking: <ul style="list-style-type: none"> - A proper noun to describe a movement: "The core values of Coworking are..." - A verb to describe an activity: "I am coworking with my friends at the local cafe." - An adjective to describe a space: "Souk is a coworking space in Portland."
Hirst, (2011), [in 17]	Coworking space is a practice where people occupy a desk on a casual or temporary basis in a workspace that is shared with others. Unlike a traditional workplace or "hot-desking" workplaces where employers have enacted a policy of no set desk spaces.
Evans, (2011), [in 14]	Coworking spaces all have strong internally as well as externally connected networks that consist of freelancers and micro-businesses.
Spinuzzi, (2012), [16]	Coworking space is a workspace for the community, where people can sit down and collaborate with each other. It is a low-cost workspace and easily accessible, containing shared knowledge from different business backgrounds that can contribute to the own business.
Buczynski, (2013), [11]	Coworking spaces are shared, collaborative office spaces that cater to the mobile workforce. More than fast open, accessible community that facilitates collaboration between like-minded – or even not so like-minded - professionals.
Moriset, (2013), [12]	Coworking spaces are regarded as "serendipity accelerators", designed to host creative people and entrepreneurs who endeavour to break isolation and to find a convivial environment that favors meetings and collaboration.
Gandini, (2014), [7]	Coworking spaces are shared workplaces utilized by different sorts of knowledge professionals, mostly freelancers, working in various degrees of specialization in the vast domain of the knowledge industry.
Schuermann, (2014), [15]	Coworking Space: integrated and flexible business and work model that focuses on the needs of entrepreneurs, creatives and knowledge workers. He states that hardly any coworking space resembles another – neither in layout nor in culture. Often they are a direct reflection of the founders or current users and have therefore their very own "soul".
Fuzy et al., (2014), [6]	Coworking spaces are seen as workspaces that encourage and stimulate collaboration and serendipitous encounters with coworkers, boosting creativity and innovation.

Goncalves, (2015), [8]	Coworking space is a working environment that share the spirit of “Working alone together”.
Corsi, (2017), [2]	Coworking space is a working space for common use that can be used as an a-la-carte office by any knowledge worker.

Table 1: Definitions of coworking space, own source

Authors Kwiatkowski – Buczynski, [11] defined five core basic values of Coworking space. These values are included in table 2. Table 3 compares corporate values and coworking values.

Value	Definition
Collaboration	This value represent the will to cooperate with other members to create something of value. Very often this collaboration aspect might be the strongest point.
Community	Community of like-minded people working together. Each of members contributes to the community and (in return) receives from the community.
Sustainability	This value is aimed on staying power, a driving force for financial stability for ensuring continuity.
Openness	Tolerance toward other coworkers. Open-minded approach, willingness to the sharing of ideas and information.
Accessibility	Financial viability to the users. To accommodate all users’ physical needs.

Source: [11]

Table 2: List of coworking core values

Corporate Values	Coworking Values
We are your employer.	You are my client.
You will come to the office.	I will set my own hours.
You will stay in your cube.	I will work where it fits me best.
Talking to other coworkers is distracting you from your work.	Talking to other people energizes my work, helps me collaborate and solve problems, and is essential for my social well-being.
You will work on whatever project we put in front of you.	I will work on projects that are meaningful to me.
You will put in face time so I know you are working and not screwing around.	I will work until the project is completed.
Your work and your life outside work are separate.	My work and my life are intertwined.

Source: [9]

Table 3: Comparison of corporate Value and Coworking Values

2. HISTORY AND THE PRESENT OF COWORKING SPACES

Based on Knoll Workplace Research [10] the concept of coworking started in the mid of 1990s, when these open workplaces provided physical spaces where people with common digital technology interests could gather to work on projects while sharing ideas, equipment and knowledge. History of coworking is often linked with “hackerspaces” – e.g. in 1995 C-Base was found in Berlin. It was the space for 17 computer enthusiasts who used this shared space for collaboration and work in an open-environment. This model certainly deviates from the current coworking spaces we know today, but hackerspaces are viewed by some authors [9] as the base for today’s collaborative workspaces.

In 1999, Brian DeKoven introduced the concept of "coworking" and described it as a method that facilitates collaboration and workshops through IT technologies. He realized that people were too isolated and hierarchical to work together, to collaborate and to be considered as equal. This method was aimed to support collaboration in the work place through non-competitive approach giving people the opportunity to work on their projects.

In the same year, 42 West 24 was set up in New York. This was run by a software company and offered a comfortable working environment with flexible tables for individuals and teams with an option of membership cancellation in short notice period.

Despite little emphasis on the community aspect compared to other coworking spaces, this initiative was really a breakthrough in the market. Especially after 2001 when the Internet bubble burst and the software companies lost many clients and many employees as well. The Vienna Mother of the coworking center was opened as "SCHRAUBEN FABRIK", which was the first name of the community center for entrepreneurs. Later, it was extended to "Hutfabrik" (2004) and "Rochusfabrik" (2007). These spaces were managed by Connex Communities, which became the first local network of coworkers. The first official coworking center was established in 2005 in San Francisco by Brad Neuberg. He organized it as a non-profit center. This coworking was closed after a year and replaced by Hat Factory. His first coworking center was more than just a success; it was a concept that has been taken across the US and from there to the entire world. In the same year, the first "Sankt Oberholz" café was opened in Berlin, offering free internet access to its guests, with the option of working on their own laptops. Today Sankt Oberholz is a real coworking center. In the next years, coworking has been successful and new coworking centers have begun to open around the world, with a growing number of members. At the end of 2008 there were approximately 160 coworking spaces.

The first mention of the coworking center in Slovakia is from 2011, when the Coffice center was established. Its founder – Miroslav Pitel says: "I wanted to create a nice space that

Ing. Zuzana Skorková, Ph.D.

She graduated at the University of Economics in Bratislava, Slovakia (PhD study) and since 2013 she has been the lecturer at the Department of Management. She teaches Management and Organization – in Slovak and in English language as well. Previously she worked as a manager in outsourcing company where she led the soft skills training. Actually, her research is mainly focused on the use of competency models in human resources management, organizational structures, bureaucracy in business.



Ing. Natália Tarišková, Ph.D.

She is currently working at the Faculty of Business Management at the University of Economics in Bratislava - the Department of Management. She lectures courses in Human Resources Management and Management (in Slovak language), and she is the gestor of Balanced Scorecard in Human Resources (in Slovak language), Change Management (in English), Intercultural Management (in English) and Project Management (in English). She graduated from the Faculty of Business at the University of Economics in Bratislava (1991-1996) and from the Faculty of Arts at the Comenius University in Bratislava (Ph.D. 1998-2004). She has been a consultant at the American Agency for International Development in Bratislava (USAID) during her university studies. From 1997 to 2011 she worked in a multinational corporation as the advisory consultant (Deloitte Prague, Deloitte Bratislava, PricewaterhouseCoopers Bratislava, Innovative Management Partner Bratislava).



combines office, modern copy center and café with an exceptional assortment of only healthy and tasty fair trade and bio drinks in one place.” It was a 130 m² work area and offering non-traditional services such as bike rental, a home bakery, filtered water, a café and copy services for the general public, not just for members.

Over the past few years, the number of Coworking Spaces has increased enormously. Based on research made by Statista (2017) [18] there were 11,300 coworking spaces globally, this was projected to rise to around 13,800 by the end of 2017. There were around 835 thousand people working in coworking spaces and the leader in terms of number of coworking spaces was Impact Hub. Based on Deskmag (2017) [2] 40% of all coworking spaces are profitable. For years ago in 2013, it was only 32%. Conversely, the percentage of coworking spaces that lost money saw a distinct drop, to 26%, in 2013 it was 36%. Based on the result of this study, coworking spaces still find themselves in a very new market. Nearly every third coworking space first opened within the last twelve months; four years ago, this figure was nearly half. In thirteenth month of running their business they are no longer accruing operating losses, but they are not making any profit either.

3. COWORKING IN SLOVAKIA

We have identified 38 coworking spaces in Slovakia, situated in 15 different towns. To compare – the capital of the Czech Republic - Prague, with a population of 1.280,500 has 28 active coworking spaces. Bratislava with a population of 473,000 has 12 coworking spaces. Taking into consideration the number of population, this is more than in Prague. Our results are presented in table 4. Figure 1 illustrates the rental fees in Bratislava’s coworking spaces. The average fee is 147EUR per month.

<i>Town</i>	Coworking center’s name	<i>Town</i>	Coworking center’s name
<i>Bratislava</i>	UNICARE CENTRUM	<i>Košice</i>	HALMISPACE
	IMPACT HUB		CO ŠICKE
	THE SPOT		EASTCUBATOR
	OFFIS		SALIA
	0100 CAMPUS		EVERY DEY
	DVOJBODKA		HUBA COWORKING
	<i>Prešov</i>	FLEXIROOM	COWORKINGOVE
		ATELIÉR COWORKING	CENTRUM
		CONNECT - CONNECT	HIVE 5
	<i>Nitra</i>	KOŠICKÁ	PONK
- CONNECT OLIVE		LA REUNION	
- CAFE LAB		MONDRIAN’S HOUSE	
BUSINESS CLOUD		IDEASPACE	
<i>Žilina</i>	BANKA ŽILINA	<i>Trenčín</i>	FASILITY SYSTEM
	VTP ŽILINA	<i>Šaľa</i>	HUB
<i>Banská Bystrica</i>	BUSINESS INNOVATION	<i>Martin</i>	COWORKING ŠAĽA
	CENTER	<i>Poprad</i>	CANCEL
<i>Prievidza</i>	OBLOK		CITY HUB
	HAJCMAN	<i>Spišská Nová Ves</i>	KREATIVO
<i>Pezinok</i>	B-ZONE	<i>Námestovo</i>	CO/WORKING/SPIŠ
			NOWORK

Table 4. Coworking spaces in Slovakia

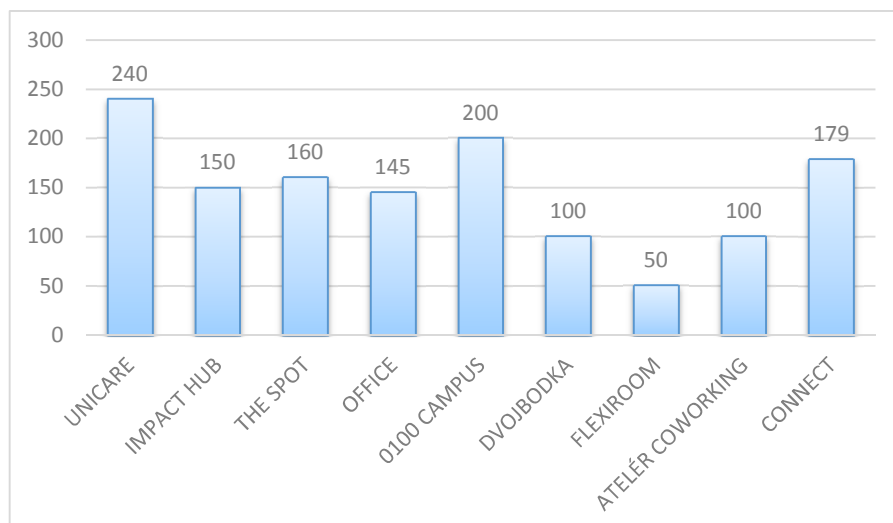


Figure 1: Rental fees in coworking spaces in Bratislava in EUR

DISTRICT	m ²	AMOUNT/MONTH €	ENERGY COSTS €	TOTAL COST/MONTH €
BRATISLAVA I	14	143	50	193
BRATISLAVA II	22	185	80	265
BRATISLAVA II	25	200	69	269
BRATISLAVA II	30,19	251	0	251
BRATISLAVA III	25	163	0	163
BRATISLAVA V	35	525	0	525
			Average cost	278

Table 5: Office-space rental fee in Bratislava by district in EUR

The office space costs depend on the location and the office size. The average cost for the office 14 – 35 m² is approximately 280EUR per month. Our findings are described in table 5. Table 6 contains the cost for work from home. We included internet connection, electricity and printing cost there. The total amount is 76EUR.

Cost for	Amount per month in EUR
Internet connection	20
Electricity	35
Printing fees	21
Total per month	76

Table 6: Costs for work from home

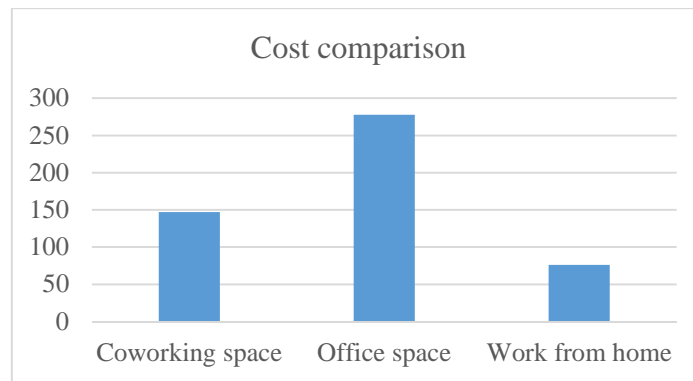


Figure 2: Cost comparison – coworking space, office space and work from home

Based on our analysis we can see the cost comparison for work from home, office space and coworking space in Bratislava.

4. CONCLUSION

Coworking spaces strive to be places where new and future-oriented ideas and concepts are created and implemented. They particularly support start-up activities. Coworking spaces are typical for their community aspect and incubator aspect. Both of these aspects are missing in usual office-spaces. Business centres are not oriented to fulfil any of the five core values typical for Coworking Spaces: Collaboration, Community, Sustainability, Openness and Accessibility. This type of workplace is considered to be the centre of collaboration outside of the single organisation. It groups the talents together and creates engagement across a broader community base. Usage of Coworking spaces is definitely on rise worldwide including Slovak market. Coworking spaces in Slovakia became an accepted alternative to the usual office and to the work from home as well. Coworking spaces in Bratislava offer wide range of services for different clients (freelancers, start-up communities, professionals, parents, etc...) Our cost comparison confirmed that coworking spaces are not only an alternative for work-from-home but they are strong competitor for usual office-spaces as well. We expect that the number of coworking spaces will increase in Slovakia especially with regard to start up community, millennials driving the workforce and the growing need to build the community.

REFERENCES

- [1] Buczynski, B. (2013) *Sharing is good. How to Save Money, Time and Resources through Collaborative Consumption*, New Society Publishers, Gabriola Island, Canada
- [2] Corsi, P. (2017) *Going past Limits To Growth, A report to the Club of Rome EU-Chapter*, John Wiley&Sons, Hoboken, USA
- [3] Deskmag (2017) How Profitable Are Coworking Spaces Today?
- [4] Friebe, H. – Range, T. (2008) *Marke Eigenbau. Der Aufstand der Massen gegen die Massenproduktion*. Frankfurt am Main: Campus Verlag GmbH.
- [5] Fuzi, A. (2015) Coworking spaces for promoting entrepreneurship in sparse regions: the case of South Wales. *Regional studies, regional science*, 2(1), 462-469.
- [6] Fuzi, A. – Clifton, N. – Loudon, G. (2014) *New in-house organizational spaces that support creativity and innovation: the co-working space*. Paper presented at R&D Management Conference, Stuttgart, Germany. Retrieved from https://www.academia.edu/7430165/New_inhouse_organizational_spaces_that_support_creativity_and_innovation_the_co-working_space

- [7] Gandini, A. (2015) *The rise of coworking spaces: A literature review*. Ephemera: theory & politics in organization, 15(1), 193-205.
- [8] Goncalves, C. (2015) *Out of the office, Love where you work*. Pixels Brand.
- [9] Jones, D. – Sundsted, T. – Bacigalupo, T. (2009) *I'm Outta Here! How coworking is making the Office Obsolete*, Austin, TX: Not an MBA Press.
- [10] Knoll, (2017) *The rise of coworking – A growing workplace movement*. Retrieved from: <https://www.knoll.com/knollnewsdetail/the-rise-of-co-working>
- [11] Kwiatkowski, A., – Buczynski, B. (2011) *Coworking: Building Community as a Space Catalyst*. Fort Collins, Colorado, USA: Cohere Coworking.
- [12] Moriset, B. (2013) *Building new places of the creative economy. The rise of coworking spaces*. Proceedings of the 2nd Geography of Innovation International Conference 2013, Utrecht University.
- [13] Neuberg, B. (2005) *Coworking – community for developers who work from home*. Retrieved from: <http://codinginparadise.org/weblog/2005/08/coworking-community-for-developers-who.html>
- [14] Parinno, L. (2015). *Coworking: assessing the role of proximity knowledge exchange*. Knowledge Management Research & Practice, 13, 261-271.
- [15] Schuermann, M. (2014) *Coworkins Space – a potent business model for plug and play and indie workers*. Rocket Publishing, Lucerne&epubli GmbH, Berlin.
- [16] Spinuzzi, C. (2012) *Working alone together: Coworking as emergent collaborative activity*. Journal of Business and Technical Communication, 29(4), 399-441.
- [17] Sushil – Connel, J. (2016) *Flexible work organization*. Springer. India.
- [18] Statista, 2017 *Coworking spaces – statistics and facts*, Retrieved from <https://www.statista.com/topics/2999/coworking-spaces/>

ESTIMATION OF IMPACT FACTORS FOR HOFSTEDE'S CULTURAL DIMENSIONS FOR CROSS-CULTURAL MANAGEMENT

Dalibor Petković²³⁴

Nebojša Denić²³⁵

Miloš Milovančević²³⁶

Boban Stanković²³⁷

Abstract: *Cultural difference plays an important role in business management in recent twenty years. The topic of cross-cultural management has become the topical area in modern business worldwide. Cross-cultural implication and cultural dimensions was analyzed using Hofstede model that consists of six dimensions: power distance, uncertainty avoidance, individualism versus collectivism, masculinity versus femininity, long-term orientation and indulgence versus restraint. These dimensions were analyzed in case of East-Asian cluster. The main goal was to analyze the influence of Hofstede's six dimension model on cross cultural management. The method of ANFIS (adaptive neuro fuzzy inference system) was applied to the data.*

Key words: *ANFIS, cross-cultural management, Hofstede.*

1. INTRODUCTION

Over the last several decades, culture has been one of the key research constructs in fields ranging from management and psychology [1]. This interest was largely triggered by Hofstede's work [2]. Although culture had been researched much earlier than Hofstede's work, he was the first to supplement a theoretical model with an elegant set of indices that quantitatively described national cultures. Consequently, Hofstede's work led to an explosion of cross-cultural research in business, psychology, and other disciplines that favor quantitative research methods. Hofstede's cultural scores provided a foundation for cross-cultural corporate training and international management courses in business and executive education curricula [3]. The indices not only aided generations of managers and practitioners working in international settings, but also had a profound impact on subsequent cross-cultural research. Hofstede's model of culture has been successfully applied in research on a wide range of organizational and national issues, including leadership, teamwork, justice, communication, ethics, satisfaction, commitment, foreign market entry modes, international trade, and individual, company and national performance, to name a very few [4]. Most importantly, his original cultural indices have been used in thousands of studies including a large number published in recent years. Despite their enormous popularity, Hofstede's cultural indices are not without limitations [5]. Hofstede's research design raises questions about the generalizability of his findings. Hofstede's approach can severely limit data generalizability to the broader population.

²³⁴ University of Niš, Pedagogical Faculty in Vranje, Partizanska 14, 17500 Vranje, Serbia

²³⁵ University of Priština, Faculty of Sciences and Mathematics, Kosovska Mitrovica, 38220, Serbia

²³⁶ University of Nis, Faculty of Mechanical Engineering, Aleksandra Medvedeva 14, 18000 Nis, Serbia

²³⁷ Alfa BK University of Belgrade, Faculty of Computer Sciences and Mathematics, Belgrade, 11000, Serbia

Studies examining the effects of culture on intentions and behaviors within organizations, as well as of related cross-cultural differences, often focus on either the direct or moderating effect of single cultural value dimensions, or on the moderating effect of country as a proxy of culture [6]. However, culture is a multidimensional construct that does not necessarily entirely correspond to particular countries.

In article [7] was investigated potential associations between cultural dimensions and variations in perceived use/compliance with the internal auditing standards and it was found that the uncertainty avoidance to be inversely related to both use and compliance and the assertiveness and human orientation to be positively related to compliance. In article [8] was investigated a weighted and asymmetrical approach to calculating national cultural distance and by using this approach, the national cultural distances for Hofstede's framework was calculated, the theoretical and methodological implications were discussed, and avenues for future research were proposed. Cultural distance is one of the most widely used distance construct in international business. However, scholars have long questioned the notion that cultural distance has a homogenous impact on organizational actions and performance. In article [9] was redressed this by examining how the relationship between cultural differences and deal abandonment in cross-border acquisitions is contingent on firm-level cultural experience reserve and industry affiliation and it was hypothesized that the firm's industry context affects the uncertainties associated with cultural differences. The role of culture in determining the quality of institutions was assessed in [10] and it was found that only differences related to the degree of individualism in society and the extent to which inequality in the distribution of power is tolerated were strong and statistically significant predictors of the observed differences in institutional quality and the strong link between these two cultural dimensions and the quality of institutions was also confirmed. In article [11] was hypothesized that Power-Distance Index (PDI) and Masculinity would be positively correlated with fatal work injuries, while Individualism and Uncertainty Avoidance (UA) would be inversely correlated with fatal work injuries. It was indicated that self-leadership can be a powerful approach to improve occupational safety. A quasi-historical review of how the field of global leadership evolved was presented in [12]. In article [13] was proposed that a cultural archetype approach can be more suitable for analyzing cross-cultural effects than conventional approaches. The advantages of using cultural dimensions — in particular Hofstede's values was discussed in article [14] and the article was proposed a three-step approach to operationalize culture including nationality, Hofstede's cultural dimensions and measuring culture at the individual level. The article [15] was performed a cross-cultural view of how consumers from Eastern nations, such as China and India, respond to expert and non-expert online reviewers, in comparison with consumers from Western nations, such as the United States and Canada. The cross-cultural communicative experiences of professors from South Africa and students from Sudan was examined in article [16], during a two-year Internet-supported Masters' course in Computers in Education. It was found that in this case, dimensions such as power distance and uncertainty avoidance tended to amplify each other, while together they resulted in a movement away from individualism towards collectivism.

In this investigation adaptive neuro-fuzzy inference system (ANFIS) [17] was used to select the most influential Hofstede's parameters for the cross cultural management.

2. METHODOLOGY

Hofstede's model of culture

“Culture” is one of the most popular and widely used words. Although it is generally recognized that culture is a multilayered construct represented by values, practices and artifacts, as per the Hofstedian paradigm, cultural values have been the focus of most cross-cultural research. Hofstede's model of culture was initially comprised of four value dimensions: Power Distance – the extent to which the less powerful persons in a society accept inequality in power and consider it as normal; Individualism – the degree to which people prefer to act as individuals rather than as members of groups, in individualist cultures any person looks primarily after his/her own interest, while in collectivist cultures people are assumed to belong to tight in-groups that protect interest of its members in return for their loyalty; Masculinity – the degree to which masculine values like assertiveness, performance, success and competition prevail over feminine values like the quality of life, maintaining warm personal relationships, service, care for the weak, and solidarity; and Uncertainty Avoidance – the extent to which people are made nervous by situations which they perceive as unstructured, unclear, or unpredictable. Long - vs. Short-Term Orientation dimension was later added to the model. Greet Hofstede has done a comprehensive study including seventy countries in order to measure how work values influence by the culture. He developed a model that consists of six dimensions: power distance, uncertainty avoidance, individualism versus collectivism, masculinity versus femininity, long-term orientation and indulgence versus restraint. Power Distance (PDI) is an index indicating how less powerful members accept the fact of uneven power distribution. Uncertainty avoidance measures how societies perceive the fact that the future cannot be known. Individualism versus Collectivism measures the extent of interdependence a society maintains among its members. Masculinity versus Femininity high score in Masculinity will indicate that culture is driven by competition and success.

East Asia covers about 28% of the Asian continent, with 22% of the whole world's population. Moreover, many of East Asian countries have been part of Chinese cultural influence, and therefore used Chinese writing, calendar, and religion. According to the cultural dimensions of Hofstede, Japan is considered different than other Asian countries as a society with a middle degree of power distance. Thereof it can be concluded that Japan has a higher power distance than Germany, but shows a lower one in comparison to other East-Asian countries as China and South Korea. Also Japan has a very high degree of Uncertainty Avoidance. Unilateral decision-making and exertion of power should be prevented through a decision making process involving multiple levels of the hierarchy and the permission of the top-management. Furthermore Japan has a lower-medium degree of Individualism which means that the Japanese culture has collectivistic traits. But in comparison China and South Korea are way more collectivistic. Even though overall harmony and a shame of losing face in front of others are characteristics of a collectivistic society, Japanese do not have, for example, extended family systems. The following parameters are used as inputs in the investigation:

1. Uncertainty avoidance
2. Power Distance (PDI)
3. Individualism versus Collectivism
4. Masculinity versus Femininity
5. Long-term Orientation
6. Indulgence versus Restraint.

3. RESULTS

A searching procedure was performed to choose the set of the optimal combination inputs which has the most impact and influence on the cross cultural management. An ANFIS model is modelled by the functions for each combination. The most influential input for the cross cultural management was identified and determined, as presented in Figure 1. The input variable with the lowest training error have the most relevance in regards to the cross cultural management. According the Figure 1 the input parameter 2 has the highest influence on the cross cultural management. On contrary the input 5 the highest RMSE hence the smallest influence on the cross cultural management forecasting. Table 2 shows the numerical results for the all single parameters influence on the cross cultural management.

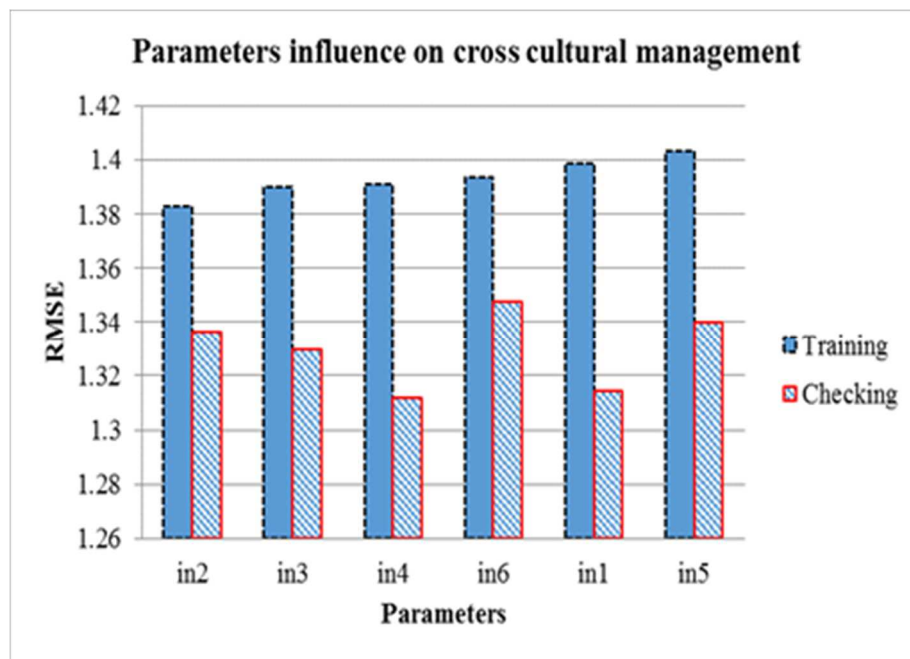


Figure 1: Cross cultural management prediction

ANFIS model 1: in1 --> trn=1.3986, chk=1.3143

ANFIS model 2: in2 --> trn=1.3827, chk=1.3366

ANFIS model 3: in3 --> trn=1.3901, chk=1.3299

ANFIS model 4: in4 --> trn=1.3910, chk=1.3116

ANFIS model 5: in5 --> trn=1.4035, chk=1.3400

ANFIS model 6: in6 --> trn=1.3938, chk=1.3474

Table 1: Cross cultural management prediction errors

4. CONCLUSION

In overall it can be said that the Hofstede model provide a foundation, not a definitive characterization, of how to analyze groups of countries. Future investigations may be in order, since culture is extremely hard to effectively categorize with so few dimensions due to the complicated nature of the underlying motivations of societies. Forecasting analyses resultants are that the lowest number of errors and most relevance to the outcome has parameter power distance (PDI). Hofstede's power index does not only relate to how status is accorded, but also to the acceptable power distance within a society, an area that is not analyzed by other researchers.

REFERENCES

- Chanlat, J., Davel, E., & Dupuis, J. (2013). *Cross-Cultural Management - Culture and management across the world*. London: Routledge.
- The Hofstede Centre. (2016). National Culture. Retrieved March 5, 2016, from <http://geert-hofstede.com/national-culture.html>
- Luthans, F., & Doh, J. (2012). *International Management - Culture, Strategy and Behavior* (8th ed.). New York: McGraw Hill.
- House, R. J., Javidan, M., Dorfman, P., & Gupta, V. (2004). *Culture, Leadership, and Organizations: The GLOBE study of 62 Societies*. Thousand Oaks, Calif: Sage Publications.
- Merkin, R. (2009). Cross-cultural communication patterns - Korean and American Communication. *Journal of Intercultural Communication*, (20).
- Luthans, F., & Doh, J. P. (2012). *International Management: Culture, Strategy, and Behavior* (8th ed.). New York: McGraw-Hill.
- Mohammad J. Abdolmohammadia, Gerrit Sarensb , An Investigation of the Association between Cultural Dimensions and Variations in Perceived Use of and Compliance with Internal Auditing Standards in 19 Countries, *The International Journal of Accounting* 46 (2011) 365–389.
- Hamid Yeganeh, A Weighted, Mahalanobian, and Asymmetrical Approach to Calculating National Cultural Distance, *Journal of International Management* 20 (2014) 436–463.
- Manish Popli, Mohammad Akbar, Vikas Kumar, Ajai Gaur, Reconceptualizing cultural distance: The role of cultural experience reserve in cross-border acquisitions, *Journal of World Business* 51 (2016) 404–412.
- Mariko J. Klasing, Cultural dimensions, collective values and their importance for institutions, *Journal of Comparative Economics* 41 (2013) 447–467.
- Genserik Reniers, Yori Gidron, Do cultural dimensions predict prevalence of fatal work injuries in Europe?, *Safety Science* 58 (2013) 76–80.
- Allan Bird, Mark E. Mendenhall, From cross-cultural management to global leadership: Evolution and adaptation, *Journal of World Business* 51 (2016) 115–126.
- Nicole Franziska Richter, Sven Hauff, Christopher Schlaegel, Siegfried Gudergan, Christian M. Ringle, Marjaana Gunkel, Using Cultural Archetypes in Cross-cultural Management Studies, *Journal of International Management* 22 (2016) 63–83.
- Ana Maria Soares, Mino Farhangmehr, Aviv Shoham, Hofstede's dimensions of culture in international marketing studies, *Journal of Business Research* 60 (2007) 277–284.
- Michael Obal, Werner Kunz, Cross-cultural differences in uses of online experts, *Journal of Business Research* 69 (2016) 1148–1156.
- Johannes C. Cronjé, Using Hofstede's cultural dimensions to interpret cross-cultural blended teaching and learning, *Computers & Education* 56 (2011) 596–603.
- Jang, J.-S.R, ANFIS: Adaptive-Network-based Fuzzy Inference Systems, *IEEE Trans. On Systems, Man, and Cybernetics* (1993), Vol.23, 665-685.
- Ghandoor A.Al, Samhouri M, Electricity Consumption in the Industrial Sector of Jordan: Application of Multivariate Linear Regression and Adaptive Neuro-Fuzzy Techniques, *Jordan Journal of Mechanical and Industrial Engineering* (2009), 3:1, 69-76.
- Singh R, Kianthola A, Singh T.N, Estimation of elastic constant of rocks using an ANFIS approach, *Applied Soft Computing* (2012), 12, 40-45.
- Petković, D., Issa, M., Pavlović, N.D., Pavlović, N.T., Zentner, L., Adaptive neuro-fuzzy estimation of conductive silicone rubber mechanical properties, *Expert Systems with Applications*, ISSN 0957-4174, 39 (2012), 9477-9482.

- Petković D, Čojbašić Ž (2012) Adaptive neuro-fuzzy estimation of automatic nervous system parameters effect on heart rate variability, *Neural Computing & Application*, 21(8):2065-2070 (2012)
- Kurnaz S, Cetin O, Kaynak O, Adaptive neuro-fuzzy inference system based autonomous flight control of unmanned air vehicles, *Expert Systems with Applications* (2010), 37, 1229-1234.
- Petković, D., Issa, M., Pavlović, N.D., Zentner, L., Čojbašić, Ž., Adaptive neuro fuzzy controller for adaptive compliant robotic gripper, *Expert Systems with Applications*, ISSN 0957-4174, 39, (2012), 13295-13304.
- Tian L, Collins C, Adaptive neuro-fuzzy control of a flexible manipulator, *Mechatronics* (2005), 15, 1305-1320.
- Ekici BB, Aksoy UT. Prediction of building energy needs in early stage of design by using ANFIS. *Expert Systems with Applications* 2011; 38-5352.
- Khajeh A, Modarress H, Rezaee B. Application of adaptive neuro-fuzzy inference system for solubility prediction of carbon dioxide in polymers. *Expert Systems with Applications* 2009; 36:5728.
- Inal M. Determination of dielectric properties of insulator materials by means of ANFIS: A comparative study. *Expert Systems with Applications* 2008; 195:34.
- Lo SP, Lin YY. The prediction of wafer surface non-uniformity using FEM and ANFIS in the chemical mechanical polishing process. *Journal of Materials Processing Technology* 2005; 168:250.

DEVELOPMENT OF INFORMATION SYSTEM OF MANAGEMENT DECISIONS IN SPORTS ORGANIZATIONS

Aleksandr V. Bashminov²³⁸

Abstract. *Modern economic development assumes constant improvement and development of management systems of sports organizations in terms of increasing their competitiveness in the sport area.*

The purpose of the research is to study the importance of the information system of management for the successful development of the sports organization's activities. A study was carried out also to investigate the main types of management system response to the emergence of problems that are most often encountered in real management practice of sports organizations.

The article presents an analysis of the role and importance of the information management system in the organization of the basketball club's activities. The characteristic of separate stages of construction of an information system of management by basketball club is given, the description of their technical filling is presented. The requirements for the effectiveness of the information management system of the basketball club's activities are described.

Conclusions. The article reveals that the type of management system response to the emergence of problems, consisting in a comprehensive restructuring of the management system in accordance with the content and the essence of new tasks, is most consistent with the tasks of the organizational management. In modern conditions, this type of reaction becomes the most correct, since it brings the greatest results at a small cost for the functioning of the entire control system. It is this type that is most consistent with the goals of successful development of sports organizations.

Key words: *Information system, management, sports organizations, basketball club.*

1. INTRODUCTION

The process of developing, adopting and implementing a managerial decision is a closed, constantly repeating process in the most general form and regardless of the type of socio-economic system (organization).

The study of tasks and procedures for the implementation of individual stages of the process of a managerial decision development and implementation showed that information about the internal and external state of the system is important at each of them. It is information that serves as a source for the detection of the problem at all management levels and in all areas of the organization. At the same time, the lack of a well-established system of information transfer, the availability of reliable sources of information, the high degree of reliability of information significantly impede the decision-making process and reduce its quality.

Studying the activities of modern sports organizations and the most successful sports clubs has shown that at present all the main directions of the competitive and actively developing sports

²³⁸ Postgraduate student, Department of Economics and business operation Perm National Research Polytechnic University; General Director of the Perm Basketball Development Foundation "PARMA"; Perm National Research Polytechnic University (PNRPU), 29, Komsomolsky Av., Perm, Russia

club have a high level of information support, are provided with a variety of software and hardware automation, collection, processing and transmission of various information.

2. THEORY AND METHODS

Modern research is devoted to various issues of the role of information in the success of the work of professional sports clubs, including basketball.

The papers of L. Jia, L. Li, W. Dan, Z. Liu and other researchers study the possibility of using the big data thinking method in the training management of professional basketball clubs [1] - [5]. The special information systems support the improvement of efficiency in interior logistics by controlling and manipulating the logistic environment autonomously of the sports club [6].

Other researchers study the role of social values and norms as sources of information for various organizations, including for professional sports clubs [7] – [8]. Cleo Schyvinck and Annick Willem offered a typology of marketing approaches in European professional basketball based on analysis what extent corporate social responsibility can deliver outcomes for both the organization and society at large [9] Roman Senderek, Benedikt Brenken and Volker Stich suggested ways of the implementation of game based learning as part of the corporate competence development [10].

Studies of the practice of creating and applying information systems in relation to sports organizations, conducted by various researchers, showed some similarity in the construction of this process with ordinary commercial organizations [11].

In particular, they are such elements of any information system as:

- databases storage;
- specialized systems of resource management (for example, financial);
- specialized management systems for individual processes (for example, accounting and financial accounting), etc.

In general, all these elements provide an increase in the economic performance of the sports club (as well as the usual commercial or manufacturing company), improve the efficiency of resource use and management [12]. At the same time, the system of information support of sports activities is characterized by a number of specific features. This determines the adaptation of common approaches to building networking in such organizations [13] – [14].

An important and still controversial issue in the theory of management is the requirement to abandon the principle of increasing the functional qualities of new management bodies in comparison with the previous state and the principle of increasing their effectiveness. This is justified by the fact that the formation of a new management system of an professional sport organization should be focused on the content of new tasks that arise before the organization. Thus, the real need for the development of the management system and the direction of this development are determined by the emergence of new tasks facing the professional sport organization, and not by the imperfection of certain aspects of management or by the lack of the possibility of improving management effectiveness.

The author use a qualitative approach to explore information support system in the organization of the basketball club's activities. Using a qualitative method, organizational documents were analyzed of the Russian professional basketball clubs.

3. RESEARCHES AND DISCUSSIONS

We agree with the approach of V. Gorsky, who considers the information support system of sports activities as a five- elements structure [15]. Agreeing in general with the approach of V.Gorsky, we rank these elements from the broadest, the most fundamental, the general levels to the narrower, the more particular, and the concrete ones.

In accordance with our approach, the system of information support for a sports organization will look like this (see Figure 1).

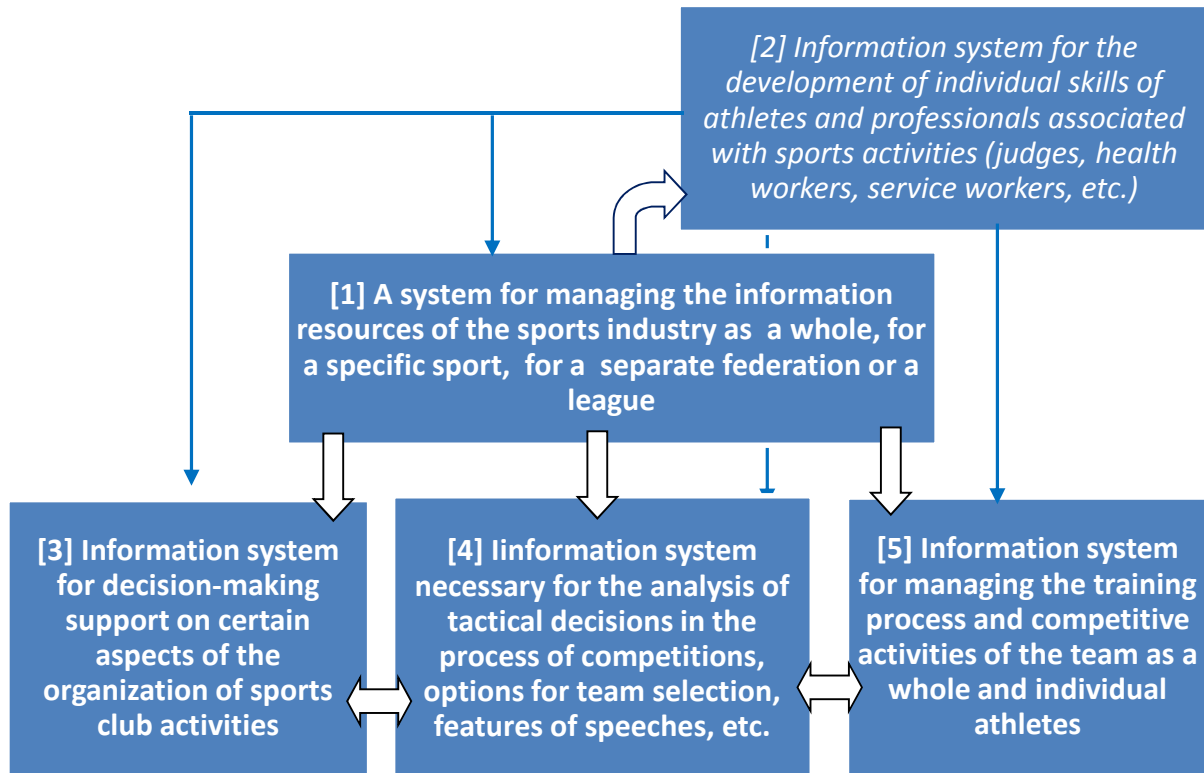


Figure 1: The system of information support for a sports organization

In turn, each of these element has a specific content, ensuring the performance of management functions at each of the allocated levels of management of the sports club, as well as the features of the transfer and presentation of information. We composed them in the table (see Table 1).

<i>Elements</i>	<i>Information content</i>	<i>Features of the presentation of information</i>
the system for managing the information	- legislative, regulatory, reference databases in the field of physical culture and sports in general, including international databases; - database including all aspects of the sport and the activities of federations, leagues, clubs, teams and groups of athletes	- descriptive in the form of texts of normative documents
the information system for the	- methods of training; - a collection of exercises;	- descriptive in the form of texts - video,

development of individual skills	<ul style="list-style-type: none"> - software products for the development of individual skills; - reviews of sport competitions; - description of medical preparations and methods of sports medicine; - description of sports equipment, etc. 	<ul style="list-style-type: none"> - graphic, - animation
the information system for decision-making support	<ul style="list-style-type: none"> - database including information about health, physical and physiological characteristics of athletes, their training regimes, etc.; - database on the resources of the organization; - the database on the technical equipment of the club and athletes; - database on the competition schedule; - database of athletes in other clubs, etc. 	<ul style="list-style-type: none"> - video materials, - graphic materials, - text materials
the information system necessary for the analysis of tactical decisions	<ul style="list-style-type: none"> - software products for analyzing the effectiveness of tactical decisions and the results of performances at competitions of teams and individual athletes in different situations: taking into account the specific time zone, weather conditions, specific tactics and team structure of the opponent, etc. 	<ul style="list-style-type: none"> - video materials, - graphic materials, - text materials, - animation materials
the information system necessary for the analysis of tactical decision	<ul style="list-style-type: none"> - methods, programs, training plans, - software products for managing and improving the effectiveness of the training process 	<ul style="list-style-type: none"> - video materials, - graphic materials, - text materials, - animation materials

Table 1: Information content and Features of the presentation of information support for sports organizations

The importance of each element for the management system of the organization as a whole we present in the following way.

The first element (a system for managing the information) is the basis for building an information system, the basis for creating a unified, standard solution for all sports, and information store.

The second element (the information system for the development of individual skills) contribute to the improvement of human resources management, improving the quality of the organization's human capital (athletes, coaches, technical personnel) and contribute to the improvement of the material, technical and other kinds of support of the club and teams.

The third element (the information system for decision-making support) provides management of the club and coaching staff with information for making effective decisions on managing the functioning of the club, training process, competitive activities, etc.

The fourth element (the information system necessary for the analysis of tactical decisions) allows to conduct a comprehensive and operational, analysis of technical and tactical actions of individual athletes and the team as a whole, evaluate tactical variants of performances of both teams and athletes, as well as the rival too.

The fifth element (the information system for managing the training process and competitive activities) provides streamlining of training plans and tasks, allows to track the training process and competitive activities [16].

These five elements of information support system should provide a system for managing a complex of diverse information. The correlation between quality information indicators of information support system of sport management and management functions present in the Figure 2.



Figure 2: The quality information indicators and management functions

In the process of information system creation for the management of the sports club activities, it is also necessary to take into account the requirements for the effectiveness of such system and the process of constant improvement and development of management systems.

Modern development assumes development of management systems by organizations. And there we could identify several different approaches, having both their supporters and opponents.

It should be noted that so far the majority of managerial approaches to solving the problems of the organization's development are focused on taking into account past experience in solving similar problems. This is explained by the fact that successful past experience is quickly transformed into stereotypes of assessing the situation and solving problems and, accordingly, in stereotypical decisions and behavior patterns. And if in the recent past such an approach has yielded positive results, in the current conditions of avalanche-like growth of information, a sharp increase in changes in the external environment and their increasing unpredictability, this approach ceases to justify itself [17] – [19].

Modern theories of management believe that the basic principle of behavior and the formation of a management response to the emergence of a new problem should be the principle of acceptance of the problem and readiness to solve the problem. The ways of solving the problem using such approach are determined on the basis and in accordance with the conscious need for solving the problem, the willingness and available solutions, but not the ready "recipes" for solving the problem, as is the case with the use of past experience. In this context, the correct choice of the response mechanism of the management system in response to emerging problems is of particular importance and should lead to the development of the organization's management in the new conditions.

Three types of reaction of the management system are singled out in the management science for the emergence of problems that are most often encountered in real management practice (see Figure 3).

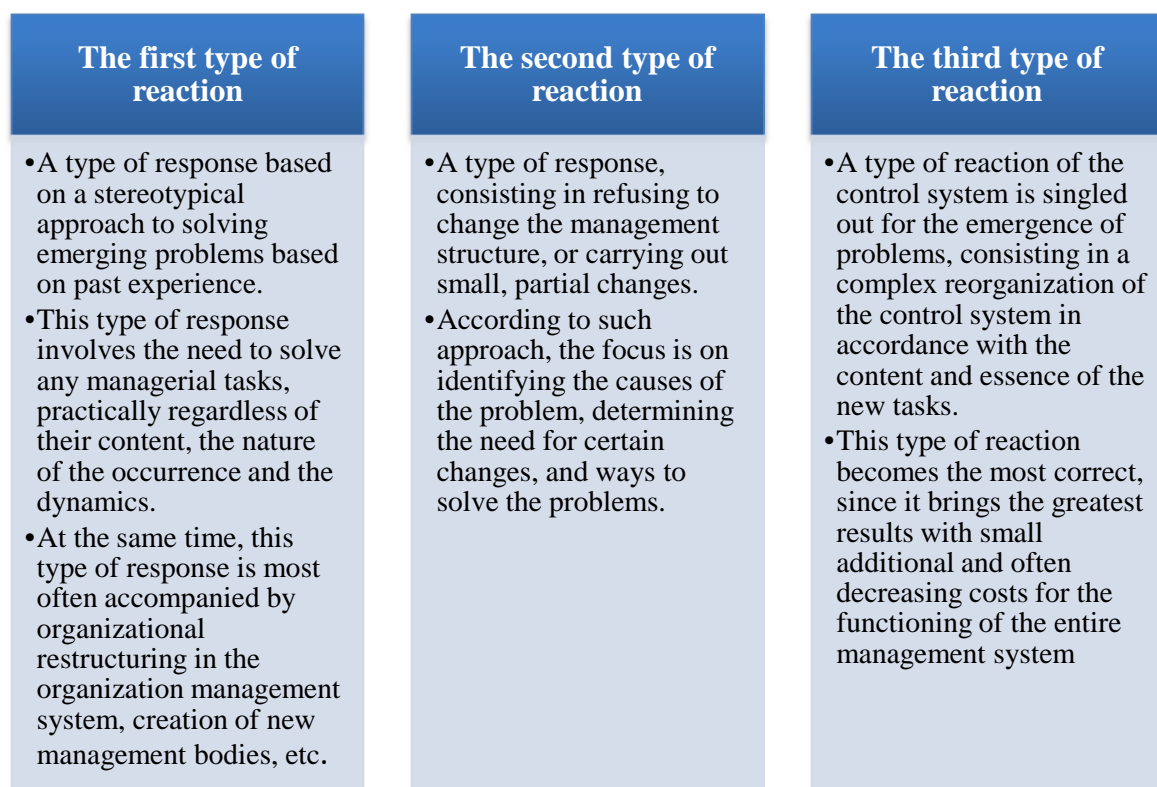


Figure 3: The typology of reaction's types of the management system

The following important differences between the first and third types are distinguished.

The first type of response expresses a very stable internal tendency of development of the management system in the direction of increasing the number of its administrative units. Therefore, the emergence of new tasks and the need for their solution are a good reason for managers and the management system to expand administrative services and increase administrative staff, and not a real need, objectively demanding precisely this method of solution.

The third type of reaction becomes the most correct in modern conditions, since it brings the greatest results with small additional and often decreasing costs for the functioning of the entire management system and it is the one that most corresponds to the goals of development of organizations.

The analysis of the reaction between the real management practice, the transformation of organization's management and the development of the information system shows that the transformation of the management system of the organization is a complex and not unambiguous in the theoretical plan process, which requires constant correlation of the actions taken to reform management with the tasks facing management, as well as the opportunities that the organization as a whole and the system that exists in it management.

It should be noted that the choice of a specific model of the information-behavioral subsystem of an organization, the construction of a program for the development of the organization's management system and its restructuring as a whole should begin with a change in the fundamental approaches to management that define the matrix for constructing and implementing management processes. With this approach, the transformation of individual links, elements and subsystems of the overall management system of an organization should be carried out in accordance with the adopted new principles and the principles of management.

If these requirements are fulfilled, the information management system of the sports club will allow both the trainers and the club management to provide an effective information environment for the scientific organization of the management process and making sound decisions on the management of the training process and the competitive activities of teams and athletes. "The big data thinking and data analysis capabilities of clubs should be strengthened. Open Internet, a "cloud computing" center, a data mining and analysis system, and a terminal server that can store huge amounts of data are required by clubs. These clubs also need to avail of the services of professional data analysts to improve the efficiency of data processing and receive powerful data support that can help coaches make scientific decisions rapidly." [1, p.2012].

Aleksandr V. Bashminov

1978 year of birth

Postgraduate student,
Department of Economics
and business operation;
Perm National Research
Polytechnic University
(PNRPU), Faculty of
Humanity



Master of Sports (basketball).

Education: master of the Department of Management, Faculty of Humanity, Perm State National Research University (PSNRU), 2011. Postgraduate student of Department of Economics and business operation, Perm National Research Polytechnic University (PNRPU), Faculty of Humanity

Professional achievements: Member of National Team on Olympic Games (2000). Champion of Russia (1997, 1998, 2001-2004). Russian Cup holder (2011, 2016). Completed his sports career in 2013. General Director of BC "PARMA" (Perm Krai) since September 2012.

Research experience: Author of scientific articles in the sphere of sport' management, the author of articles on the issues of modern management of sports organizations (basketball club), participant of competition of international scientific conferences.

Sphere of scientific interests: professional team sports clubs' effects, governance of professional team sports clubs, disequilibrium sports economics, marketing approaches in professional basketball, state limitations of financial support of professional sports, legal opportunities of financial support of professional sports, using of system of technical and tactical information in basketball matches, substituting basketball players during competition.

4. CONCLUSIONS

The analysis shows that the transformation of the management system of the organization is a complex and not unambiguous in the theoretical plan process, which requires constant correlation of the actions taken to reform management with the tasks facing management, as well as the opportunities that the organization as a whole and the system that exists in it management.

Information management system the activities of the sports club should provide the adoption of a set of management decisions. For this, the management information system should provide the entire set of diverse information.

The application of a specific model of the information-behavioral subsystem of the organization should correspond to the chosen approach to solving the problems of improving the management system in general and the business strategy of the enterprise development, taking into account the issues of ensuring its economic security.

REFERENCES

- [1] Jia, L. (2017) Professional basketball club training management based on the big data thinking method. *Agro Food Industry Hi-Tech*, Vol.28, Issue 1, pp.2012-2017
- [2] Li, L., Dan, W. (2017) Training management of professional basketball clubs based on the big data thinking method. *Agro Food Industry Hi-Tech*. Vol.28, Issue 1, pp.2076-2079.
- [3] Liu, Z. (2014) Research on design of collection and intellectual analysis system of technical and tactical information in basketball matches. *Advanced Materials Research*, Vol.926-930, pp. 2698-2701. DOI: 10.4028/www.scientific.net/AMR.926-930.2698
- [4] Kovin, M. (2013) Information technologies in professional sports. *Sports Business Consulting*. URL: <http://s-bc.ru/news/informacionnye-tehnologii-v-professionalnom-sporte.html> (verification date 05/10/2017)
- [5] Kudelko, V. E. (2004) The effectiveness of organizational activities in the system of sports clubs. *Physical education of students of creative specialties*. Vol.3, pp.58-63.
- [6] Schuh, G., Bernardy, A., Zeller, V., Stich, V. (2017) New requirement analysis approach for cyber-physical systems in an intralogistics use case. *IFIP Advances in Information and Communication Technology (IFIPACT)*, Vol. 506. Pp. 149-156.
- [7] Mingaleva, Z., Deputatova, L., Starkov, Y. (2016) Values and norms in the modern organization as the basis for innovative development. *International Journal of Applied Business and Economic Research (IJABER)*, Vol. 14, No. 10, pp.124-133.
- [8] Wulf, J., Söllner, M., Leimeister, J.M., Brenner, W. (2017) FC Bayern München goes social – the value of social media for professional sports clubs. *Journal of Information Technology Teaching Cases*, No. 18, pp. 1-11. DOI: 10.1057/s41266-016-0007-x
- [9] Schyvinck, C., Willem, A. (2017) A typology of cause-related marketing approaches in European professional basketball. *Sport Management Review*. DOI: 10.1016/j.smr.2017.08.006
- [10] Senderek, R., Brenken, B., Stich, V. (2015). The implementation of game based learning as part of the corporate competence development. *In Proceedings of 2015 International Conference on Interactive Collaborative and Blended Learning, ICBL 2015*, pp.44-51. DOI: 10.1109/ICBL.2015.7387632

- [11] Bashminov A.V. (2013) Creation of an effective system for managing organizations on the basis of a change management approach. *Economics and Entrepreneurship*, No. 12-4, pp. 572-574.
- [12] Disequilibrium Sports Economics: Competitive Imbalance and Budget Constraints (2015). In "Governance of professional team sports clubs: Agency problem and soft budget constraint". Edward Elgar Publishing Ltd, pp. 175-227. DOI: 10.4337/9781783479368.00013
- [13] Mingaleva, Zh., Bykova, E., and Plotnikova, E. (2013) Potential of the Network Concept for an Assessment of Organizational Structure. *Procedia-Social and Behavioral Sciences*, Vol. 81, pp.126-130. DOI: 10.1016/j.sbspro.2013.06.400
- [14] Stich, V., Kurz, M., Optehostert, F. (2015) Framework conditions for forming collaborative networks on smart service platforms. *Risks and Resilience of Collaborative Networks. 16th IFIP WG 5.5 Working Conference on Virtual Enterprises, PRO-VE 2015, Proceedings*, pp.193-200. DOI: 10.1007/978-3-319-24141-8_17
- [15] Gorsky, V. E. (2011) The system of information support of sports in Russia. URL: <http://econf.rae.ru/pdf/2011/06/347.pdf> (verification date 07/10/2017)
- [16] Senderek, R., Stich, V. (2015) Work-based-learning in the digital age. In *Proceedings of the 7th International Joint Conference on Knowledge Discovery, Knowledge Engineering and Knowledge Management. Vol.3 (KMIS)*, pp.268-273. DOI: 10.5220/0005641002680273
- [17] Anicic, D., Rudolph, S., Fodor, P., Stojanovic, N. (2012) Real-Time Complex Event Recognition and Reasoning – A Logic Programming Approach. *Applied Artificial Intelligence*, Vol. 26, Special Issue on Event Recognition, 2012.
- [18] Luckham, D. C. (2012) *Event processing for business*. Hoboken, N.J: John Wiley & Sons.
- [19] Belz, R., Mertens, P. (1996) Combining knowledge-based systems and simulation to solve rescheduling problems. *Decision Support Systems*, 1996, Vol. 17, pp. 141-157.

VERIFICATION OF COMPLIANCE WITH THE TIME AVAILABILITY STANDARD OF THE UNIVERSAL SERVICE AND COMPARISON OF THE SURVEY RESULTS FROM 2013 TO 2017

Michal Pavličko²³⁹
Alena Košťálová²⁴⁰

Abstract: *The universal postal service provider needs to meet several qualitative requirements set by the law. Time availability (waiting time and business hours) altogether with delivery time and price are the most pursued qualitative characteristics by costumers. Quality improvement and customer satisfaction is very important for every company at the market same as for Slovenská Pošta a.s. that provides universal postal service at the Slovak Republic.*

This paper aims for one of the qualitative characteristics of time availability and it is the customer waiting time at the postal counter or more precisely average time spent in the line waiting to be served at postal counter.

Statistical method of the confidence interval is used to determine the average waiting time at the postal counter. The primary data collection was carried out on the selected sample by observation method. The primary survey was made in years 2013, 2014, 2016 and 2017 at several different postal offices. Customer waiting time was set as the basic statistical unit of sample set and it was measured from the moment when customer enters the postal office until the start of providing a service at the postal counter. The time measurements were executed at the peak time on randomly selected customers with random requirements. In total, there were executed 980 measurements in 22 different post offices.

Based on dataset acquired by the primary survey, it was possible to estimate characteristics of the statistical population, i.e. the confidence intervals for average waiting time was calculated at 95% and 99% confidence levels at selected postal offices. The achieved calculations were compared with the standards of time availability of postal services.

In fact, there were just two individual values from all measurements where the time spent in the queue waiting to be served at the postal counter took more than limit for average time set by the standard. Since the achieved results showed a notable reserve in consideration of the standard, it is possible to discuss its tightening to increase quality of the service from the customer point of view, but on the other hand, the customer can feel cheated by the average time. It would be appropriate to expand the standard by the upper limit for the individual waiting time to clearly distinguish individual and average values.

Key words: *universal postal service, requirements for the quality of postal services, time availability, confidence interval*

²³⁹ University of Žilina, Faculty of Operation and Economics of Transport and Communications, Department of Quantitative Methods and Economic Informatics, Univerzitná 8215/1, 010 26 Žilina, Slovakia

²⁴⁰ University of Žilina, Univerzitná 8215/1, 010 26 Žilina, Slovakia

1. INTRODUCTION

Quality of service altogether with the price are the most pursued characteristics from customer point of view and all companies on the market try to optimize their processes to increase the quality of providing service at the lowest costs and therefore the price of their products/services to attract more potential customers. The invisible hand of the market is uncompromising. Development wasn't so straight in the field of the network companies because these companies developed as natural monopolies. Globalization process brought hard times for these companies because of their obligations and problem of so called cherry picking of their competitors. This resulted in creation of national and international regulatory authority and definition of the universal service. The regulators had to find the balance between obligations of the universal service provider and limitations of competitors and they had to count compensations and to search for accepted equilibrium, but this was hard and always discussed. In the last decades, movement to full liberalization can be observed at this field. Therefore, the universal service providers must optimize their processes even harder to be competitive and to attract more customers. So, besides the attractive price, they must to increase qualitative parameters of services that are the most observed by the customers. Waiting time at the postal counter certainly belongs among such parameters.

Michal Pavličko was born in Brezno, Slovakia, in 1979. He graduated in 2002 from University of Žilina with a M.S. degree in postal and telecommunication operation. In 2005, he subsequently completed a PhD. degree in transport and communication technologies at the same university. Since 2006 he has been member of the Department of Quantitative Methods and Economic Informatics at the Faculty of Operation and Economics of Transport and Communications of above mentioned institution as a university pedagogue. In 2007, he became the department scientific secretary. In 2016, he became the head of the division of computers and graphic systems. Michal Pavličko is a lecturer of economic informatics. The main field of interest includes applied informatics, utilization of information technology tools in technological processes of postal providers and graph theory.



2. UNIVERSAL SERVICE QUALITY REQUIREMENTS – TIME AVAILABILITY

Universal postal service is an offer of postal services which ensures the minimal satisfaction of needs of all postal service users in the Slovak Republic. The accessibility of public postal network access points and public postal network contact points is ensured under equal conditions, in determined quality, at an affordable price and with at least one collection and delivery each business day. [1], [17]

Pursuant to the article 41 of the Act No. 324/2011 Coll., on Postal Services and on amendments and supplements to certain acts (hereinafter referred to as the “Act on Postal Services”), the universal service quality requirements were set in 2012. The assessment of the quality level of the universal service is based on the objective possibilities of the public postal network and the objective requirements of the community. The universal service quality requirements in the Slovak Republic are set and checked by the Regulatory Authority for Electronic Communications and Postal Services (hereinafter referred to as the “Regulatory Authority”). The first article of the requirements defines the basic qualitative characteristics of the universal service and their values (quality standards), namely [2]:

- Accessibility of public postal network access points and public postal network contact points.
- Time availability of the universal services.
- Delivery time for postal items.
- Postal item security.
- Universal service information.
- Handling complaints and claims.
- Customer satisfaction.

The time availability of the universal service is defined by set of rules and one of them states that (article 5, section 2) the universal service provider is obligated to execute such organizational steps to minimize waiting time for universal service provision to ensure that the average time spent in the queue waiting to be served at the postal counter should take less than 12 minutes at the peak time. [2]

However, it is necessary to point out a discrepancy between the really measured waiting time and the subjectively perceived value of waiting time. The true measured time value is usually lower than the waiting time value subjectively perceived by the human being. Figure 1 shows satisfaction development of Slovak Post customers with the waiting time at the postal counter from 2009 to 2016.

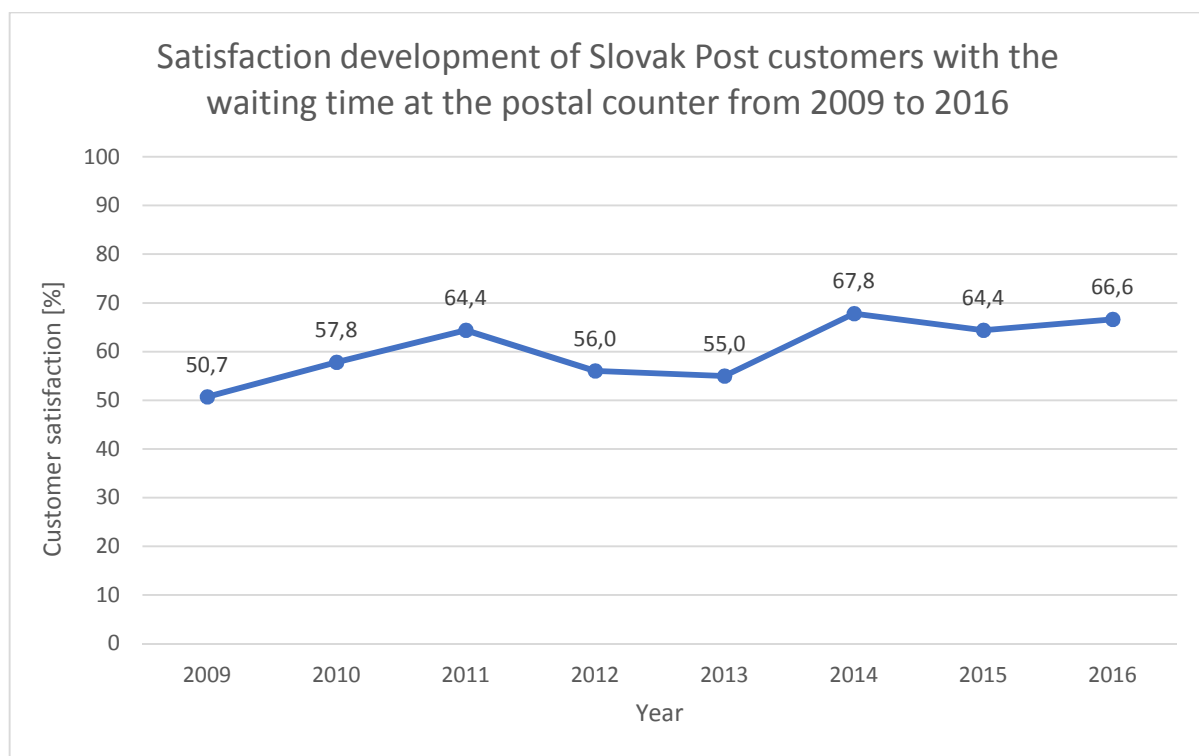


Figure 1: Satisfaction development of Slovak Post customers with the waiting time at the postal counter from 2009 to 2016 (source: [3], [16], own processing)

Several factors may affect subjective evaluation of the service quality what can cause a change in the overall perception of the provided service. The Regulatory Authority publishes the results of customer satisfaction measurement with the universal service quality on its web since year 2004. [3] The parameter “Waiting time by picking up of the item or lodging of the item” has always achieved the lowest rating among 18 quality criteria evaluated by the customers (ranging from 46.3% to 67.8%).

In consideration of the fact that all other criteria achieved significantly higher rating in each monitored year (approximately 10 to 20 percentage points higher), it is obvious that this is the parameter that affects the customer satisfaction with overall quality of universal service in the wrong direction. Figure 2 shows development of overall satisfaction of Slovak Post customers with the quality of universal service from 2009 to 2016.

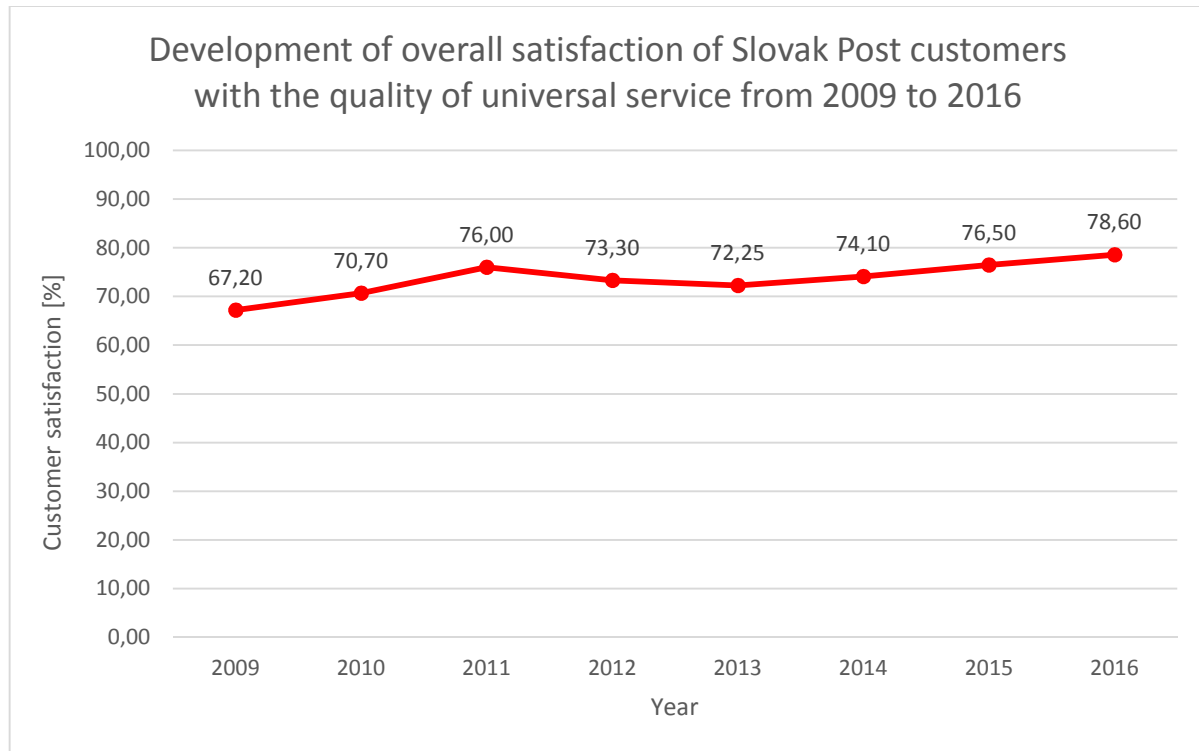


Figure 1: Development of overall satisfaction of Slovak Post customers with the quality of universal service from 2009 to 2016 (source: [3], [16], own processing)

3. OBJECTIVE AND METHODOLOGY OF THE PRIMARY SURVEY

Objective of the paper is to verify compliance with the time availability standard of the universal service through the statistical method of determining of the confidence interval for the average waiting time at the postal counter on a sample of selected post offices and to compare the survey results executed in years 2013, 2014, 2016 and 2017.

3.1. Point and interval estimation of the statistical parameters

The statistical population can be characterized by different descriptive characteristics such as mean or variance. In the case of the statistical population the characteristic is called a statistical or population parameter and in the case of a sample it is called a statistic. While the population parameters are fixed the statistic of a sample may vary with each new random sample. [5], [18]

The estimation of an unknown parameter of the statistical population can be executed in two ways. The first way is to calculate one number from values of the sample dataset. This number is declared as the estimation of the population parameter. This estimation is called a point estimation (e.g. the sample mean is an estimate of the population mean). The second way is so called interval estimation, i.e. estimation of the appropriate population parameter through the interval which contains the real value of the estimated population characteristic with high probability. This probability is known as the confidence level and it is usually denoted as $1-\alpha$.

The interval enveloped by lower and upper confidence limits is called the confidence interval. Confidence interval for population mean can be set [5]:

a) If the number of observations in statistical sample is less than or equal to 30:

$$P\left(\bar{x} - t'_{1-\frac{\alpha}{2}} \cdot \frac{s}{\sqrt{n-1}} < M < \bar{x} + t'_{1-\frac{\alpha}{2}} \cdot \frac{s}{\sqrt{n-1}}\right) = 1 - \alpha \quad (1)$$

Where \bar{x} denotes a sample mean, t' has a Student's t-distribution with $n-1$ degrees of freedom for corresponding α , s denotes a standard deviation, n is the number of sample units (observations) and M is the population mean.

b) If the number of observations in statistical sample is greater than 30:

$$P\left(\bar{x} - t_{1-\frac{\alpha}{2}} \cdot \frac{\sigma}{\sqrt{n}} < M < \bar{x} + t_{1-\frac{\alpha}{2}} \cdot \frac{\sigma}{\sqrt{n}}\right) = 1 - \alpha \quad (2)$$

Where t has a standard/normal distribution and σ is the standard deviation of the population achieved by a point estimation.

The interval estimation is used more frequently in practical applications. Satisfactory results can be achieved by setting 95% or 99% confidence level ($1-\alpha=0.95$ or 0.99).

3.2. Collecting and processing of primary survey data

The primary data collection was carried out on the selected sample by the observation method. The primary survey was made in years 2013, 2014, 2016 and 2017 at several different postal offices. The customer waiting time was set as the basic statistical unit of the sample. The waiting time was measured from the moment when customer enters the postal office until the start of service provision at the postal counter. Time measurements were executed at the peak time on randomly selected customer with random requirement.

Based on dataset acquired by the primary survey, it was possible to estimate characteristics of the statistical population, i.e. the confidence intervals for average waiting time was calculated at 95% and 99% confidence levels at selected postal offices according to the formula (1) and (2). The achieved calculations were compared with the standards of the time availability of postal services specified by the Regulatory Authority in the Universal service quality requirements according to the Act on Postal Services, which regulates the scope of provided postal services in the Slovak Republic. As it was already mentioned above, the average time spent in the queue waiting to be served at the postal counter should take less than 12 minutes at the peak time. [2]

4. RESULTS OF PRIMARY SURVEYS AND THEIR COMPARISON

The results are presented in the following text. Selected post offices are randomly selected and therefore they are marked just with the serial number in the tables, but their names are listed at the beginning of each subchapter. All the tables present lower and upper confidence limit values of the average waiting time at the postal counter at 95% and 99% confidence level in the subsamples, i.e. in the individual selected post offices and the table footer contains values for

the whole sample in that year. The right-hand side of the table contains the maximum individual waiting time measured at the selected post office.

4.1. Results of the survey in 2013

The survey was conducted at 8 selected post offices (in this order ascending from 1 to 8: Žilina 1, Žilina 8, Námestovo, Rabča, Trenčín 1, Trenčianske Jastrabie, Nové Mesto nad Váhom 1 and Stará Turá). Table 1 contains calculated and measured values for the year 2013.

Post office	Confidence interval for average waiting time at the postal counter [mm:ss]				Maximum waiting time [mm:ss]
	95% confidence level		99% confidence level		
	lower limit	upper limit	lower limit	upper limit	
Post 1	00:46	01:15	00:41	01:20	02:30
Post 2	01:26	02:06	01:19	02:13	03:55
Post 3	01:53	03:05	01:40	03:18	06:10
Post 4	02:37	03:32	02:28	03:42	05:30
Post 5	00:17	00:44	00:13	00:49	02:15
Post 6	00:38	01:49	00:25	02:01	05:32
Post 7	02:11	04:00	01:52	04:19	08:44
Post 8	00:43	01:43	00:32	01:54	05:02
Whole sample 2013	01:35	02:01	01:31	02:04	08:44

Table 1: Confidence intervals for average waiting times and maximum waiting times in 2013 (source: Authors, [6], [7])

The upper limit value of the estimated confidence interval of the sample for 2013, including all the subsample upper limit values, was **significantly lower than it is required** by the universal service quality standard.

4.2. Results of the survey in 2014

The survey was conducted at 4 selected post offices (in this order ascending from 1 to 4: Rajec, Rajeké Teplice, Žilina 1 and Žilina 8). Table 2 contains calculated and measured values for the year 2014.

Post office	Confidence interval for average waiting time at the postal counter [mm:ss]				Maximum waiting time [mm:ss]
	95% confidence level		99% confidence level		
	lower limit	upper limit	lower limit	upper limit	
Post 1	02:48	03:51	02:38	04:01	08:16
Post 2	02:56	04:02	02:45	04:13	08:17
Post 3	04:09	05:15	03:59	05:25	08:17
Post 4	04:41	06:10	04:27	06:24	09:45
Whole sample 2014	03:54	04:34	03:48	04:40	09:45

Table 2: Confidence intervals for average waiting times and maximum waiting times in 2014 (source: Authors, [8])

The upper limit value of the estimated confidence interval of the sample for 2014, including all the subsample upper limit values, was **lower than it is required** by the universal service quality standard.

4.3. Results of the survey in 2016

The survey was conducted at 6 selected post offices (in this order ascending from 1 to 6: Žilina 2, Varín, Žilina 15, Prešov 1, Prešov 9 and Prešov 10). Table 3 contains calculated and measured values for the year 2016.

Post office	Confidence interval for average waiting time at the postal counter [mm:ss]				Maximum waiting time [mm:ss]
	95% confidence level		99% confidence level		
	lower limit	upper limit	lower limit	upper limit	
Post 1	00:46	01:17	00:41	01:22	03:56
Post 2	00:17	00:49	00:12	00:54	05:18
Post 3	01:24	02:02	01:18	02:08	04:43
Post 4	01:16	02:01	01:09	02:09	06:03
Post 5	02:39	03:49	02:28	04:00	10:07
Post 6	00:33	00:54	00:30	00:58	02:15
Whole sample 2016	01:19	01:40	01:15	01:43	10:07

Table 3: Confidence intervals for average waiting times and maximum waiting times in 2016 (source: Authors, [9], [10])

The upper limit value of the estimated confidence interval of the sample for 2016, including all the subsample upper limit values, was **significantly lower than it is required** by the universal service quality standard.

4.4. Results of the survey in 2017

The survey was conducted at 4 selected post offices (in this order ascending from 1 to 4: Prievidza 1, Prievidza 4, Handlová and Nováky). Table 4 contains calculated and measured values for the year 2017.

Post office	Confidence interval for average waiting time at the postal counter [mm:ss]				Maximum waiting time [mm:ss]
	95% confidence level		99% confidence level		
	lower limit	upper limit	lower limit	upper limit	
Post 1	02:15	03:17	02:06	03:27	13:50
Post 2	02:07	02:52	02:00	02:59	08:13
Post 3	02:15	03:23	02:05	03:34	12:22
Post 4	00:31	00:46	00:29	00:48	02:01
Whole sample 2017	01:57	02:25	01:52	02:30	13:50

Table 4: Confidence intervals for average waiting times and maximum waiting times in 2017 (source: Authors, [11])

The upper limit value of the estimated confidence interval of the sample for 2017, including all the subsample upper limit values, was **significantly lower than it is required** by the universal service quality standard. Although, it should be noted that there were executed two individual

measurements that can look like they don't meet the standard. However, it should be realised that the standard specifies the **average** waiting time, so there still exists significant reserve towards to the limit. It can be stated that the results for 2017 are in compliance with the requirements of the standard in spite of the mentioned fact.

4.5. Comparison of the primary survey results conducted from 2013 to 2017

The Regulatory Authority presents an annual report on the state of universal service provision and postal payment transactions each year. Among many information it provides the number of inspected access points and contact points of the public postal network within a frame of the time availability inspection (see table 5). The Regulatory Authority did not find any violation of the standard in any year. Data from the Regulatory Authority are not yet available for year 2017 and our primary survey wasn't conducted in 2015.

Year	Number of inspected access points and contact points of the public postal network	
	Regulatory Authority	Our Survey
2013	11	8
2014	8	4
2015	6	-
2016	6	6
2017	-	4

Table 5: Number of inspected access points and contact points of the public postal network from 2013 to 2017 (source: [12], [13], [14], [16], own processing)

Individual confidence intervals in tables 1 to 4 have different width. This is caused not only by the measured values themselves but also by the variability of these values, i.e. variance and standard deviation. It can be stated that the time availability standard of the universal service set by the Regulatory Authority was respected every year at each monitored post office.

In fact, there were just two individual values from all measurements (total: 980) where the time spent in the queue waiting to be served at the postal counter took more than 12 minutes. The standard declares the average time, as it was mentioned above, so there still exists significant reserve. Because of that, decrease of its value can be discussed. Lower value can look more interesting for a potential customer. On the other hand, the customer can feel cheated when he or she waits longer. An average customer is an individual person and he doesn't care about the average time. It would be appropriate to expand the standard by the upper limit for the individual waiting time to clearly distinguish these two values. However,

Alena Košťálová was born in Ostrava, Czech Republic, in 1973. She graduated in 1999 with a M. S. degree in postal and telecommunication operation and received the PhD. degree in 2010 from University of Žilina, Slovakia. Since 2005 she has worked at the Department of Communications at the Faculty of Operation and Economics of Transport and Communications of above mentioned institution as a researcher and a lecturer of economic subjects (in area of the postal services, statistics, marketing research, diagnostic systems in management of services quality and marketing). In 2007, she became the research secretary at the Department of Communications.



it should be noted that the obtained results are influenced by random sample and selected characteristics can vary with each new random sample.

5. CONCLUSION

Appropriate opening hours of the post offices and waiting time at the postal counter belong to the most pursued qualitative attributes from customer point of view. Inappropriate or unfulfilled values of these characteristics make up a large part of the customer complaints. Therefore, the Regulatory Authority regularly conducts inspection of these two attributes.

The quality of postal services can be examined from two points of view. On the one hand, it is the internal quality that relies on consistency with certain technical specifications and quality standards. On the other hand, it is the external quality based on customer opinion. The aim of this paper is to focus on the internal quality of the provided postal services, i.e. to verify compliance with time availability standard of the universal service at the selected postal offices and to compare the results of primary surveys conducted from 2013 to 2017.

ACKNOWLEDGEMENT

This paper is supported by VEGA 1/0721/15 - Research on the impact of postal services and telecommunication convergence on regulatory approaches in the postal sector.

REFERENCES

- [1] The Act No. 324/2011 Coll., on Postal Services and on amendments and supplements to certain acts.
- [2] The universal service quality requirements. [online]. Retrieved October 28, 2016 from: <<http://www.teleoff.gov.sk/data/files/39921.pdf>>.
- [3] Customer satisfaction. [online]. Retrieved October 31, 2016 from: <<http://www.teleoff.gov.sk/index.php?ID=8841>>.
- [4] Evaluation system Staffino. [online]. Retrieved June 19, 2017 from: <http://www.posta.sk/subory/38802/ts_hodnotenie-slovenskej-posty-systemom-staffino.pdf>.
- [5] HINDLS, R., HRONOVÁ, S., SEGER, J. (2002) Statistika pro ekonomy, druhé vydání [Statistics for economists, second edition]. Praha: Professional Publishing, p.-415. ISBN 80-86419-30-4.
- [6] REVAJOVÁ, Z. (2013) Overenie dodržiavania normy časovej dostupnosti poštovej služby v rámci Oblastného riaditeľstva pôšt Žilina [Verification of compliance with the standards of the time availability of postal services within the Regional Directorate of Posts Žilina]: bachelor thesis. Žilina: University of Žilina, p-49.
- [7] BEŽÁKOVÁ, Z. (2013) Overenie dodržiavania normy časovej dostupnosti poštovej služby v rámci Oblastného riaditeľstva pôšt Trenčín [Verification of compliance with the standards of the time availability of postal services within the Regional Directorate of Posts Trenčín]: bachelor thesis. Žilina: University of Žilina, p-49.
- [8] ZÁŇOVÁ, L. (2014) Overenie dodržiavania normy časovej dostupnosti poštovej služby v rámci Oblastného riaditeľstva predaja Žilina [Verification of compliance with the standards of the time availability of postal services within the Regional Sales Directorate Žilina]: bachelor thesis. Žilina: University of Žilina, p-56.
- [9] BADIOVÁ, D. (2016) Overenie dodržiavania normy časovej dostupnosti univerzálnej služby v obvode hlavnej pošty Žilina [Verification of Following of the Time Availability

- of Universal services Norm in Žilina's Main Post Office]: bachelor thesis. Žilina: University of Žilina, p-49.
- [10] HUDÁKOVÁ, P. (2016) Overenie dodržiavania normy časovej dostupnosti univerzálnej služby v obvode hlavnej pošty Prešov [The verification of compliance with the standards of the time availability of the universal service in the circuit of main post office in Prešov]: bachelor thesis. Žilina: University of Žilina, p-58.
- [11] GAŠPAROVÁ, S. (2017) Overenie dodržiavania normy časovej dostupnosti univerzálnej služby v obvode hlavnej pošty Prievidza [The verification of time availability standards of universal service in the district of the main post office in Prievidza]: bachelor thesis. Žilina: University of Žilina, p-52.
- [12] Správa o stave poskytovania univerzálnej služby a poštového platobného styku za rok 2013 [Report on state of provision of universal service and postal payment service for the year 2013]. [online]. Retrieved November 7, 2016 from: <<http://www.teleoff.gov.sk/data/files/39341.pdf>>.
- [13] Správa o stave poskytovania univerzálnej služby a poštového platobného styku za rok 2014 [Report on state of provision of universal service and postal payment service for the year 2014]. [online]. Retrieved November 7, 2016 from: <<http://www.teleoff.gov.sk/data/files/44921.pdf>>.
- [14] Správa o stave poskytovania univerzálnej služby a poštového platobného styku za rok 2015 [Report on state of provision of universal service and postal payment service for the year 2015]. [online]. Retrieved November 7, 2016 from: <<http://www.teleoff.gov.sk/data/files/49202.pdf>>.
- [15] PAYNE, A. (1996) Marketing služieb [Marketing of services], Grada Publishing, Ltd., Praha, p.-248. ISBN 80-7169-276-X.
- [16] Správa o stave poskytovania univerzálnej služby a poštového platobného styku za rok 2016 [Report on state of provision of universal service and postal payment service for the year 2016]. [online]. Retrieved September 6, 2017 from: <<http://www.teleoff.gov.sk/data/files/53922.pdf>>.
- [17] Matúšková, M., Madleňáková, L. (2017) The Impact of the Electronic Services to the Universal Postal Services, Procedia Engineering, Elsevier science BV, Amsterdam, Vol. 178, p. 258-266, ISSN: 1877-7058.
- [18] Košťálová, A., Pavličko, M. (2016) Utilization of regression and correlation analysis for optimal composition of factors affecting premium rates of compulsory contractual insurance, AER-Advances in Engineering Research, Atlantis Press, Paris, Vol. 62., p. 170-173, ISSN 2352-5401, ISBN 978-94-6252-218-3.

IMPROVING THE LEAN IMPLEMENTATION AND THE COMMUNICATION PROCESS IN AUTOMOTIVE INDUSTRY

Velika Temelkova²⁴¹
Nevenka K. Rogleva²⁴²
Vangel Fustik²⁴³

Abstract: *Nowadays the globalization plays big role regarding the competitiveness on the market. For that reason, the companies should follow the new trends and adopt the new production management systems in order to stay competitive. Toyota production systems (TPS) and Lean production are attractive systems and promise good results to the companies that apply those concepts. The concepts are mainly based on waste elimination and continuous improvement. The objective of the research is to determine how successful is the process of lean manufacturing implementation in one company from the automotive industry and also to determine the importance of the communication process in the lean manufacturing implementation. The results of the survey will determine the degree of adoption of the lean manufacturing principles and the degree of the communication process and the results of the research are to develop a framework that could improve the lean implementation and the communication process.*

Key words: *communication, lean manufacturing, lean management, changes*

1. INTRODUCTION

In the last ten years, the economic environment of manufacturing enterprises has changed drastically. Low costs and high quality are already taken for granted, and increasing attention is now being paid to the element of time.

Faster product development and shorter lead times in procurement, production and distribution are the critical competitive factors of today [12]. So, the management should be prepared to work dynamically by processing a lot of changes and improving concerning: products, leadership management, human behaviour, knowledge learning and sharing, open communication etc.

Lean manufacturing and related techniques and tools have been popularized over the last two decades since they can bring fourth remarkable improvements in all segments of a manufacturing system. Particularly, managers have attempted to enhance productivity and eliminate wastes through lean manufacturing techniques. In this regard, quality, cost, just-in-time (JIT) delivery, and continuous improvement have received more attention. In other words, lean manufacturers have made an effort to produce their goods with an efficient cost, pioneer quality, and JIT delivery [13].

Nowadays, many companies around the world are struggling to establish a lean manufacturing system in order to remain alive and thrive in such a competitive global market. Nevertheless, it

²⁴¹ Dräxlmaier, Macedonia, 8 November 44, Negotino, Macedonia

²⁴² Faculty of Electrical Engineering and Information Technologies, Skopje, Macedonia

²⁴³ Faculty of Electrical Engineering and Information Technologies, Skopje, Macedonia

seems that only a few cases have achieved substantial progress in this area. Without clear understanding of the lean performances and measurements, lean practices often fail [13].

The implementation of lean requires changes and according Cao [15] the changes required in lean manufacturing are divided into four categories:

- Changes in process;
- Changes in function, coordination and control;
- Changes in values and human behaviour and
- Changes in power within the organisation.

Velika Temelkova is project manager at Dräxlmaier, Macedonia. Her field of interest are project management, management of changes and lean implementation. She is Master of science in Project management at the Faculty of Electrical Engineering and Information Technologies, Skopje, Republic of Macedonia.



All these changes are needed in order to improve the implementation of lean manufacturing and to improve the communication process and the responsibility of the practicing manager is to ensure that the organization keeps in touch with the external environment. Managers should continually monitor internal/external events and trends so that timely company changes can be made as needed [16].

2. METHODOLOGY

2.1 Research methods and approaches

The methodology which is selected for this research is a survey. The survey is a method for collecting information that aims to describe, compare or explain individual or social knowledge, feelings, values, preferences and behavior [1].

The survey consists of questions from the type assessment with a scale from one to five, respectively "Likert" scale, where one presents the lowest adoption and five presents the strongest adoption of one particular "lean" principle.

2.2 Hypotheses

Because the purposes of this research are to determine the level of adoption of the lean principles and also to determine the level of the communication process which supports the manufacturing structure to become lean, we can generate the following hypotheses:

H1: The claim that the company has adopted the lean principles with making real changes in the direction of lean manufacturing principles.

H2: The communication process plays important role in the lean manufacturing process.

3. EXPERIMENTAL RESULTS AND DISCUSSIONS

The survey is conducted to ten respondents from the top management, middle management and lower level management.

The evaluation of the survey is made in three steps: Reliability, Correlation and Regression.

In the first part of the questionnaire, the mean value and the standard deviation are calculated with the results from the following nine variables:

1. Elimination of waste (EW),
2. Continuous improvement (CI),
3. Zero defects (ZD),
4. Just in time (JIT),
5. Pull instead of push (PULL),
6. Multifunctional teams (MFT),
7. Decentralized responsibilities (DEC),
8. Integrated functions (IF),
9. Vertical information systems (VIF).

The mean value indicates the degree of adoption (DOA). The degree of leanness (DOL) is determined by the mean value of each of the nine principles separately. The degree of commitment (DOC) is measured by the level of investment in manufacturing supporting infrastructure, and is measured by the following categories:

1. Worker empowerment,
2. Training,
3. Group problem solving,
4. Quality leadership.

In order the internal consistency of the results to be detected, it is used Cronbach's alpha which is a measure or statistical calculation of the correlation between the elements, respectively it tells us how much the elements are interconnected as a group. Cronbach's alpha is actually a safety coefficient / coefficient of reliability of data (or consistency). The consistency is between zero and one. If $\alpha \geq 0.9$ means that the connection is excellent, if $0.7 \leq \alpha < 0.9$ is good, if $0.6 \leq \alpha < 0.7$ is acceptable, if $0.5 \leq \alpha < 0.6$ is weak and if $\alpha < 0.5$ is unacceptable. The value of the coefficient of reliability from $0.5 \leq \alpha < 0.6$ is also enough if there is a preliminary study [2].

Data processing of the questionnaire is made using a software tool SPSS Statistics (Stats Practically Short and Simple). This tool is used to analyze surveys, analysis of texts, data mining etc. [3].

Next, it comes the calculation of the correlation coefficient. Before the correlation coefficient is being calculated, data needs to be verified whether they are normally distributed. If we have normal distribution, we need to calculate Pearson's coefficient of correlation, otherwise we are going to calculate Spearman's rho coefficient of correlation.

To check whether the data are normally distributed, we are going to use the SPSS software again and we should check the following values:

- Skewness & Kurtosis z-values
(this value should be in the range from -1.96 to + 1.96)
- Shapiro-Wilk test p-value
(this value should be above 0.05)
- Histograms, Normal Q-Q plots and Box plots
(it should be visually shown that the data are approximately normally distributed)

If this conditions are fulfilled, it means that we have normal distribution.

To calculate the correlation coefficient between the nine variables: Elimination of waste (EW), Continuous improvement (CI), Zero defects (ZD), Just in time (JIT), Pull instead of push (PULL), Multifunctional teams (MFT), Decentralized responsibilities (DEC), Integrated functions (IF), Vertical information systems (VIF) and the Degree of adoption-DOA, firstly is checked if the data are normally distributed. According the above given conditions, Skewness & Kurtosis values are in the interval from -1.96 to +1.96, but the Shapiro-Wilk test p-value is not bigger than 0.05 in all the cases, so it follows that the data are not normally distributed.

Once the data are not normally distributed, to find the correlation coefficient between the nine variables and the degree of adoption the Spearman's rho correlation coefficient is used.

The correlation coefficient ranges from -1 to +1. The -1 means perfect negative correlation and +1 means perfect positive correlation. The negative correlation is a link between two variables, in which how the value of one of the variables increases, the value of the other variable decreases. Unlike negative correlation, with the positive correlation as the value of one variable increases, the value of the other variable also increases and the same counts also by decreasing of the value.

Finally, it comes the regression. The regression is a statistical process for assessing the relationship between the dependent and independent variables. Thus, from the regression analysis an equation can be created. With this equation the values of the dependent variable can be estimated according given values for the independent variables.

Simultaneous multiple regression analysis is conducted to investigate the best variables for DOA (Degree of adoption). The obtained equation is presented by Equation No.1.

$$\text{DOA (Degree of adoption)} = 0,315*(\text{EW}) - 0,119*(\text{CI}) + 0,008*(\text{ZD}) + 0,095*(\text{JIT}) + 0,446*(\text{PULL}) - 0,336*(\text{MFT}) + 0,079*(\text{DEC}) - 0,054*(\text{VIF}) + 1,831$$

Equation No.1: Degree of adoption of lean

3.1. Degree of leanness and degree of management commitment

The degree of leanness is measured as mean value of the nine variables of lean. The degree of commitment is determined with the level of investment in the supporting manufacturing infrastructure, with measuring of Worker empowerment, Training, Group problem solving and Quality Leadership. The results are shown in Table 1.

Variable	Mean value	Standard deviation
DOL-Degree of leanness	3,54	0,15
DOC-Degree of managerial commitment	3,57	0,11

Table 1: Mean value and standard deviation for DOL and DOC (Number of respondents= 10)

3.2. Degree of communication process

The degree of communication process (CP) is measured as mean value from the actual changes which happened due to interference by the manufacturing process in the manufacturing infrastructure. Table 2 shows us the mean value and the standard deviation of the communication process.

Variable	Mean value	Standard deviation
CP - Communication process	3,55	0,13

Table 2: Mean value and standard deviation of CP (Number of respondents= 10)

3.3. Discussion

According the results from the correlation and the regression, the hypothesis **H1** is accepted. This means that the company has accepted the lean manufacturing principles and makes changes in direction lean manufacturing principles.

DOL - Degree of Leanness has a moderate value of 3,54 and that happens because the company is in the early stages of implementation of lean manufacturing practices and principles (Table 1).

Hypothesis **H2** is also accepted based on the results from the regression analysis (Table 1). There is a strong relationship between the communication process and the implementation of lean. If there is an interruption in the communication process, then the implementation of lean will be also disconnected and won't achieve its objective.

3.4 Proposed solutions

According the literature, the management of change framework starts from a strategic vision and an overall strategy that guides the separate change projects. It then follows in a participative manner through the generic phases: analysis and model of present state, identification of problems and opportunities, experimentation and selection of future state, implementing the change, and stabilizing the new mode of operation.

Nevenka Kiteva Rogleva, assistant professor at Faculty of Electrical Engineering and Information Technologies, Skopje, Republic of Macedonia. Her field of interest is project management, risk management and power plants and systems.

The change management framework is shown in Figure 1, with possible methods and tasks for the different phases suggested on the right side of the figure [12].

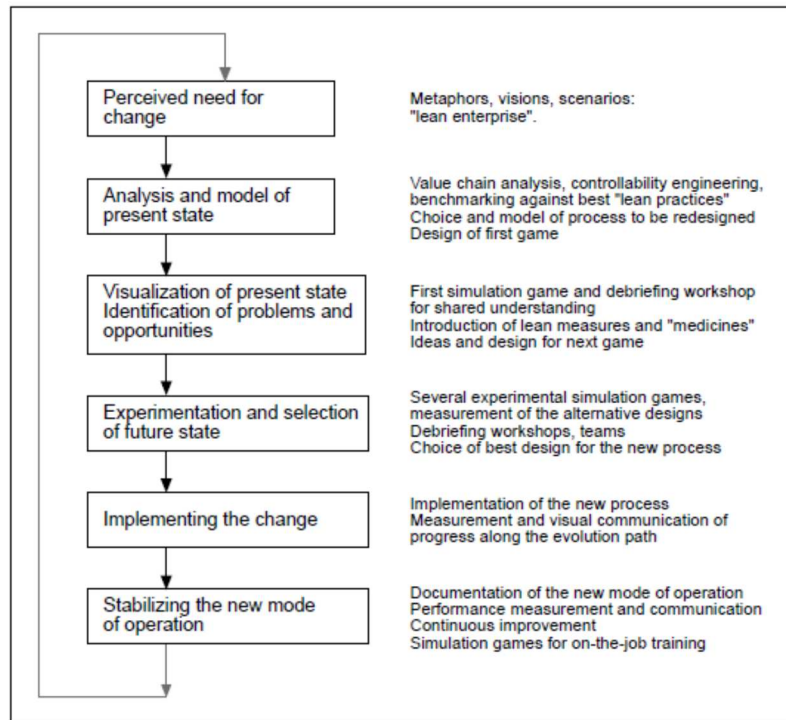


Figure 1: Generic Framework for the Management of Change towards a Lean Enterprise

Lean is about being effective and efficient. According to the analysis the company is in the early stages of lean implementation. The analysis also shows us that there is a strong communication between the implementation of lean and the communication process, so in order to improve the implementation of lean, the communication process also needs to become more efficient.

In Figure 2 it is shown that continual improvements are needed in order for the company to become lean. Being lean does not mean only to use the lean tools and implement them to solve problems. This framework shows the way of acting and communicating into a team in order for the company to strive toward lean "perfection".

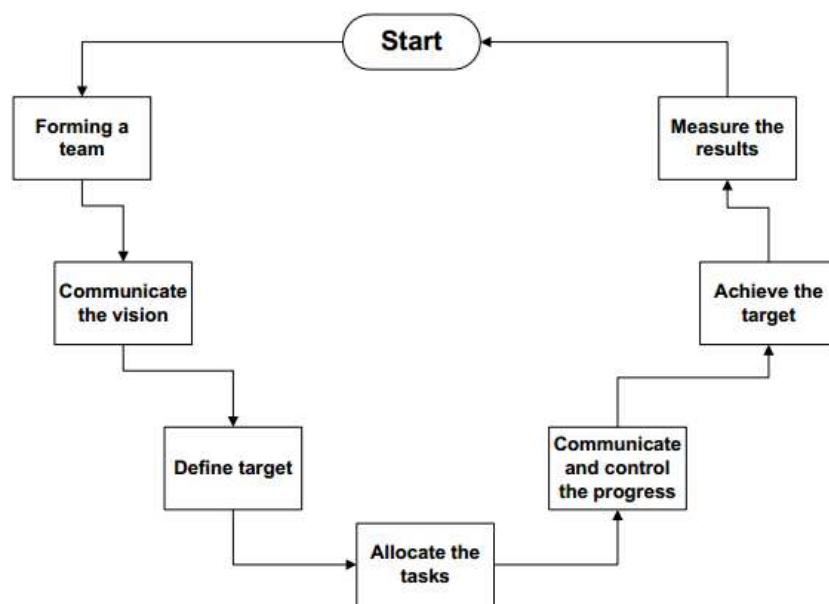


Figure 2: Framework for improving the lean implementation

4. CONCLUSION

Most of the managers think that the use of lean manufacturing is limited only to part of the activities, such as the operations, but the research shows that in order the company to become lean, real changes are needed. However, these changes don't happen automatically. They should come from the top management and to be filtered down through the hierarchy quickly, so all the managers must be actively included in the activities for implementation and management of the changing process.

Vangel Fustik, full professor at Faculty of Electrical Engineering and Information Technologies, Skopje, Republic of Macedonia. His field of interest is project management, risk management, design, and control of power plants and systems.

With this research is affected also the communication process. Weak communication process among managers and supervisors and managers and clients would result with product delay, bad quality, unsatisfied employees, unsatisfied customer, lower company rating and so on. This leads to the need for crucial changes in the communication process.

Further research will concentrate on a global solution, such as implementation of information system, for example an ERP system. The whole process of implementation can be reviewed in order to find out the advantages and disadvantages of the ERP implementation and how this would assist to the implementation of lean and the improvement of the communication process.

5. REFERENCES

- [1] Bradburn, N., Sudman, S. & Wansink, B. (2004) *Asking questions: The Definitive Guide to Questionnaire Design-For Market Research, Political Polls and Social and Health Questionnaires*, San Francisco, Jossey-Bass.
- [2] Nunnally, J.C. (1978), *Psychometric Theory*, New York, McGraw-Hill.
- [3] Sidney Tyrrell, (2009), *SPSS: Stats Practically Short and Simple*
- [4] Perumal Puvanasvaran, Hamdan Megat, Tang Sai Hong, Muhamad Mohd, Razali (2009) *The roles of communication process for an effective lean manufacturing implementation*, University Technical Malaysia (MALAYSIA), University Putra Malaysia (MALAYSIA), JIEM, 2009-2(1):128-152-ISSN:2013-0953
- [5] Real, R. Pralus, M.Pillet, M., and Guizzi, L., "A study of supporting programs for small and medium enterprises: a first stage going to "lean"," in IEEE IEEM, 2007, pp. 515-519.
- [6] Motwani, J., "A business process change framework for examining lean manufacturing: a case study " Industrial Management & Data Systems, vol. 103, pp. 339-346, 2003.
- [7] Sumner, M. (2005) *Enterprise resource planning*, Pearson education, New Jersey
- [8] Project Management Institute (1987) *Project Management Body of Knowledge (PMBOK)*, University of Minnesota
- [9] L. Nousiainen. (2008) *Improving internal information flow*, Tampere Polytechnic
- [10] Bonzarth C.Cecil, Handfield B.Robert (2006) *Introduction to operations and supply chain management*, Pearson education, New Jersey
- [11] Carl Pritchard (2014) *Project management communications toolkit*, Norwood, USA
- [12] Smeds, R. (1994) *Managing change towards lean enterprises*, International Journal of Operations & Production Management, vol.14, pp. 66-82
- [13] Farzad Behrouzi, Kuan Yew Wong (2011), *Lean performance evaluation of manufacturing systems - A dynamic and innovative approach*, Malaysia

- [14] Kotter, J. P. (1996), "*Leading Change*", Boston: Harvard Business School Press
- [15] Cao, G., Clarke, S., and Lehaney, B., "*A systematic view of organisational change and TQM*", The TQM Magazine, vol. 12, pp. 186-193, 2000.
- [16] Nevenka K.Rogleva, Velika Temelkova, Vangel Fustik (2015), "*Application of communication in function of effectively and efficiently implementation of product's changes required from the customer in the automotive industry*", Macedonia

FACTORS OF INCREASING UNIVERSITY COMPETITIVENESS IN RUSSIA

Evgeniya Yazovskikh²⁴⁴
Oksana Yatsenko²⁴⁵

Abstract: *The market of educational services is one of the most important components of modern economy. It is the source of training personnel for the whole economy and it is also an independent market of educational services that is constantly growing in scale and competing with other segments of the regional and global market.*

The sphere of educational services concerns social economy. Its contents, infrastructure, factors and resources are directed at people who belong to different social categories of population. Hence, the state of the education system, its specific features and abilities to meet the needs of the society on the whole and the individual in particular in quality education services, determines the perspectives and directions of the contemporary social development. Nowadays Universities are in rather a difficult situation. On the one hand they are not free in choosing the behavior strategy and they have to follow the requirements of state policy and supervisory structures. On the other hand, Universities have to compete both for resources and for consumers of their services.

The requirements of government policy are connected with achieving high quality of educational services. The University orientation to the educational market is aimed at forming its attractive image and loyalty to its consumers. Thus, the assessment of University competitiveness in new conditions should take into account the development level of its resource potential, abilities to value formation, performance of the mechanisms determining University's financial, organizational, economic and strategic functioning. Today the whole system of higher education comprises educational organizations implementing different educational programs.

The analysis of factors influencing directly the formation and development of competitive infrastructure of the educational services market in Russia is very important. Among the main factors one should mention the following: various University resources; competitiveness of innovative services, products, the results of the intellectual activity, scientific achievements; financial and economic activities of the University; the demand for graduates in the labor market; the effectiveness of organizing educational and management processes, research activity; organizational structure of the University (a system of internal communication between departments and services); regular professional training of scientific and pedagogical staff; index evaluation of the staff's activity; international activity of the University and other factors.

To increase the University competitiveness, it is necessary to take into account all factors affecting the process of its functioning.

Key words: *competitiveness, educational market, educational services, consumers, higher education*

²⁴⁴ Ural federal University named after the first President of Russia B.N. Yeltsin, Russia

²⁴⁵ Ural federal University named after the first President of Russia B.N. Yeltsin, Russia

INTRODUCTION

The process of globalization, based on economic, political, cultural and educational integration, sets today a lot of goals and tasks for society. One of the main tasks is training specialists whose level meets global requirements is an index of prestige and competitiveness of the higher educational establishment.

The professional competencies of graduates must meet the requirements of world labor market which is practically impossible without internationalization, or in other words, international cooperation in the field of education. Nowadays internationalization is one of the main factors of competitiveness of any higher educational establishment.

Being one of the main priorities of Universities, internationalization has the following objectives: attracting investments through admitting foreign students to various levels of study (bachelor's, master's, postgraduate); developing academic mobility of students and lecturers for educational purposes; forming new international standards of educational programs; the professional development of lecturers and staff through grants, programs for the University development; creating strategic educational alliances, in particular network projects with other universities in the world; improving the quality of education; carrying out of scientific researches, etc.

METHODOLOGY

According to Webster's desk dictionary "internationalization" implies "the principle of cooperation among nations for promoting their common goods" in general and educational services in particular [1].

Internationalization of higher education means the process where the mechanism and functions of educational services have an international character and are aimed at increasing competitiveness of the educational establishment.

The representative of the association of academic cooperation I. Ferenz (Belgium) accentuates the speed of internationalization of higher education and says that this phenomenon happens

Evgenia Yazovskikh

Work experience:

Ural federal University named after the first President of Russia B.N.Yeltsin.

Candidate of Science (Economics), Associate Professor of the Department of foreign languages and translation

Type of business: *University education*

Main activities: *Entrepreneurship, State regulation of business, Competition, Marketing, Management and Strategic Management, Theory of organization and organizational behavior*

Education and training:

2014 – Ural and Siberian Centre of personnel development “Factory of managing projects”, Yekaterinburg, Russia

2013 – Ural federal University named after the first President of Russia B.N.Yeltsin “Professional mastering personnel of the Federal University”, Yekaterinburg, Russia

2012 – Institute of Management, Social and Economic Development, Saratov, Russia

2010 – Ural federal University named after the first President of Russia B.N.Yeltsin “Scientific and innovative activity in education. Problems of entrepreneurial development”, Yekaterinburg, Russia

2008 – Ural International Institute of tourism, “Some basics of touristic activity” Yekaterinburg, Russia

2006 – Ural State University named after A.M. Gorky. “Methods of teaching Russian as a foreign language”, Yekaterinburg, Russia

2005 – Ural State Economic University. Post-graduate education, Yekaterinburg, Russia

2000 – Central European University. “Emerging from Communism: Russia and China and the New International Order”, Budapest, Hungary

1997 – “Intensive course for the Teachers of English”, BBC, London, Great Britain

Besides, E. Yazovskikh is a regular participant in national and international conferences (Russia, Finland, Serbia, Great Britain, USA). She is engaged in many projects and campaigns as a part of a project team.

differently in various countries. Then he notices that a smaller part of the European countries has internationalization strategies on the national level (Norway, Denmark, Finland, Estonia, the Netherlands etc.) but in the majority of European countries many initiatives in the field of internationalization are supported on the EU level [2].

To the mind of the department Head of the global integration of the Ministry of Science of the Russian Federation I. Prtotsenko, the measures Russia takes today to support internationalization of education are the following: forming main Universities; preparing curricular of Russian citizens abroad; agencies for strategic initiatives; reforms in the fields of diploma admission of foreign Universities; transferring to qualification estimation; international cooperation of some Universities [3].

DISCUSSION AND RESULTS

Nowadays, the majority of Universities in the world are involved in the internationalization process and the Ural federal University named after the first President of Russia B.N.Yeltsin is a prime example. The university received the status of the federal in 2010 and positions itself as one of the largest and most attractive universities in the country.

According to the data of the international department, the University cooperates with more than 400 higher educational establishments from 80 countries of the world, participating in such networking projects as: BRICS Network University, CIS Networking University, Association of Technical Universities of Russia and China (ATURC), SCO University and University of the Arctic [4]. Thus, one can confirm that the geography of the Ural federal University cooperation covers all continents of the world: Asia, Europe, Australia, Africa, North and South America.

In recent years, there has been a significant increase in the number of foreign students and postgraduates studying at the Ural federal University. The dynamics of this growth is presented in Table 1 [5].

Table 1 - Dynamics of foreign students studying at the Ural federal University in the period of 2009 – 2015

	Academic years					
	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014	2014/2015
Total:	564	800	1023	903	1016	1826
Of them:						
Preparatory Department	9	106	109	141	256	274
Students	551	682	907	750	745	1213
Post graduate students and trainees	4	12	8	12	15	64
Of them:						
Governmental support	66	64	86	121	134	566
Under the contract	392	597	637	515	611	624

This interest of foreigners in this higher educational establishment is explained by the fact that the University is the leading one in the region where foreign students can learn and master the

Russian language, which gives them opportunities to continue their education in other higher educational establishments of the Urals.

It is important to note that the number of students coming to study from European countries, such as Austria, Belgium, France, Germany, Czech Republic, Hungary, Netherlands, Poland, Finland, etc., is still small. Some of them study for one semester or one year, choosing the disciplines they are interested in.

The overwhelming majority of foreigners come from China, Korea, Mongolia, Vietnam, Egypt, Guinea and Central Asia. The top twenty countries by the number of students in the Ural federal University in 2014-2015 academic year are presented in Table 2 [6].

Table 2 - The first twenty countries by the number of students in the Ural federal University in 2014-2015 academic year

№ п/п	Citizenship	Number of students	% to the total number of students
1.	The Republic of Kazakhstan	647	36,8
2.	People's Republic of China	275	15,7
3.	The Republic of Tajikistan	209	12,0
4.	Ukraine	70	4,0
5.	The Republic of Abkhazia	56	3,2
6.	The Kyrgyz Republic	46	2,6
7.	The Republic of Uzbekistan	43	2,4
8.	The Republic of Korea	33	1,9
9.	Republic of Armenia	32	1,8
10.	Mongolia	25	1,4
11.	The Socialist Republic of Vietnam	22	1,3
12.	Turkish Republic	21	1,2
13.	The Arab Republic of Egypt	19	1,1
14.	Republic of Guinea	19	1,1
15.	Mexican United States	17	0,9
16.	Transitional Islamic State of Afghanistan	14	0,8
17.	Islamic Republic of Pakistan	12	0,7
18.	Republic of Zambia	11	0,6
19.	Turkmenistan	10	0,5
20.	Republic of Azerbaijan	10	0,5
	Other countries	165	9,4
	Total:	1756	100

As the table and the survey data of foreign students show that such interest to the Ural federal University is due to the following reasons:

- 1) for the years of its existence, the University has established itself as one of the most promising in the country, which provides its graduates with a high level of knowledge, professional competence and qualifications corresponding to the requirements of the international labor market;
- 2) the University is of the federal level and one of the most popular, it is among the best technical universities of the company "Schwabe", it is in the top ten best Russian Universities (the best among the federal) in the latest ranking of educational establishments Webometrics Ranking of World Universities (taking 468 in Europe and 1109 in the world), among the top 650 Universities in the world according to QS World

University Ranking and ranked 78th among the Universities of the BRICS (BRICS) - all these criteria indicate its good reputation [7];

- 3) getting Russian bachelor's and master's degrees, postgraduate education, in particular for students from China, Mongolia, Armenia, Turkey, Turkmenistan, is the key to their success and competitiveness in the labor market in their home country;
- 4) many foreign students study at the Ural federal University by recommendation of their friends and relatives who studied here earlier, when the University was still known as the Ural Polytechnic Institute named after S.M. Kirov, the Ural Technical University and the Ural State University named after A.M. Gorky;
- 5) the cost of training for both Russian and foreign students at the University is the same, and much cheaper than in Moscow and St. Petersburg Universities;
- 6) strong partnership and business ties between the Ural federal University Ural and Asian companies;
- 7) the interest of the University towards the study of Asian culture (since 2008 - the Center of the Chinese Language and Culture - the Confucius Institute, in 2013 the Cultural Center of Thailand was opened, in 2016 - the Center for Iranian Studies);
- 8) the geographical location of Ekaterinburg (the center of Russia, not far from the border between Europe and Asia), historical sites, monuments, cultural centers, etc.
- 9) active public and sports life of students at the University, allowing them to communicate and establish business and personal contacts not only with representatives of their country, but also students from other countries of the world;
- 10) participation of foreign students in the work of University summer schools in the field of business, management, economics, corporate communications, the Russian language and culture.

The greatest number of foreign students is studying at the Institute of Social and Political Sciences, the Institute of Physics and Technology, the Institute of Radio electronics and Information Technology, the Graduate School of Economics and Management, the Mechanics and Machine-Building Institute, the Institute of the Humanities and Arts, the Ural Energy Institute.

Attracting foreign students contributes to the integration of the University into the world educational space; development of specialties that are priority in the world market; increase of the University's attractiveness rating in the international educational services market; and, consequently, increasing its competitiveness.

Within the framework of the University development program for the period until 2020, the establishment also pays much attention to the development of foreign mobility of bachelors, masters and

Oksana Yatsenko

Work experience:

Ural federal University named after the first President of Russia B.N.Yeltsin.

Candidate of Science (Pedagogy), Associate Professor of Marketing Department

Type of business: *University education*

Main activities:

Marketing, Marketing of educational service, Management, Business ethics, Marketing communications, Human resources management, Marketing in industries and spheres of activity.

Education and training:

2017 – “Technologies of conducting research in the field of applied Economics.” Yekaterinburg, Russia.

2013 – “Marketing, Advertisement and PR; master of business communication.” Yekaterinburg, Russia

2011 – “Innovative pedagogical technologies in education.” Yekaterinburg, Russia

Besides, O. Yatsenko is a regular participant in national and international conferences both in Russia and abroad. She is constantly engaged in many projects and campaigns as a leader and a part of a project team.

postgraduates. In this direction, the following points can be noted:

- establishing and concluding University partnerships with Universities and organizations from Austria, Croatia, Finland, China, Czech Republic, Turkey, Germany, Korea, Spain, Malta and other countries of the world;
- students and postgraduates' participating in annual competitions for grants and scholarships to study abroad by programs for masters and postgraduates: scholarship of the President of the Russian Federation to study abroad, scholarships and programs within the framework of interstate agreements, travel grants of Mikhail Prokhorov's Fund, etc.;
- participating in programs of foreign foundations and organizations that provide grants for Russian students to study abroad: The Council for International Research and Exchanges, Kellogg, Fulbright (USA), the Embassies of France and the Netherlands, the Academic Exchange Service "DAAD", the Bosch Foundation, Copernicus (Germany), Central European University (Hungary), Darmasiswa scholarship (Indonesia), scholarships for study in China, etc.;
- participating in the "Erasmus +" program sponsored by the European Union and representing a system of contracts between European Universities, according to which students can learn free of charge in exchange at one of the partner Universities, receive a scholarship covering all expenses for the period of study;
- participating in the "Mevlana" program, aimed at exchanging between students and lecturers of Turkish Universities and Universities of other countries, as well as providing students for training in leading Turkish Universities;
- participating in short-term programs (summer schools): Finis Terrae University (Chile); Sungkyunkwan University (South Korea); University of Lausanne (Switzerland); Hong Kong Polytechnic University (Hong Kong); European University Viadrina (Germany); RWTH Aachen University (Germany); Beihang University (China); National Chengchi University (Taiwan), etc. [8].

CONCLUSION

Today, one can definitely say that the internationalization of higher educational establishments is not only important, but also necessary. In most countries of the world, Russia is no exception, there is a huge problem with the employment of University graduates.

Therefore, one of the primary goals of internationalization is training specialists whose diplomas will be recognized in the international labor market as a guarantee of high quality of education.

In this regard, Universities need active mutual cooperation, constant exchange of theoretical knowledge and practical experience, careful development of new quality standards for providing educational services, and much more, which contributes to the preparation of a competitive workforce.

REFERENCES

1. Webster's desk dictionary of the English language (1990). P New York: Portland house. Based on the Classical Edition of the Redmond House Dictionary.
2. Organization for economic cooperation and development. Statistics and publications. www.oecd.org.
3. Bulgakova N. (2012). To our niche. Internationalization of education will help Russia to take a good place in the world // Education. № 25, p. 48.

4. Information provided by the International Department of the Ural federal University named after the first President of Russia. 2016.
5. Information based on the data provided by the International Department and the Department of Postgraduate Studies of the Ural federal University named after the first President of Russia B.N.Yeltsin. 2016.
6. Information based on the data provided by the International Department of the Ural federal University named after the first President of Russia B.N.Yeltsin. 2016.
7. The Urals Federal, Edition of the Ural Federal University No. 7, 6. February, 2017.
8. The Urals Federal University, Edition of the Ural Federal University No. 46, 26. December, 2016.

APPLICATION OF SERVQUAL MODEL IN STATISTICAL QUALITY CONTROL

Zarko Radjenovic²⁴⁶
 Danijel Milosevic²⁴⁷
 Valentina Radjenovic²⁴⁸

Abstract: *In this paper, there will be more to say about statistical quality control and its impact in the service sector. Specifically, providing customer service means also a certain quality that should be fulfilled in order to satisfy user preferences. In order to adequately place the quality of the service and measure it over time, it is necessary to use the tools of statistical control. One of the tools of statistical quality control that will be analyzed in the workpaper is SERVQUAL model. By applying this mathematical model, the satisfaction and performance of the service provided can be measured in the light of the quality dimensions.*

Keywords: *statistics, quality, control, service, servqual*

INTRODUCTION

Statistical quality control is a group of methods and procedures for gathering, processing, analyzing and displaying. It is used for the purpose of ensuring the quality of the products and services. Proper application of statistic quality control enables lowering production costs. The mechanism of statistic quality control is based on defining margins of tolerance to product quality or variability from certain standard or defined measure. If product quality is inside those margins, it is considered qualitatively satisfying. Reasons for using statistic quality control are:

Finding satisfying capabilities of the production processes which will meet customer's requests,
 Monitoring processes in order to find changes which cause losing control over it,
 Undertaking correction measures and keeping the process under control.

Statistical analysis can only alert when changes are made, however potential causes are still to disclose. Statistical analysis does not measure causes of deviation, nor does it point out how those deviations should be outgone. With the help of many control techniques, there are many modes for implementing statistical quality control of services. Main tools for monitoring and testing quality control are: histogram, control panels, Pareto chart, Ishikawa diagram (cause and effect diagram or “fishbone”), spread diagram and control charts. In this paper, statistical quality control in service sector will be analyzed in the light of the types of services and the types of sectors they belong to. Besides that, dimensions of service quality which affect expectations and perceptions of performances while providing service will be analyzed. Also, SERVQUAL statistical quality control tool for service sector will be presented.

²⁴⁶ PhD student and Teaching assistant at Faculty of Economics, University of Niš, Serbia

²⁴⁷ PhD student, Faculty of Economics, University of Niš, Serbia

²⁴⁸ MSc student, Faculty of Economics, University of Niš, Serbia

1. STATISTICAL QUALITY CONTROL AND ITS CHARACTERISTICS IN SERVICE SECTOR

Before taking dimensions of service quality itself in account, it is of great importance to define quality as a term. In try to sublimate different definitions, opinions and stances of scientists on quality, famous Deming presumed that quality is, in fact “absence of deviations or reduction of variations”. On the other hand, one of the most popular definitions of quality from Collier, describes quality in a few points²⁴⁹:

Quality is a measure of specifications.

Quality is a phase in which buyer/user/client expresses his preferences.

Quality is a fair ratio between value and price.

Quality is a potential which should be used.

It is clear that quality can be defined and recognized in more than one way, therefore it is not surprising that there is a wide range of its dimensions which are affected by anticipation and perception of end consumers of products and services. Companies that want to improve quality of their material and non-material products and processes should focus on the significance of data gathering in market research. Inspection and statistical analysis of data in service sector can disclose parts of business process which have a bad effect on business and decrease value of its services. In this way, they gather information on customer preferences and take better position on the market related to their competitors. There exists one major problem which companies in service sector should outgo. This problem refers to implementation and improvement of statistical quality control tools. Aversion towards statistical quality control mainly comes from incomplete understanding of mathematical principles of statistics. Statistical quality control and its significance in service sector, therefore is described in this paper through:

Statistical quality control term, which not only includes control charts and traditional statistical tools, but also represents much more complex approach to data analysis in service sector. All that with a goal of achieving satisfying quality of providing services process.

Acquiring competitive advantages on the market by using statistical tools.

In order to define services, it is not enough just to comprehend service as a business process without material goods. Modern concept of providing services includes much wider range of activities, such as for example services while buying washer machine, installing it, as well as maintaining and repairing it. What characterize service sector is:

Impalpability – services are invisible, they don't have a taste, you don't feel or hear them, although you pay money for them.

Indivisibility – quality of service depends on who makes them, how well and in which way they are provided.

Inability to spoil – services can't be stored for later use, because of lack of demand, for example.

Zarko Radjenovic is PhD student and Teaching assistant at Faculty of Economics, University of Nis, Serbia- department for Informatics and Cybernetics in Economics. Also, he is MSc in Industrial management at Faculty of Engineering, University of Nis, Serbia. Zarko is an author of numerous manuscripts in national and foreign scientific journal and on many domestic and international scientific conferences.



²⁴⁹ Novakovic-Rajicic B., Ciric M. (2008) THE IMPORTANCE OF SERVICE QUALITY FOR ACHIEVING CUSTOMER SATISFACTION, Annals of the ORADEA UNIVERSITY, Fascicle of Management and Technological Engineering, 7 (17), pp. 2572-2579

Another characteristic of service sector which must be taken in account when using statistic quality control tools is its heterogeneity. Namely, it is difficult to classify services because of large number of services and businesses similar to services. In this paper, classifying of services will be based on Lovelock's classification, which answers to the question: Why is service quality important?, and will be given in the Table No. 1.

Types of services	Examples
Services related directly to human needs	Health services Transport services Catering Health and beauty
Services related to goods	Transport Industrial equipment Repairing and maintaining Laundry and cleaning Pets care
Services related to education	Education Broadcasting Informational services Theater Museums
Services related to business	Banker's services Lawyer's services Bookkeeping Bonds Insurance

Table No. 1: Types of services included by the statistical quality control

Source: Feingebaum, A. V. (1983) Total Quality Control, 3rd ed., McGraw-Hill, New York, NY

It is necessary to emphasize that classification of services and their hierarchy from the Table No. 1 comes out as a logical trail of growing needs in modern society, which produce new types of services and potential of improving existing ones. According to Juran, quality of certain services may be defined as promoting certain characteristics of a service, which are necessary for satisfying consumers preferences. Nevertheless, statistical quality control is used for improving existing services by supervising providing process. Therefore, two concepts of quality control emerged, that enable application of statistical

Danijel Milosevic is PhD student at Faculty of Economics, University of Nis, Serbia- department for National Economics. Danijel is an author of numerous manuscripts in national and foreign scientific journal and on many domestic and international scientific conferences



tools on existing types of services. They are described in Table No. 2.

Area	q	Q
Products	Producing goods	All products and services
Processes	Processes directly related to production	All processes
Customers	Clients and customers who buy the product or service	All clients and customers
Industry	Production	Private and public production of products and services
Costs of bad quality	Costs related to goods deficits	All costs of quality process
Statistical improvement	Testing procedures of providing services or production	All consistent statistic methods with product or service

Table No. 2: q vs Q

Source: Feingebaum A. V. (1983), *Total Quality Control*, 3rd ed., McGraw-Hill, New York, NY

2. STATISTICAL QUALITY CONTROL AS A MONITORING INSTRUMENT IN SERVICE SECTOR

Statistical quality control and its sway on monitoring service sector does not express only through standard statistical procedures, but is being looked at through the prism of management of quality. Statistical quality control's influence on monitoring of service sector is therefore often determined by necessary acts in monitoring and analysis of this sector. They are, most of all, related to:

Type of quality that is being measured. If particular type of quality and specifications of the process of providing service itself, inconsistencies in statistical quality control may emerge. The reason for this is that certain parameters of quality are not taken in account when forming a pattern for analysis of quality of certain service.

Prevention that is used to make future diagnostics of certain deviations in process of providing a service easier and its negative effect on quality of service. Improving process of providing service is definitely a top priority of statistical control in order not to repeat the same mistakes and problems.

Statistical analysis's focus on process characteristics and not on the end product characteristics. This action is of great significance for analysis of the process of providing a service, because deviations in quality often appear during the process and its certain activities already.

Minimum investments in collecting and data analysis with great results. Control charts and other statistical tools should boost efficiency of quality analysis in statistic procedures, sublimating data gathered through monitoring of process of providing service.

3. GUIDELINES FOR IMPLEMENTING STATISTICAL QUALITY CONTROL IN SERVICE SECTOR

Every attempt of implementation statistical quality control in service sector presumes respecting certain principles and guidelines. Those guidelines assure fast reactions in case of implementing postulates of statistical quality control, so that satisfying level of process of providing service is achieved. Those guidelines include:

Characteristics of quality which can be measured in process of providing service – this is one of the hardest guidelines for implementation of postulates of statistical quality control, having

in mind that their implementation in service sector is different than in production sector. The reason is that production sector operates with numerical values, while in service sector qualitative values are of greater significance.

Prevention in the process of providing service – this guideline for implementation of statistical quality control in service sector refers to diagnosing a problem in that process in order to improve future activities in the process. This method secures easier measuring in the process of providing service using statistical quality control tools. In real life, this guideline has one drawback. Namely, measuring human resources performances in the process of providing a service is much more difficult. When applying statistical quality control in service sector, it is possible that human resources will hinder monitoring of the process of providing services and falsify data which are used for diagnosing a problem.

Next guideline refers to statistic quality control data analysis, using tools especially chosen for every particular service sector. This guideline consists of so called monitoring schemes which are different for every particular service sector. Likewise, they demand for certain sensitivity in problem detection and in measuring performances of process of providing services.

Statistical quality control analysis should be focused on the process and not on the output – this principle is widespread in production, especially in automotive industry, but this tendency has spread to service sector, also.

All parts of the process of providing service which can't be measured and tested by statistical quality control tools, should be minimized. Therefore, with this guideline it is necessary to firstly determine data which will best fit with statistical quality control tools and to choose the adequate sample.

Variability in the process of providing service should be as low as possible and statistical measuring should include relation connected with “satisfaction” of the customer.

4. SERVICE QUALITY DIMENSIONS AND METHODS OF THEIR STATISTICAL MEASURING AND CONTROL

When speaking about service sector quality dimensions it is necessary to remark a few factors we have to take into account:

Physical quality represents physical aspects of service.

Corporate quality represents quality of service.

Interactive quality is a result of interactions between client and a provider of service, as well as between clients themselves.

Differences between process of offering a service and providing a service is in the purpose or the end goal.

In Parasuraman's papers it is emphasized that in an attempt to reveal service quality dimensions, focus is on following ten dimensions²⁵⁰:

Responsibility,

Sensitivity,

Competitiveness,

Accessibility,

Politeness,

Credibility,

Communicativeness,

Safety,

Understanding,

²⁵⁰ Parasuraman A., Berry L., Zeithamal A. (1991) “*Refinement and Reassessment of the SERVQUAL Scale*”, Journal of Retailing, 67(4), pp. 420-450

Palpability.

Following revisions and researches related to service quality dimensions, led to the conclusion that those ten dimensions can be converted into next five, which are considered to represent the most acceptable solution in defining dimensions:

Palpability:

Physical buildings

Equipment

Provider of service himself

Responsibility:

Potential delivery of provided service

Sensitivity:

Capability of rapid providing

Safety:

Knowledge and politeness of personnel provides credibility of service quality

Empathy:

Individual care and attention to every client.

5. STATISTICAL MEASURING OF SERVICE QUALITY – SERVQUAL

The most popular measuring instrument for statistical quality control at the moment is SERVQUAL. Namely, this tool consists of 44 different elements which define expectations and perception of the client. The tool is based on upper mentioned five dimensions of service quality. 44 elements of SERVQUAL model are classified in two groups. First group of elements is dealing with measured expectations, which as such, in fact, represent a supply of services. Second group of elements for measuring are perceptions of client about performances of the company which provides services. Expectations are measured on Likert scale (1-7; 1-extreme discordance, 7-extreme accordance), whereby certain dimensions of measured service are separated (Table No. 3).

Area	Nature of discordance by Likert scale
Purpose of measuring with instruments	Is the prime purpose of measuring diagnosing service or its anticipation?
Measured service quality model	Should the expectations be measured? Should a significance be measured?
Questions asked in expectation of service	Definition of expectation? Is it necessary to identify elements which are vector attributes? When should measuring expectations be done-before or after provided service?
Dimensionality of service quality	Is five-dimensional model, related to service quality, correct for measuring?
Defining instruments for measuring	Which statistical quality measuring scale is the most objective? Can a model significance be measured with questions or quality dimensions based on a sum of vectors of performances and expectations?
Defining service quality	Nature of service – is it about expectations or are the service quality standards defined in advance?

Table No. 3: Summing of statistical measuring of service quality areas

Source: Robinson S. (1999) *Measuring Service Quality: Current Thinking and Future Requirements, Marketing Intelligence & Planning*, 17/1, pp. 30

As one can conclude from the previous statements, statistical tool for measuring quality control in service sector SERVQUAL, really has a purpose of overcoming the gap between expectations and perceived performances. Formula for calculating this statistical instrument is²⁵¹:

$$SQ_j = \frac{\sum_{i=1}^{n_j} P_{ij} - E_{ij}}{n_j} \quad (1)$$

Elements in this formula are:

SQ_j – Service quality in dimension j

E_{ij} – Company's expectations related to dimension j

P_{ij} – Perceiving company's performances by dimension j

n_j – Number of elements in dimension j

Average result of every dimension of provided service quality is calculated by adding results of individual respondents. Total statistical quality of service is determined by the average of five dimensions, whereby their qualities are mutually added. Negative values stand for low service quality, while zero results stand for indifference towards quality of provided service. In SERVQUAL model, after its revision, some drawbacks are noted, which can often disable statistically correct model in adequate evaluation of service quality. Some of those drawbacks are:

Focusing on service of particular company in expectation of certain level of quality, whereby client's expectations are not created considering the best provided service from the leader in the field.

Goodwill of a client to honestly answer the service quality question.

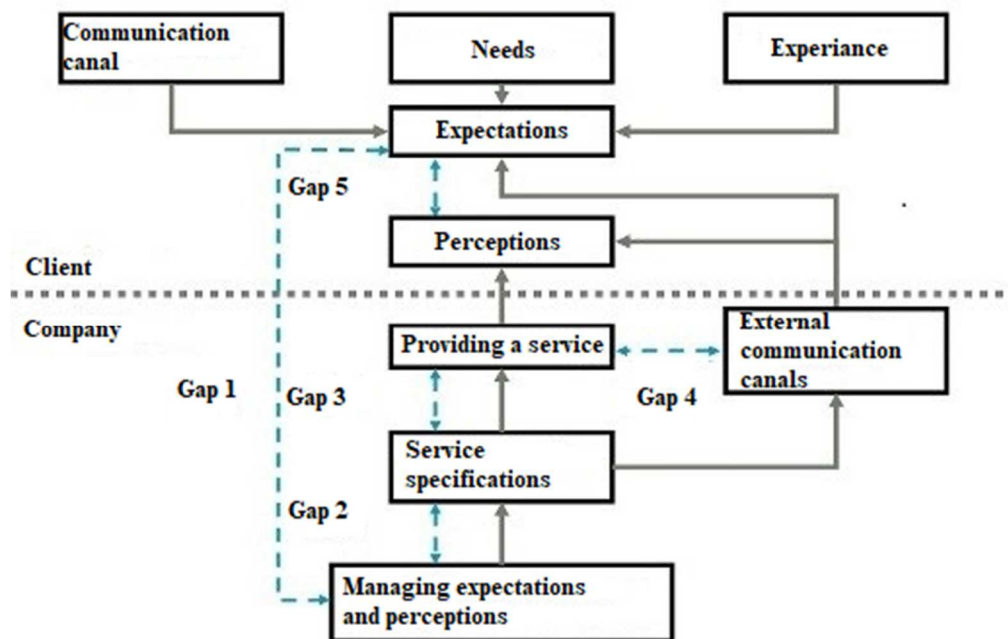
Perceiving service is affected by environment.

Evaluation of significance of five dimensions in original model by regression analysis.

Valentina Radjenovic is a MSc student at Faculty of Economics, University of Nis, Serbia- department for Auditing and Accounting in Economics. She is also interested in statistical quality control and its tools.



²⁵¹ Novaković-Rajičić B., Ćirić M. (2008) THE IMPORTANCE OF SERVICE QUALITY FOR ACHIEVING CUSTOMER SATISFACTION, *Annals of the ORADEA UNIVERSITY, Fascicle of Management and Technological Engineering*, 7 (17), pp.2572-2579



Picture No. 1: Concept of SERVQUAL model

Source: Parasuraman A., Berry L., Zeithaml A. (1991) "Refinement and Reassessment of the SERVQUAL Scale", *Journal of Retailing*, 67(4), pp. 420-450

CONCLUSION

Service economy makes a significant source of income in developed countries. On the other hand, in developing countries this sector is still in an early phase of development, and therefore statistical measuring of quality has small significance, considering that service sector has small contribution to GDP growth. There are numerous factors stimulating service sector development. Rapid technological development contributed largely to increased supply in service sector, which significantly accelerated structural changes in one economy. Technology has not only contributed to changing the relation between participants in providing services, but has also enabled measuring quality and performances of service as well as statistical monitoring of significance of its dimensions and clients satisfaction.

In market economy, where profit is priority number one, statistical evaluation of service quality helps companies create a perception of customer's preferences. In that manner, one can form models which will lead towards long term client's loyalty. This will also help efficient relationship management by enabling ex ante analysis of potential expectations about quality. All mentioned should be promoted by models and methods, such as SERVQUAL.

REFERENCES

- Feigenbaum, A.V. (1983), *Total Quality Control*, 3rd ed., McGraw-Hill, New York, NY
- Novaković- Rajičić, B., Ćirić, M., (2008) THE IMPORTANCE OF SERVICE QUALITY FOR ACHIEVING CUSTOMER SATISFACTION, *Annals of the ORADEA UNIVERSITY, Fascicle of Management and Technological Engineering*, 7 (17)
- Parasuraman, A., Berry, L., Zeithaml, A., (1991) „Refinement and Reassessment of the SERVQUAL Scale“, *Journal of Retailing*, 67(4)
- Robinson, S. (1999). Measuring service quality: current thinking and future requirements, *Marketing Intelligence & Planning*, 17/1

PESTEL ANALYSIS OF PROJECT MANAGEMENT IN WATER SECTOR IN BULGARIA

Zornitsa Stoyanova²⁵²
Hristina Harizanova-Bartos²⁵³

Abstract: *The impact of multiple factors on the management of water projects requires a comprehensive approach to project management.*

The aim of the paper is to analyze and evaluate the factors that influence the management and financing of water projects and on this basis to offer recommendations for improving the process.

The findings, conclusions and recommendations in the paper are based on the results of the UNWE project "Project management of sustainable development in the water sector". Structured interviews were conducted with project beneficiaries in the water sector from 16 municipalities located in 13 districts and 4 planning regions, such as officials from the four basin directorates in the country.

Main findings of the environment of financing and project management in the water sector are based on conducted survey and PESTEL tool. The main factors identified in the applied methodology are political, social, environmental, economic, technological and legal factors. The recommendations made in the last part of the paper are related to enhancing horizontal coordination between different sectoral policies, adjustments to application procedures, multidisciplinary team formation, the creation of sustainable eco-innovation, etc.

Key words: *project management, water projects, PESTEL analysis, factor impact*

1. LITERATURE REVIEW OF THE FACTORS AFFECTED THE MANAGEMENT AND FINANCING OF PROJECTS IN THE WATER SECTOR

The impact of multiple factors on the management of water projects requires a comprehensive approach to project management. These factors could relate to the external environment and the specificities of project management in the sector. Government regulations and legal issues affect a water management's ability to be successful, and this factor looks at how that can happen. According to a number of researchers [3], [9], legal factors have a major impact on project management in the water sector. Projects in the water sector require a relatively longer period of preparation and implementation, and for this reason most often they are related to lengthy legal procedures and this further complicates and prolongs the period of their implementation. The procedures may be related to the acquisition of land for construction, establishment of building rights, and seizure of procedures, permissions and opinions by competent authorities, etc.

An important social factor for project management and funding is the public and local authorities that have a significant impact on the education and training of the project teams. [2]. They influence also on the implementation of environmental projects and the development of the green sector, as new environmental policy instruments are being implemented at regional level by local authorities [11]. The authorities should also consider their local and federal power

²⁵² University of National and World Economy, Bulgaria, Sofia, Hristo Botev, Bulgaria

²⁵³ University of National and World Economy, Bulgaria, Sofia, Hristo Botev, Bulgaria

structures, and discuss how anticipated shifts in power could affect their projects in water sector [5], [10]. Administrative capacity is a factor influencing project management and funding. At the core of some studies [7] there is a need for a new approach to develop environmental management and conservation capacity. Improving administrative capacity requires the provision of qualifications and skills that are more specific as they are related to the environment. Issues that must be considered include tax guidelines, copyright and property law enforcement, political stability, trade regulations, social and environmental policy, employment laws and safety regulations. According to others [3] communication is a major factor of a social nature that affects the success or failure of the project. In many cases, poor team communication is a threat to its success.

According to [3] on the management and financing of projects influence also factors of an economic nature. Some of the economic factors are inflation rate, exchange rate, interest rate, employment/unemployment rate etc, which as well find place in water project management. The economic factors appear rather as weaknesses and threat for development of green economy [13]. For that reason, the economic factors faced by an project proposal have a significant impact on how a implementation of management steps will reflect in the future [5], [8].

An article [8] present the move from technical management to a true integration of the human dimension. The author stay behind the thesis that technology should be combined on a adaptive and flexible way to make management operational under fast changing socio-economic boundary conditions and climate change [8].

The influence on ecological systems in water project management can cope in cooperation with socio systems with a certain variability of climate (e.g. precipitation) on diurnal, seasonal and annual time scales without major detrimental impacts on function [4], [8]. In the current management approach human activities are shielded from environmental variability by technical precautions.

2. METODOLOGICAL FRAMEWORK

The aim of the paper is to analyze and evaluate the factors that influence the management and financing of water projects and on this basis to offer recommendations for improving the process. To achieve the aim of the paper were set up several tasks (Figure 1).

Zornitsa Stoyanova

Associated professor at the University of national and world economy, Economics of natural resources department

Participant as member of the team in 19 projects and team leader of 1 research project

About 80 Research Works, of which:

- *Participation in 16 monographs,*
- *3 independent books,*
- *Over 30 papers in specialized scientific journals,*
- *Over 25 reports from scientific conferences.*

Scientific interests are in the fields of environmental economics, sustainable development, ecological assessment, environmental policies, project management, water projects, farm management, economics and development of small agricultural business etc



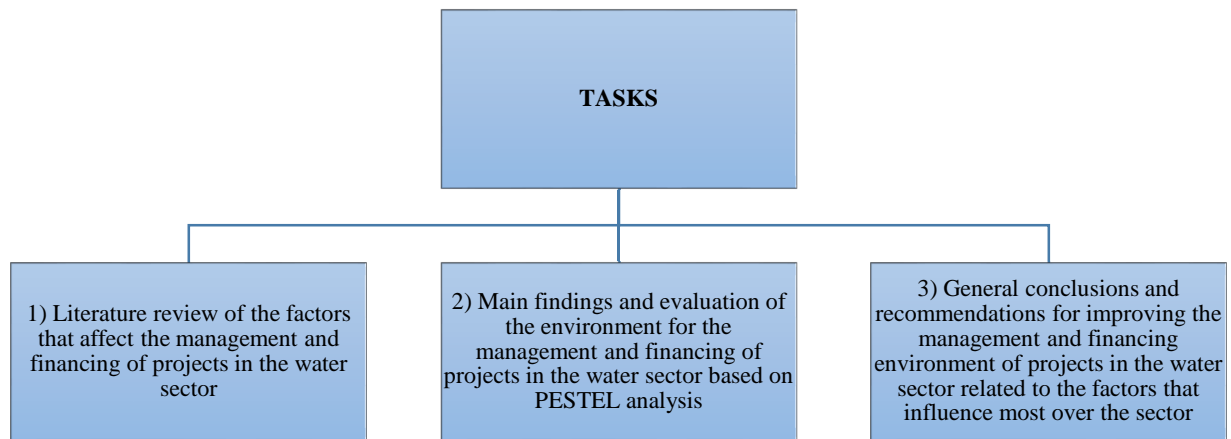


Figure 1. Tasks to achieve the aim of the paper

The findings, conclusions and recommendations in the paper are based on the results of the research project [12]. The analysis of project management in the water sector is based on information from a survey. It was conducted in July-September 2016. Structured interviews were conducted with project beneficiaries in the water sector from 16 municipalities located in 13 districts and 4 planning regions, such as officials from the four basin directorates in the country.

For the purpose of the study, will be used one of the variants of the PEST analysis - PESTEL analysis, accordingly to achieve sustainability in the water sector requires as well environmental and legal factors that have an impact. The main factors identified in the applied methodology are political, social, environmental, economic, technological and legal factors.

Distant external environment often has a universal character for all organizations but the reaction of each particular organization is specific and shows its peculiarities and the specific situation in which it is find. Macro-system as a system includes subsystems such as politics, economics, society, technology, institutes, natural-geographic subsystems, etc. [6]

Concerning the different types of factors (table 1), the following questions will be examined:

Factor	Researched questions
Political	Which are the main driving forces for the projects in political terms? How does the policy affect the application and implementation of water projects in Bulgaria? Is there anything that could change in terms of political factors? Does the development of projects in the water sector is a strong side or weakness? Assessments regarding European and national documents, financing requirements, institutional policy, etc.
Economic	What are the major economic factors influencing project management in the water sector? What are the financing mechanisms, the possibilities for own financing, budget constraints, income generation in the implementation of projects in the water sector?

	Do economic factors are an opportunity for project management in the sector or are they a weak party?
Social	What are the main social and cultural aspects in Bulgaria that affect project management in the water sector? What are the social attitudes towards training, especially with regard to government directives and the opportunities for applying and implementing water projects? Social considerations that can help manage projects in the water sector?
Technological	What are the current technological changes and innovations? Core current and emerging technologies that may be relevant to project management. Are technologies weak or strong side for project management in the water sector?
Ecological	What is the link between projects in the water sector and environmental changes? Are ecological factors, weak or strong side, for project management in the water sector?
Legal	Current and future legislation affecting water projects in Bulgaria. European and national proposals on legislation in the water sector.

Table 1 Pestel framework of water project management

Source: adapted by [1], [12]

3. PESTEL ANALYSIS OF ENVIRONMENT FOR PROJECT MANAGEMENT IN WATER SECTOR

The main political factors for improving the project management in the water sector are related to European and national policies that concern water resources. Political factors are high evaluated from the respondents in terms of their importance. The importance of water sector policies is evaluated as a particularly important factor in achieving water sustainability (75% of the respondent's view). Assessments of the respondents for the state "government policy support the water sector" varies. Some respondents believe the state is willing to cooperate and have real support (50%) and the others are of the opinion that the state constrain the development of the water sector and does not support the development of the sector.

Respondents' assessments of the social factors influencing project management in the water sector show that "the team's coordination and communication" is one of the most important factors for successful management in the water sector (90%). The factors "control and management of the team" (65%), "communication with the stakeholders" (60%) are defined as definitely important. Half of respondents believe that factors such as "leaving staff from the project team", "incorrect team selection", "ineffective communication" would have a critical impact on project management.

Opinions on the importance of environmental factors in particular climate factors to achieve sustainability in the water sector are mixed. Most of the beneficiaries are of the opinion that project management is a prerequisite for greening the sector (85%) and that project management contributes to reducing the risk of floods and other natural disasters (80%). Two thirds of the respondents believe that environmental and climate risk would have a critical impact on the management of water projects.

Economic factors such as “access to capital markets” (75%), “presence of associations and organizations with interests in the water sector” (75%), “competitive sectors in terms of resource security” (55%) are also high evaluated from the respondents. They are identified as definitely important factors for achieving sustainability in the water sector. Some respondents (74%) evaluate difficulties in using consultants as a reason that constrains their applying for financing from European and national funds. Regarding the economic factor "Budget preparation" one third of the respondents believe that this factor will have a catastrophic impact if it is not misplaced.

In terms of technological factors respondents consider that technology and innovation doesn't constrain implementation and management of projects in the water sector. The availability of innovation and innovation policy is defined from most of the respondents as important factors (80%). Most of the interviewed have a positive opinion that project management is a prerequisite for implementing innovative solutions. Incorrect selection of technologies for the implementation of water projects will have a critical impact according 60% of the respondents and a catastrophic impact on the management and implementation of the project according 30% of the interviewed.

Other factors influencing water projects are related to legal factors and regulations. Some of the respondents assess the difficulties connected with the issuing of permits under the Water Act (37%) and conformity assessment (42%) as the usual minor difficulties typical for such kind of activities, which did not affect the quality of the project realization. Respondents consider that the implementation of the measures is highly bureaucratic, the procedures take too long time, and that the requested documents are very complex. Interviewed shared a view that adjustments to the application procedures (55%) are necessary. Most of respondents believe that changing legislation in the water sector will have a critical impact on the management and implementation of water sector projects (65%).

Hristina Harizanova-Bartos

Associated professor at University of national and world economy.

Recent publications and research:

- *Participation over 15 projects, of which 6 international,*
- *Participation in 4 monographs,*
- *Issued 2 Handbooks,*
- *Over 20 publications, independent and co-authoring in specialized scientific publications in international databases*
- *over 10 reports from scientific conferences*

Area of interests:

- *agri-economic and environmental education;*
- *greening business; environmental resources*
- *green jobs;*
- *agricultural structures;*
- *agrarian and eco-politics;*
- *agrarian risk;*
- *innovation;*
- *water sector;*
- *etc.*



Table 2 presents the factors of the near and distant environment that have an impact on the project management in the water sector.

Factors	Analyzed factors	Distant environment	Near environment
Political	The change in the political environment	✓	
	Assessment of European and state policy on the application and implementation of projects in the water sector	✓	
	Changing legislation in the water sector	✓	
Economical	Competitive sectors in resource efficiency		✓
	Financial support related to implementation of projects in the water sector		✓
	Budget preparation		✓
Social	Coordination and team communication		✓
	Leadership		✓
	Life standard of society and human well-being	✓	
	Training		✓
	Implementing control and management of the team		✓
	Stakeholder communication		✓
	Forming a project management team		✓
Technological	New technologies, innovation	✓	
	Selection of project implementation technologies		✓
Ecological	Climate factors	✓	
	Environmental risk	✓	
Legal	Legislation in the water sector	✓	
	Requirements for obtaining funding for water resources measures	✓	
	Administrative capacity		✓

Table 2. Factors of PESTEL analysis related to external environment assessment

Source: own findings

4. GENERAL CONCLUSIONS AND RECOMMENDATIONS FOR IMPROVING THE MANAGEMENT AND FINANCING ENVIRONMENT OF PROJECTS IN THE WATER SECTOR

In order to overcome the difficulties related to the impact of political and legal factors is necessary to reduce bureaucracy and reduce the deadlines for implementing the procedures. In terms to reduce the shared constrain related to the issuance of a permit under the Public Procurement Act, permissions for compliance etc. have to be organized trainings for the specific regulatory framework related to the water sector and the implementation of the Public Procurement Act.

With regard to social factors, the design phase is crucial for the implementation of sustainable development principles, involving a multidisciplinary team of specialists throughout the design

process - engineers, designers, biologists, landscape designers etc. In the absence of administrative capacity, it is necessary to entrust the preparation of technical specifications and technical assignments for the design of external experts, gathering all the necessary information, cadastral information, etc. in order to prepare a quality technical specification that clearly and specifically define the scope of the contract, the content of the individual parts of the project, the design phase, etc. Projects in the water sector require the implementation of pre-investment studies. This will identify the specific needs and investments to ensure optimal efficiency of the sector.

In connection with the forming of a working project management team, the functions of each of its members should also be clearly defined and the processes in which external assistance are needed to be identified. The project management process in the water sector will be positively influenced by the participation of the project team in trainings to improve the project management of the application and implementation phase of projects in the Water sector. This requires specific programs to be encouraged and undertaken to assist beneficiaries in raising their qualifications on cost-benefit analysis, legislation in the water sector, implementation of the Public Procurement Act, preparation of infrastructure projects for application for grants. Connected with the ecological factors creating sustainable eco-innovation is from significant importance. For that reason is necessary to create new or advanced products, new technologies, processes and management techniques that produce environmental or social benefits along with the economic value. Movement from a traditional project management approach to a more sustainable one could be done by including sustainability criteria from the design stage of the project that could be monitored during its implementation. Sustainability criteria could be environmental management practices, stakeholder involvement, energy efficiency, waste management, aesthetics, ecology and biodiversity, land use etc.

With regard to economic factors good water management can be a driving force for increasing competitiveness by adopting sustainable growth approaches. The specificity of the sector's management is that competition must be measured not only by economic factors, but also by social, ethical and environmental considerations. Increase the productivity of water use could be set as a goal. Improving quality and better management leads to higher productivity by enhancing environmental potential and maximizing the quality of water supply.

To overcome the constrain - poor budget the choice of a well-trained consultant to produce a quality budget is of the utmost importance. The project beneficiaries also have to control the coordination between the individual consultants.

Connected with the technological factors innovative approach have to be applied through creating new, advanced products and management techniques that lead to the achievement of sustainability of water projects. As good practice for project management in the water sector, sustainable innovations could be identified to be used in regions that have qualitative and quantitative water resource problems. The implementation of eco-innovative approaches and practices in the management and implementation of water projects would contribute for generating benefits in three directions: 1) economic benefits - optimize production costs through more efficient use of resources and raw materials, minimize technological and organizational costs; developing a green image; new products and market niches; competitive benefits; 2) ecological benefits - more efficient use of water resources and reduction of water pollution; 3) social benefits - cleaner, healthier and natural environment.

REFERENCES

- [1] Lapagin, J. (2002). *System management of organizations*, Moscau:VSU.
- [2] CEDEFOP, (2012) . *Green skills and environmental awareness in vocational education and training*, Luxembourg Publications Office, Luxembourg.
- [3] Ilies, L., Crisan, E., Muresan, I. (2010). *Best Practices in Project Management*, Review of International Comparative Management, Volume 11, Issue 1.
- [4] Harizanova, H. (2015). *Management consultancy in the agrarian sector and eco-economics*, Atl- 50, Sofia.
- [5] Kerzner, H. (2013). *Project Management: A Systems Approach to Planning, Scheduling, and Controlling*, John Wiley & Sons, ISBN 111841585X, 9781118415856.
- [6] Kubr, M. (2005). *Management Consulting: A Guide to the Profession*, Bookwell Publications; Revised edition.
- [7] OECD. (2012). *Greening Development: Enhancing Capacity for Environmental Management and Governance*, OECD Publishing, Paris. France.
- [8] Pahl-Wostl, C. (2007). *Transitions towards adaptive management of water facing climate and global change*, Water Resour Management, 21:49–62, DOI 10.1007/s11269-006-9040-4.
- [9] Petkova, I. (2015). *European projects, politics and normative regulations*, Forkom publishing.
- [10] Post, J. (2017). *What Is a PEST Analysis?* *Business News Daily*, <http://www.businessnewsdaily.com/5512-pest-analysis-definition-examples-templates.html>.
- [11] Potts, T. (2010). *The Natural Advantage of Regions: Linking Sustainability, Innovation, and Regional Development in Australia*, Journal of Cleaner Production. available at: <http://dx.doi.org/10.1016/j.jclepro.2010.01.008>.
- [12] Stoyanova, Z., Doichinova, J., Kanchev, I., Jecheva, I., Atanasov, B., Todorova, K. (2015). *Project management of sustainable development of water sector*, Research project, NID NII-7/2015, University of national and world economy, Sofia, Bulgaria.
- [13] Stoyanova, Z., Harizanova, H. (2017). *Analysis Of External Environment Of Green Job's Conditions In Bulgaria*, Economic alternatives, Issue 1, pp. 122-136.

A SURVEY OF PRIVATE WELL WATER QUALITY IN SUBURB OF ALBANIAN CAPITAL CITY

Ariola Devolli²⁵⁴
 Mariola Kodra²⁵⁵
 Edlira Shahinasi²⁵⁶
 Merita Stafasani²⁵⁷

Abstract: *This research was focused on evaluation of private well water quality, through physico-chemical and microbiological analysis with view to determining its suitability for drinking purpose. For this study we have selected Yzberisht as the most populated area of Tirana district. Approximately 60% of this area is covered by network water supply and the rest utilize well water to fulfill their needs. In our country water quality of private wells is not covered by drinking water legislation and regulations.*

For 10 different wells various parameters like pH, Total dissolved solids (TDS mg/L), Electric conductivity (EC μ S/cm), Turbidity (NTU), Total Suspended Solids (TSS mg/L), Hardness (mgCaO/L), Alkalinity (mgCaCO₃/L), Ca⁺⁺ and Mg⁺⁺ (mg/L), Chloride (mg Cl⁻/L), Nitrates (N-NO₃⁻), Nitrite (N-NO₂⁻) and Ammonium (N-NH₄⁺) in mg/L, Dissolved oxygen (DO mg/L), Chemical Oxygen Demand (COD mg/L), Biological Oxygen (BOD mg/L), microbiological load (Total Coliforme and E.coli) were analyzed.

The results were compared with Albanian standard for drinking water (STASH 3904:1997) and EPA's regulations.

All analyzed water samples showed high microbiological load. Regarding to physico-chemical parameters more than 60 percent of water samples did not comply with standards for TSS, TDS, EC, BOD, COD and N-NH₄⁺.

Key words: *Well water, Albania, quality, chemical parameters, microbiological analysis*

1. INTRODUCTION

Water, after air, is the most essential commodity to the survival of life [1]. From biochemical point of view, water is regarded as a "life sustainer". The continuous biochemical reaction that takes place in living things is made possible in the presence of water and without it the cell collapses [2].

Even though safe drinking water is a human birthright, the majority of world's population does not have access to safe drinking water. Thus, two and a half billion people have no access to adequate sanitation services, and more than 1.5 million children die each year from diarrhea diseases (Fenwick, 2006) [3].

In 2008, the World Health Organization (WHO) has reported that the mortality related to water diseases in developing countries exceeds 5 million people per year. From these, more than 50% are microbial intestinal infections, where cholera was standing out in the first place [4].

²⁵⁴ Chemistry Department, Faculty of Biotechnology and Food, Agricultural University of Tirana, Albania

²⁵⁵ Chemistry Department, Faculty of Biotechnology and Food, Agricultural University of Tirana, Albania

²⁵⁶ Chemistry Department, Faculty of Biotechnology and Food, Agricultural University of Tirana, Albania

²⁵⁷ Chemistry Department, Faculty of Biotechnology and Food, Agricultural University of Tirana, Albania

Biological contamination is generally due to the introduction of organic waste material into the aquifer system e.g. bacteria which become responsible for many diseases such as typhoid, dysentery, cholera, diarrhea, gastroenteritis and some undesirable characteristic such as taste and odors and sometime corrosion of delivery pipes [5].

Natural water can be divided into two categories: surface water, such as rivers and streams (Moorland surface drainage) torrents, natural lakes, reservoirs, ponds (lowland surface drainage) and subterranean water such as springs and ground water (wells, boreholes) [6].

Well water has long been considered as one of the purest form of water in nature and meets the overall demand of rural and semi-urban people. It is reliable for domestic and agricultural irrigation needs [7], [8]. As population increases, the need of water for domestic increases as well. On the other hand an increase in population affects quantity and quality of water and any pollution either physical or chemical causes changes to the quality of receiving water body [9].

Contaminants in the water can affect the water quality and consequently the human health. The potential sources of water contamination are geological conditions, industrial and agricultural activities, and water treatment plants. These contaminants are further categorized as microorganisms, inorganics, organics, radionuclides, and disinfectants [10].

At a national level, in Albania, it is estimated that approximately 70% of our cities use underground well water to fulfill their needs. Because of water quality of private wells is not covered by Albanian drinking water legislation and regulations, the users themselves are responsible for the quality of it.

2. MATERIALS AND METHODS

Description of the study area. Tirana is the capital and most populated city of Albania. The city suffers from problems related to overpopulation, such as waste management, high levels of air pollution and significant noise pollution. Tirana has humid subtropical climate, Mediterranean climate classification, since each summer month has more than 40 millimeters of rainfall, with hot and moderately dry/humid summers and cool and wet winters. With 2,544 hours of sun, Tirana is the 8th the sunniest city in Europe [11]. The temperature fluctuates on average from 25⁰C to 33⁰C during the summer, while it ranges from 5⁰C to 11⁰C during the winter time. Yzberisht is located in suburb of Tirana city, central Albania.

Sample Collection. Figure 1 shows a sample collection map. The water to be sampled should be representative of ground water quality. The water runs at full flow from pump for 10 minutes before collecting the sample.

The samples were collected in 2-liter polyethylene (PET) bottles, which were washed with deionized water before use. These sample bottles were closed and placed in termobox to avoid any contamination until they arrived at laboratory. There were used sterile 250 mL plastic bottles for microbiological analysis.

Sample collections were carried out based on [12] techniques used by EPA Region 8 Laboratory staff.

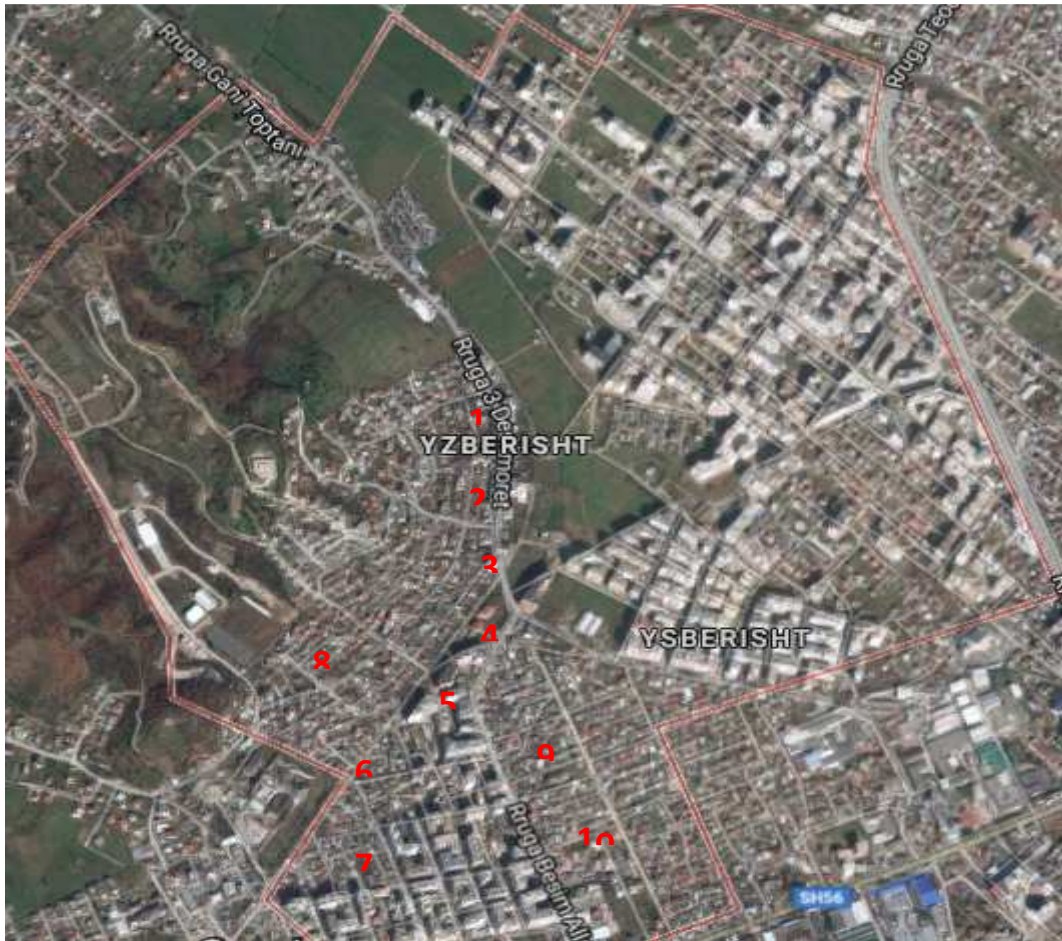


Figure 1: The map of sample locations in Yzberisht area, Tirana. Source: <https://www.maps.google.com/>.

Parameters	Methods of measurement	Analytical Instrument
pH	Potentiometry	pH-meter (APHA)
Conductivity (mS/cm)	Conductometry	Conductometer (APHA)
Turbidity(NTU)	Turbidimetry	Turbidimeter (APHA)
DO (mg O ₂ /L)	Winkler Method	Standard procedure(APHA, STASH)
BOD (mg/L)		
Alkalinity	Titrimetry	Standard procedure (APHA, STASH)
Total hardness		
Calcium		
Magnesium		
Chloride		
N- NO ₂ ⁻ (mg/L)	Spectrophotometry	Spectrophotometer UV-VIS (APHA)
N- NO ₃ ⁻ (mg/L)		
N- NH ₄ ⁺ (mg/L)		
TDS, TSS	Gravimetry	Standard procedure(APHA, STASH)

Table 1: Analytical methods and instrument used for water analysis

Laboratory Analysis. The samples of well water were tested at the Laboratory of Agro-environment and Ecology, Agricultural University of Tirana.

The procedure for analysis followed [13] Standard Methods of Analysis of Water and Wastewater (APHA). The measurements of TSS and TDS in water samples were carried out according to the standard methods of APHA and STASH (Albanian standard) [14] using the filtration process. Table 1 shows methods and analytical instruments used for measurements of physic-chemical well water parameters.

Microbiological load (Total *Coliforms* and *Escherichia coli*) was carried out through membrane filtration method. The plate count was conducted by pour plate technique on Plate Count Agar (PCA) and counting the colonies developed after the incubation. Enumeration of colonies was done as described by [15] and results were expressed in cfu/100ml. M-Endo Agar LES medium was used for enumeration of *Escherichia coli* in water using a two step membrane filter method. Inoculation temperature was 44°C for 24 hour. Violet Red Bile Agar medium was used for detection of Total Coliforms at incubation temperature 37°C for 48 hour.

3. RESULTS AND DISCUSSIONS

Analyses are conducted for ten well water samples. All parameters are measured in three replicates. Results are compared with standards.

Sample	Current use	Usage Years	Covered	Water treatment	Depth (m)	Diameter (m)
T1	household use and drinking	17	Yes	No	8	<1 meter. Drilled
T2	household use and drinking	13	Yes	No	46	<1 meter. Drilled
T3	household use and drinking	15	Yes	No	17.5	<1 meter. Drilled
T4	Household use	12	Yes	No	7	<1 meter. Drilled
T5	household use and drinking	10	Yes	No	12	<1 meter. Drilled
T6	Household use	8	Yes	No	18	<1 meter. Drilled
T7	household use and drinking	8	Yes	No	14	<1 meter. Drilled
T8	household use and drinking	9	Yes	No	8	<1 meter. Drilled
T9	Household use	7	Yes	No	13	<1 meter. Drilled
T10	household use and drinking	13	Yes	No	30	<1 meter. Drilled

Table 2: Description of wells and usage purpose

The Table 2 describes well specific parameters and purpose usage of well water by owners.

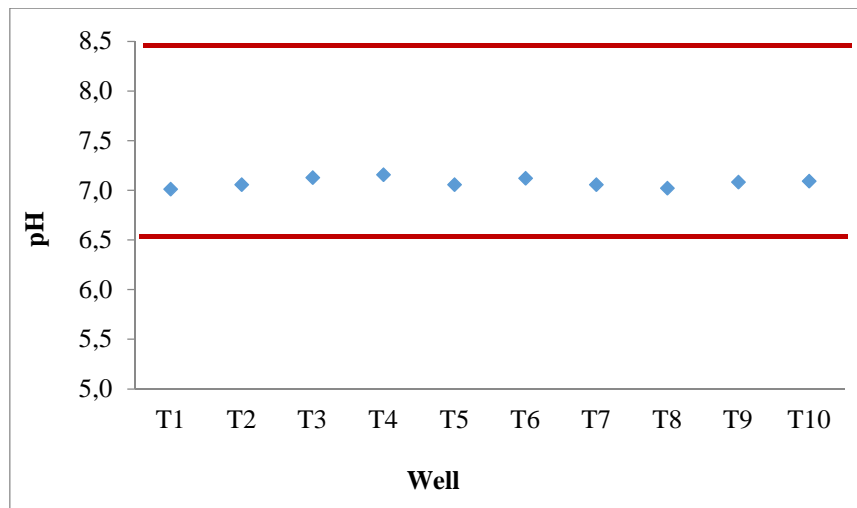


Figure 2: pH mean values of well water samples

The Fig. 2 shows that the values of pH in all analyzed samples were almost neutral. They ranged between 7 to 7.2. This indicates that all water samples are within the safe limit of 6.5-8.5 suggested by WHO [4]. Even though there is no health based guideline for pH, the pH values affect other parameters such as alkalinity, hardness, the concentration of heavy metals etc. Literature data have shown that, at high pH ($\text{pH} > 8$) the water efficiency during the chlorination process is very low [4].

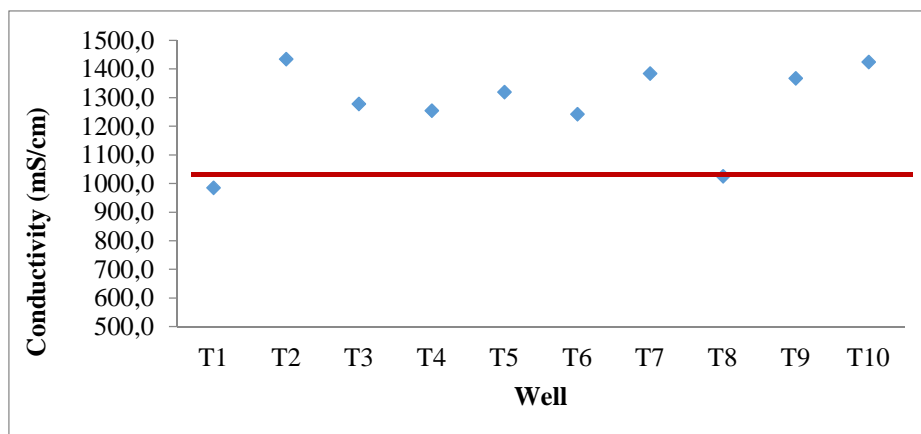


Figure 3: Electrical Conductivity (EC) mean values of well water samples

The Fig. 3 shows that the values of EC in all samples ranged from $985 \mu\text{S}/\text{cm}$ to $1435 \mu\text{S}/\text{cm}$. The values indicate that from ten sampling points only two (T1 and T8) were within standard value for drinking water recommended by EC directive (1989), which is $1000 \mu\text{S}/\text{cm}$.

According to the Directive 98/83/EC [15] on drinking water recommended value of Electrical Conductivity is $2,500 \mu\text{S}/\text{cm}$. Usually, the drinking water which has the value of EC less than $400 \mu\text{S}/\text{cm}$ is considered with high quality. The Albanian Standard [14] for drinking water recommends the value of EC in the range $400 - 600 \mu\text{S}/\text{cm}$.

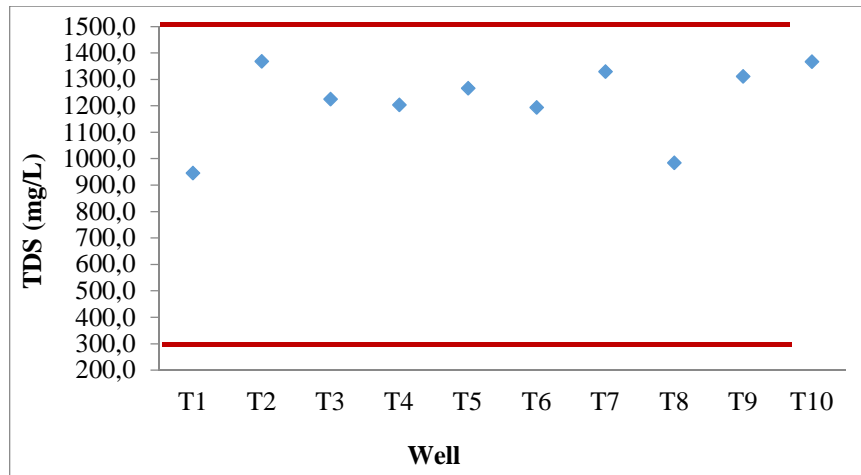


Figure 4: Total Dissolved Solid mean values of well water samples

The Fig. 4 shows that all analyzed samples did not exceed the Maximum Allowed Concentration recommended by EC Directive (TDS = 1500 mg/L), but according to WHO the water is considered with high quality if TDS < 300 mg/L. The TDS affect the quality of water. According to STASH this value is 500mg/L.

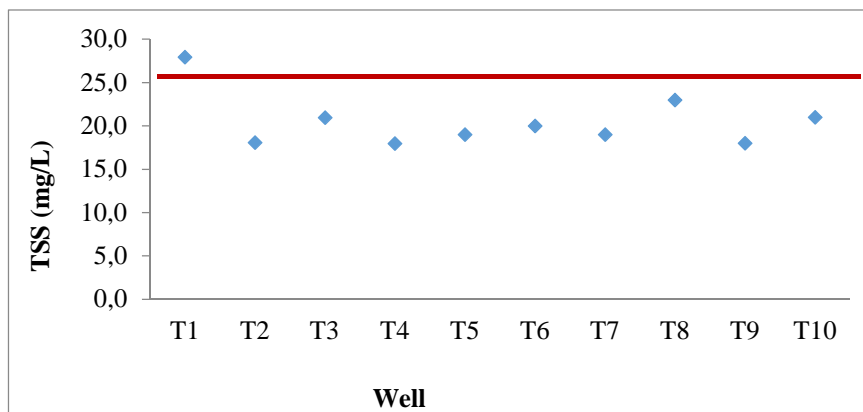


Figure 5: Total Suspended Solid mean values of well water samples

Based on the Environmental EC Directive the recommended value of TSS for the well water A1 Class is 25 mg/L. In our study all the analyzed water samples except T1 belonged to A1 Class as showed in Figure 5.

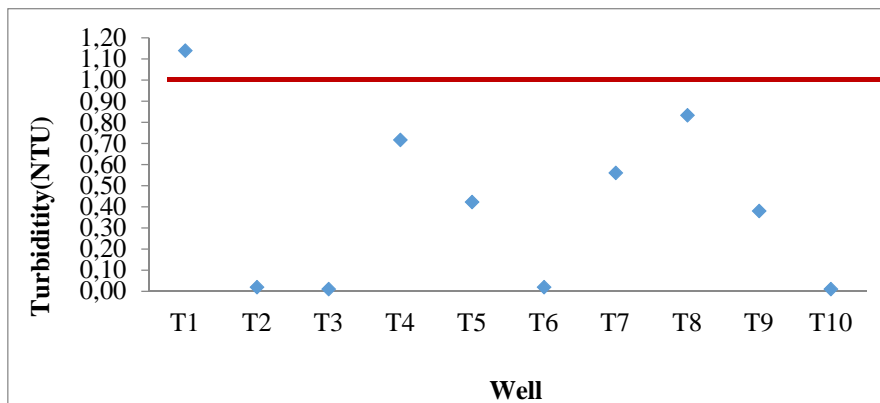


Figure 6: Turbidity mean values of well water samples

According to standards the turbidity should not exceed 1 NTU. As showed in Figure 6 the obtained values indicate that all water samples except T1 are within maximum allowed value. According to STASH for drinking water this value range 0.4-1NTU.

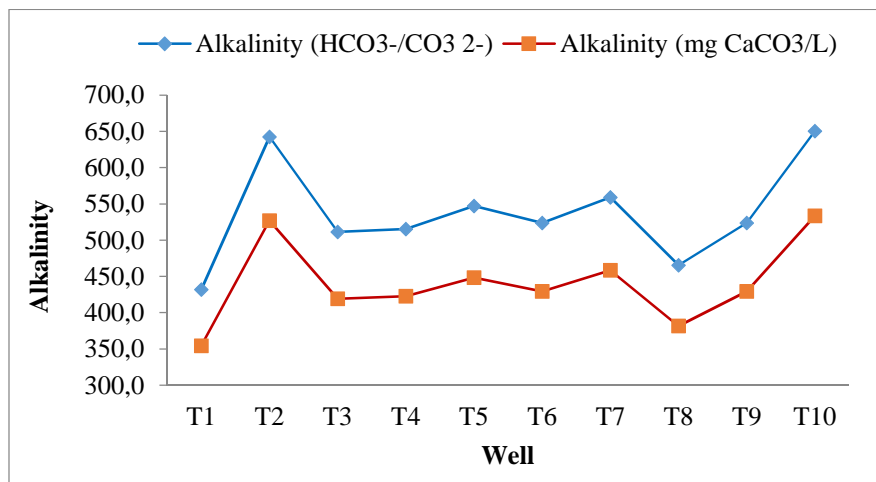


Figure 7: Alkalinity mean values of well water samples

According to EC standard, the minimum value should be 30mg HCO₃⁻/L. Figure 7 shows alkalinity range from 350 mg HCO₃⁻/L to 650 mg HCO₃⁻/L. Alkalinity not play significant role related to human health, the water which has high alkalinity value is not preferred for usage.

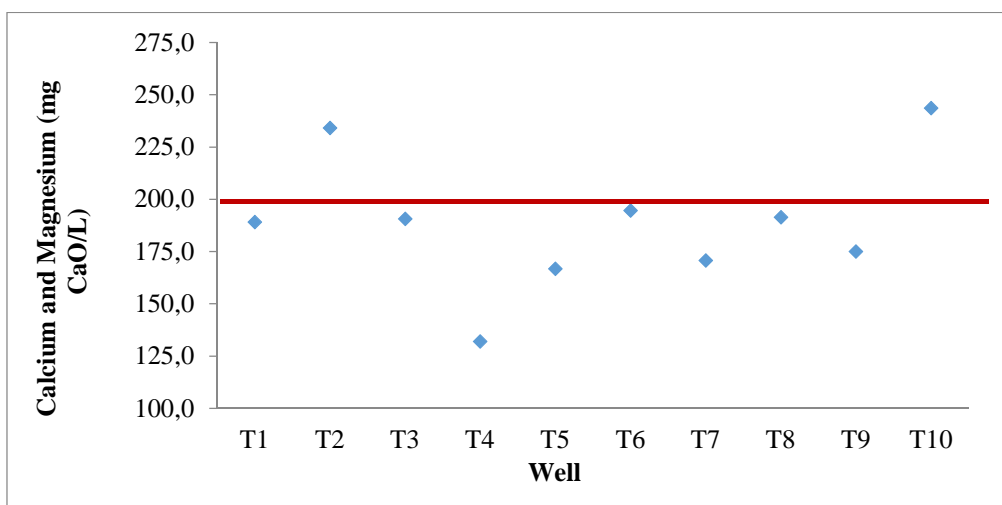


Figure 8: Calcium and Magnesium mean value of well water samples

Usually the classification of water is done according to its hardness. Regarding to this the water can be classified into six classes: soft water < 50 mg CaCO₃/L, moderately soft water 50 ÷ 100 mg CaCO₃/L, slightly hard 100 ÷ 150 mg CaCO₃/L, moderately hard 150 ÷ 200 mg CaCO₃/L, hard 200 ÷ 300 mg CaCO₃/L and very hard [16]. According to [14] the maximum permissible value is 200mg CaO/L. According to Figure 8 only two samples (T2 and T10) exceed the level of STASH.

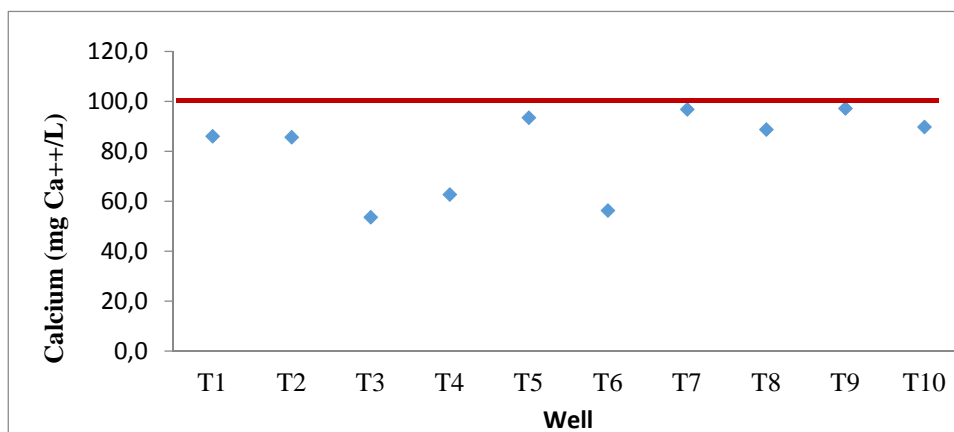


Figure 9: The mean value of Ca⁺⁺ compared with standard

The level of Calcium recommended by EC Directive is 100 mg/L, while STASH and WHO recommend the level of Ca 75 mg/L and Maximum Available Limit are 200 mg /L. In the present study all the well water samples were within standard levels according to Figure 9.

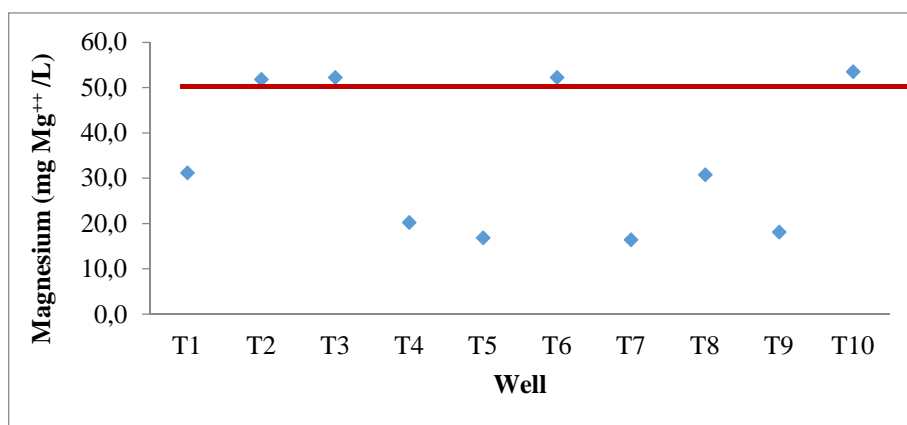


Figure 10: The mean value of Mg⁺⁺ compared with standard

The recommended and Permitted Maximum Level of magnesium in drinking water is 30 mg/L and 50 mg/L, respectively. The STASH and WHO recommended level is respectively 20mg/L and 50 mg/L. Figure10 show that only four samples (T2, T3, T6 and T10) exceeded the Permitted Maximum Level.

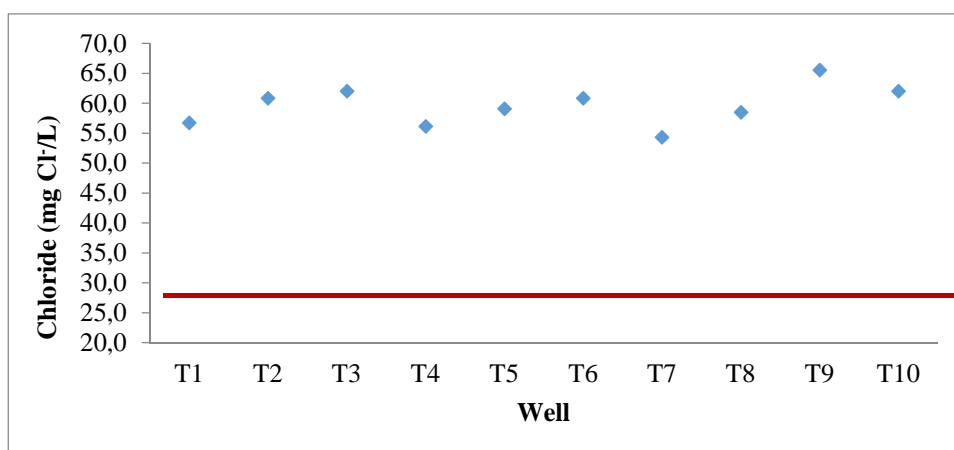


Figure 11: The mean of Cl⁻ value compared with standard

According to EC Directive and STASH the recommended Maximum Level of chloride ion in drinking water is 25mg/L. Refer to this all analyzed samples exceeded this level (Figure 11).

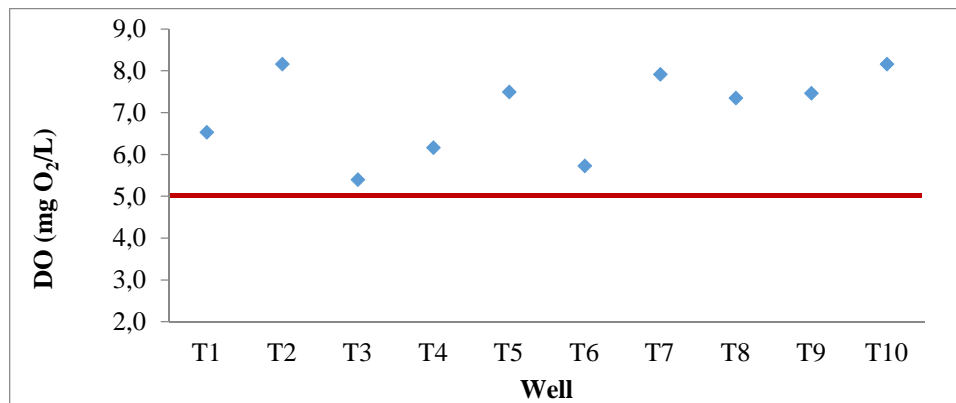


Figure 12: The mean values of Dissolved Oxygen

According to Environmental EC Directive, the wells are classified in three classes regarding to percentages of the dissolved oxygen in the water $A_1 > 70\%$; $A_2 > 50\%$ and $A_3 > 30\%$. The amount of DO in water does not play any important role in human health [17]. The pollution of water may decrease the level of DO in such levels that are insufficient for biota growth. All analyzed samples show high level of DO compared to STASH (Figure 12).

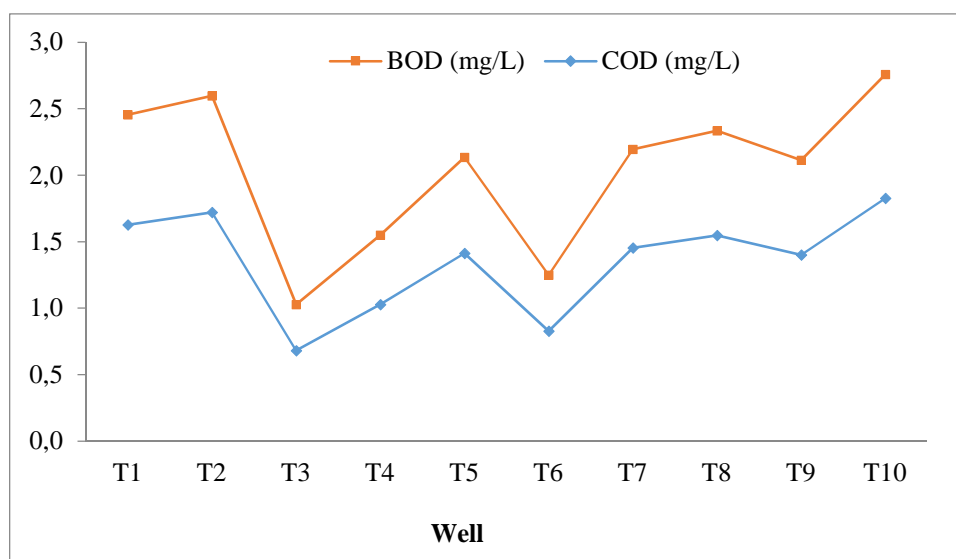


Figure 13: The mean values of BOD and COD

According to Environmental EC Directive the wells are classified in three classes regarding to the BOD thus: $A_1 \leq 3.0 \text{ mg/L O}_2$, $A_2 \leq 5.0 \text{ mg/L O}_2$ and $A_3 \leq 7.0 \text{ mg/L O}_2$. BOD is an indicator for the organic pollution of water [18].

The Chemical Oxygen Demand (COD) indicates the organic matter which is present in water sample. This organic matter can be oxidized by a strong oxidant such as dichromate. This parameter is widely used to measure the amount of organic matter in urban and industrial discharge water [19].

The recommended levels of COD according to Environmental EC Directive range 3.0 - 5.0 mg/L while recommended COD level reported by WHO is 10 mg/L. Figure 13 shows that COD and BOD are within permitted levels.

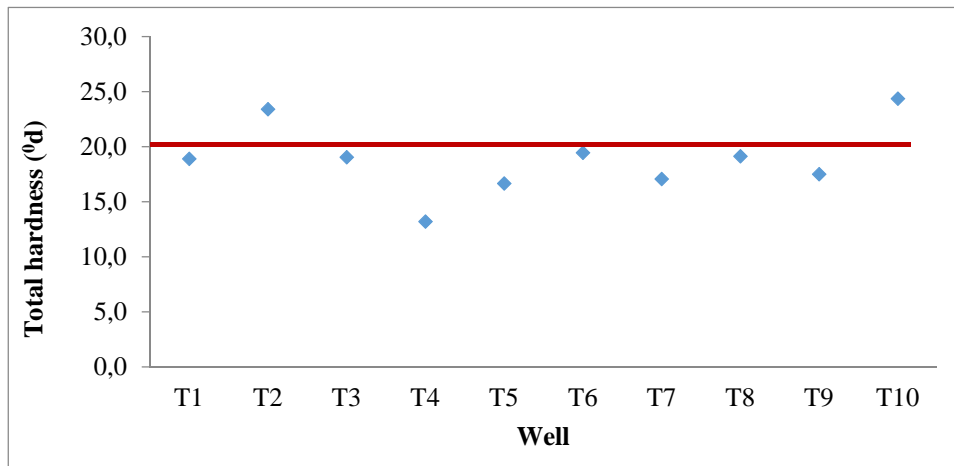
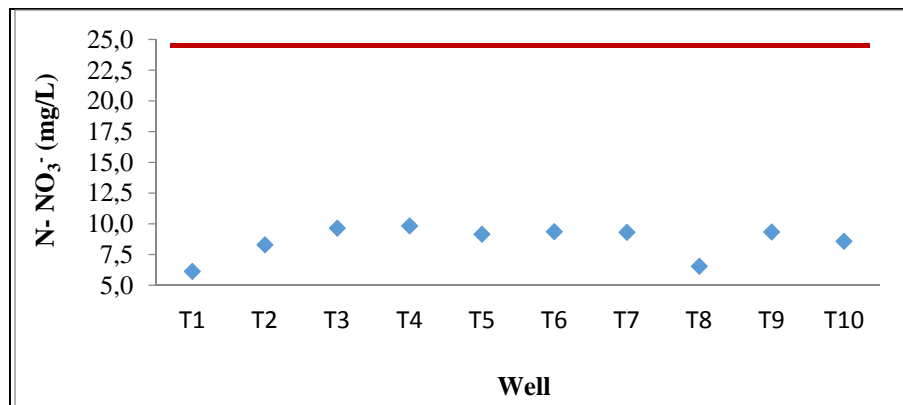


Figure 14: The mean values of Total Hardness

The Figure 14 shows that from 10 analyzed samples only 2 of them (T2 and T10) exceeded the maximum available level according to STASH.

Figure 15: The mean values of N-NO₃⁻ in the well water samples

All the analyzed samples were under recommended levels proposed by EC and WHO 50 mg NO₃⁻/L (Figure 15).

The content of nitrite in groundwater and surface water is very low usually it goes less than 0.01 mg NO₂⁻/L till 0.02 mg NO₂⁻/L. The highest levels of NO₂⁻ are result of anthropogenic discharges, metallurgic and food industry etc.

The concentration of nitrites in our well water samples were under 0.02mg/L (limit of detection of screening method).

The EC standard level for drinking water gives a level of NO₂⁻ equal to 0.1 mg/L. All samples of our study were within EC standard.

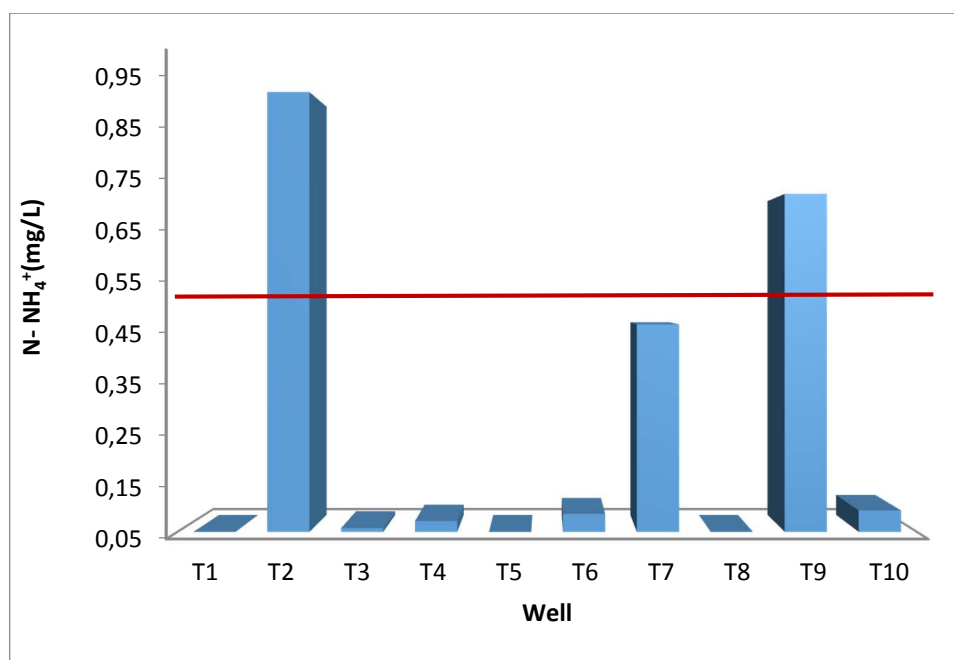


Figure 16: The mean values of N-NH₄⁺

The concentrations of ammonia in water range from 0.04 mg/L to 0.93 mg/L. The data taken shows that two from ten samples exceeded the recommended EC standard which for this parameter recommends the level 0.05 mg/L. The maximum permissible value according to EC Directive and STASH is 0.5 mg/L. (Figure 16). The samples which exceeded these standards were T2 and T9, respectively 0.93 mg/L and 0.73 mg/L. The main sources of the contamination with ammonia are sewage discharges.

Table 3 shows correlation of some physic and chemical parameters (full correlation are given in appendix, Table 3)

Each water quality parameter interacts with and influences other parameters, sometimes in complex ways [20]. There is a proportional relation between TDS and EC. These parameters have a good correlation ($R^2=1$).

Table 3 show that turbidity has a negative correlation with the depth of well ($R^2=-0.71$) thus increasing the depth decreases the conductivity. The negative correlation exists even between alkalinity and turbidity ($R^2=-0.73$).

The correlation between N-NO₃⁻ and EC or TDS is not so strong. The correlation coefficients were respectively $R^2=0.72$ and $R^2=0.73$.

ARIOLA DEVOLLI
WORK EXPERIENCE

2010 – present: **Lecture at University**

Department of Chemistry, Faculty of Biotechnology and Food; Tirana Agricultural University; Koder-Kamez Tirana Albania
www.ubt.edu.al

2009 – 2010: **Lecture at University**

Department of Chemistry, Professional High School, University "Aleksander Moisiu", Durres,

2009 – 2010: **Invited Lecture at University**

Department of Chemistry, Faculty of Biotechnology and Food; Tirana Agricultural University; Koder-Kamez Tirana Albania
www.ubt.edu.al

2008 – 2011: **Invited Lecture at University**

Department of Biology-Chemistry, Faculty of Natural Sciences; University "Aleksander Xhuvani"; Elbasan, Albania

2001 – 2008: **Chemical Engineering**

" STEFANI & CO" Brewery Company in Tirana



Total dissolved solids (TDS) are the term used to describe the inorganic salts and small amounts of organic matter present in solution of water. The principal constituents are usually calcium, magnesium, sodium, and potassium cations and carbonate, hydrogencarbonate, chloride, sulfate, and nitrate anions [21].

Data in the table 3 shows a strong relation between alkalinity and the total amount of Ca^{++} and Mg^{++} ($R^2=1$). On the other hand the results shown that a good relation between alkalinity and TDS ($R^2=0.88$). Total alkalinity consists of all the alkaline chemicals in the water, especially carbonates, bicarbonates and hydroxides.

The strong correlation between hardness and sum of Ca^{++} and Mg^{++} indicated that hardness belong to these ions.

The correlation coefficient between magnesium and sum calcium –magnesium was ($R^2=0.78$) this shows that the salts of magnesium are dominant in the determination of hardness. The water with high concentration of magnesium can be considered as mineral water which is intended for health care. A good correlation was shown even between hardness and depth of well ($R^2=0.80$).

DO, COD and BOD had good correlation with hardness (sum calcium –magnesium) respectively, $R^2=0.88$, $R^2=0.85$, $R^2=0.85$. Between COD and BOD the strong correlation was the same as it is described by the theoretical aspects ($R^2=1$)

Parameters	N- NO3 (mg/L)	Conductivity (mS/cm)	TDS (mg/L)	Turbidity(NTU)	Depth (m)	Calcium and Magnesium (mg CaO/L)	Calcium (mg Ca ⁺⁺ /L)	DO (mg O ₂ /L)	COD (mg/L)
N- NO3 (mg/L)	1.00								
Conductivity (mS/cm)	0.72	1.00							
TDS (mg/L)	0.73	1.00	1.00						
Turbidity(NTU)	-0.60	-0.75	-0.74	1.00					
Depth (m)	0.09	0.63	0.62	-0.71	1.00				
Alkalinity (HCO ₃ ⁻ /CO ₃ ²⁻)	0.40	0.88	0.88	-0.73	0.84				
Calcium and Magnesium (mg CaO/L)	-0.32	0.25	0.25	-0.53	0.80	1.00			
Total hardness (0d)	-0.32	0.25	0.25	-0.53	0.80	1.00			
Magnesium (mg Mg ⁺⁺ /L)	-0.05	0.13	0.12	-0.66	0.67	0.78	-0.50		
DO (mg O ₂ /L)	-0.20	0.44	0.44	-0.03	0.44	0.41	0.88	1.00	
COD (mg/L)	-0.58	0.08	0.07	0.24	0.34	0.48	0.85	0.88	1.00
BOD (mg/L)	-0.58	0.08	0.07	0.24	0.34	0.48	0.85	0.88	1.00

Table 3: Correlation matrixes of some parameters

Microbiological results. Table 4 shows microbiological load of ten analyzed well water samples for the presence of Total Coliforms and *Escherichia coli*. Results are expressed in cfu/100ml.

All samples shows positive results for presence of Total Coliforms and *Escherichia coli* (Appendix).

This indicates that well water is contaminated. According to guideline values for bacteriological parameters, the total Coliforms and *Escherichia coli* should be absent or less than 10 cfu/100ml. According to STASH for drinking water permit value of *Escherichia coli* and coliforms is 0 cfu/100ml, this standard allows for coliforms maximum permit value 3 cfu/100ml only for private wells. As it is shown in table 4 well water has a high microbiological load.

Microbiological load	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10
Total Coliforms (cfu/100 ml)	+++*	++*	+	++	+++	++	+++	+	+++	++
<i>Escherichia coli</i> (cfu/100ml)	++*	+++*	+	+	++	+	+++	+	++	+

Total Coliforms: +* more than 100 cfu/100ml; ++* more than 100 cfu/100ml; +++* more than 300 cfu/100ml
Escherichia coli : +* 1 to 10 cfu/100ml ; ++* 10 to 20 cfu/100ml ; +++* more than 20 cfu/100ml

Table 4: Microbiological results of well water

4. CONCLUSIONS

Based on analytical data and referred to the standards for drinking and underground water, the physico-chemical parameters such as pH, temperature and TDS are within standards. The TSS values are within the standard except one sample. The level of Calcium in most samples is within standard except two that have exceeded the maximum permitted level. Four wells shows magnesium level higher than permitted limits.

All water well samples have exceeded the permitted level of chlorides and DO. According to Albanian Standard two samples exceeded maximum permitted values of total hardness (expressed as German degree).

All analyzed samples exceeded the recommended levels of ammonium, but only two of them had higher levels than the maximum permitted.

Microbiological load is present and show high level in all analyzed samples. The presence of *E.coli* in high level indicates that in well water there is leaching of wastes.

Regarding to physico-chemical parameters this water can be used for drinking and household consumption after treatment. Regarding to microbiological results this not recommended to be used as drinking water.

5. REFERENCES

- [1] Miller (Jnr), G.T. (1997). Environmental Science. Working with the Earth. 6th ed. Wadsworth Publishing Company, USA. pp. 285-286

- [2] American Water Works Association (AWWA, 2011). Standard methods for examination of water and waste. American public Health Association, American Water Works Association Water Environment Federation PART 9000.
- [3] Fenwick, A. Waterborne Diseases—Could they be Consigned to History? *Science* 2006, 313, 1077–1081.
- [4] World Health Organization. Guidelines for Drinking-water Quality, Incorporating 1st and 2nd Addenda, Volume 1, Recommendations, 3rd ed.; WHO: Geneva, Switzerland, 2008.
- [5] Mathew E. O. (2002). Ground water study and development in Nigeria (2nd ed.) page 326.
- [6] Dattatraya Bharti, Isub Ali Sayyad, G. G. Gaikwad, D. R. Taikar and J. Dhore (2011) Physico-chemical characteristics of Bore well water quality in Nagpur region (South zone). *J. Chem. Pharm. Res.*, 2011, 3(2):922-927
- [7] Tyagi P., Buddhi D., Chaudhary R. and Sawhney R. L. (2002). Degradation of ground water quality in industrial areas of India- A review *Ind. V. Environ protect.*, 20, 174-181.
- [8] Haruna,A.,Uzaini,A and Harrison, G. F. S (2008) Evaluation of water quality of shallow tube wells of some fadama lands in Zaria City, Nigeria. Book of Proceedings of the international conference of the chemical society of Nigeria held in Effurun, Delta State.
- [9] Aremu, M. O. Olaofe, O. Ikokoh, P. P & Yakubu, M. M. (2011) physicochemical characteristics of strem, well and borehole water soures in Eggon, Nasarawa State, Nigeria. *Journal Chemical Society Nigeria*, 36 (1), 131-136.
- [10] L. M. L. Nollet, *Handbook of Water Analysis*, Marcel Dekker, New York, NY, USA, 2000.
- [11] Telegraph Media Group. "Mapped: the sunniest (and dullest) cities in Europe". telegraph.co.uk.
- [12] Quick Guide to Drinking Water Sample Collection. EPA, 2016
- [13] Standard methods for the analysis of water and wastewater 16th edition apha-awwa-wpcf.
- [14] Standardi shqiptar i ujit të pijshëm STASH 3904:1997, Botimi i dytë datë 1.03.1998.
- [15] Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption
- [16] McGowan, W, *Waterprocessing: residential, commercial, light-industrial*, 3rd ed. Lisle, IL, 2000, Water Quality Association.
- [17] Guy Howard. Domestic Water Quantity, Service Level and Health. WHO/SDE/WSH/03.02.
- [18] Water Quality Characteristics: Modeling and Modification. George Tchobanoglous. Edward D. Schoeder, both of the University of California, Davis. 1985
- [19] Clair N. Sawyer, Perry L. McCarty, Gene F. Parkin (2003). *Chemistry for Environmental Engineering and Science* (5th ed.). New York: McGraw-Hill. ISBN 0-07-248066-1.
- [20] James M. Ebeling, Ph.D. Research Engineer Aquaculture Systems Technologies, LLC New Orleans, LA
- [21] Total dissolved solids in Drinking-water. Background document for development of WHO *Guidelines for Drinking-water Quality* WHO/SDE/WSH/03.04/16

ECONOMIC DEVELOPMENT BY THE FOREIGN DIRECT INVESTMENT IN AGRICULTURE SECTOR

Sandra Jednak²⁵⁸
 Milos Parežanin²⁵⁹
 Dragana Kragulj²⁶⁰

Abstract: *High productivity, income and employment are usually associated with industry and service sectors. However, the agriculture sector is considered a significant contributor and driver for enhancing economic growth and development. Starting economic progress country first sets the goal of agriculture development which is later followed by industry development. Agriculture contributes economic development in different ways like obtaining integrates and raw materials for other sectors. It is essential for developing countries to have lack of capital and technology. The aim of the paper is a discussion about possibilities of economic development based on FDI in the agriculture sector. Research questions are: how agriculture contributes growth and development, which determines could attract FDI in the agriculture sector, and does FDI inflows in agriculture sectors influence increase of agriculture products export. The analysis and discussion are based on macroeconomic and agriculture performances and indicators. The theoretical overview and analysis show that the agriculture has the significant role in development, particularly in developing countries. However, how the economy expands the importance of agriculture decreases. Furthermore, determinates of attracting FDI are macroeconomic stability, taxes, trade and financial liberalization and openness. Finally, some countries, particularly developing countries, have increased the export of agriculture products.*

Key words: *FDI, economic development, agriculture sector*

1. INTRODUCTION

The countries face the issues of achieving sustainable development and obtaining efficient allocation of available and limited resources. Reducing poverty and achieving sustainable economic growth is the aim of every economy. In order to reduce poverty and increase the economic development of countries, many economies carry out economic, social, political and other reforms. The goal of the reform is to increase production, employment and income. Increasing productivity and better distribution of natural resources (physical and human capital) contribute the most to achieving economic growth and development [1].

Economic progress is associated with an increase in the share of the industrial sector and a decrease in the share of agriculture in GDP. Thus, the development of the industrial sector and the service sector becomes an important contributor to GDP. Due to the higher technology utilisation, higher incomes are achieved in the industrial sector than in agriculture. By using technologies, knowledge, human and physical capital, more efficient ways of doing business in the industrial sector are established that increase the level of production. Employees in the industry sector earn higher

²⁵⁸ University of Belgrade, Faculty of Organizational Sciences, Jove Ilica 154, Belgrade, Serbia

²⁵⁹ University of Belgrade, Faculty of Organizational Sciences, Jove Ilica 154, Belgrade, Serbia

²⁶⁰ University of Belgrade, Faculty of Organizational Sciences, Jove Ilica 154, Belgrade, Serbia

incomes, therefore the number of employed in agriculture decreases. Technological progress and productivity are lower in primary sectors (agriculture and mining) than in other sectors. The share of the labour force in agriculture is declining, as agricultural workers, which are less productive, move to the industrial sector, which is highly productive. However, the importance of agriculture in developing countries cannot be ignored. Although economic development based on natural resources and agriculture is relatively slow, natural resources and agricultural products should increase their shares in exports. It would enable the increase in the social wealth and purchasing power of the population, investment and economic growth. Agriculture contributes economic development in different ways like obtaining integrates and raw materials for other sectors. Foreign direct investments stimulate economic growth and development. FDI are predominantly focused on industry, the financial sector and services, but their orientation towards agriculture would contribute to the increase in economic growth and the development of East European developing countries.

The aim of the paper is an overview of possibilities of economic development based on FDI in the agriculture sector. Research questions are: how agriculture contributes growth and development, which determines could attract FDI in the agriculture sector, and does FDI inflows in agriculture sectors influence increase of employment, and agriculture products export.

2. THE ROLE OF AGRICULTURE IN ECONOMIC DEVELOPMENT

Agriculture, as part of the economy and as the primary production area, takes a particular place and importance in the economic policy of each country. The reasons for this are many. The functions of agriculture in the entire economy are multiple. In the production sphere, agriculture is significant as a primary producer of food and other plant and animal products. No country can ignore the problem of providing food for the population and raw materials for the processing industry. Agriculture is a business of strategic importance for society, which is especially evident in unstable conditions and opportunities in the world market. Also, the importance of agriculture for the trade balance of the country, as an essential condition for acquiring foreign exchange revenues and improving the living standards of the population, has led to specificities in the organisation of national markets and the influence of the government on agricultural products prices. Multiple agricultural functions in the economy can be seen through input-output relationships. The output of agriculture according to the total economy occurs as food for the population, raw materials for industry, labour force for non-agricultural activities and exports of products to other countries [2]. Inputs into the agricultural sector from others constitute capital goods, reproduction material, consumer goods and imports of commodities. Agriculture, despite the ever lower share in the creation of GDP and the number of employed population, retains an indispensable role in each state. It has a strategic importance for the economic growth and development of each country, regardless of the level of its development.

Sandra Jednak is employed at the Faculty of Organizational Sciences, University of Belgrade as an Associate Professor. She has published scientific research papers in international and national monographs, journals and conferences proceedings. Her teaching areas are Introduction to Economics, Macroeconomics, Microeconomics, Economic Development and EU. Her research focus is on the economic growth and development of SEE countries. Besides, her research interests are Knowledge (Based) Economy, Energy Economics, International Economics and Higher Education.



Agricultural production, in addition to the general and common characteristics of all production areas, has certain specificities that make it unique and complex. Firstly, agricultural production is dependent on the natural environment, i.e., from natural conditions. Sometimes the dependence of agriculture on natural factors was relatively high, and they mainly determined the scope, quality and structure of agricultural production, in time, due to the development of science, technology, mechanization, artificial selection, genetic engineering, etc. this dependence was getting smaller.

Today, natural conditions cannot be ignored entirely; they continue to affect variations in agricultural production, which has a repercussion on the sensitivity of the agricultural market and the change in agricultural products prices, although they indeed do not have a dominant influence. Secondly, the production cycle in agriculture is relatively long. It is especially important from the aspect of evaluating the efficiency of investments and the implementation of an adequate long-term policy for the development of agricultural production since it is necessary for a long period for the funds invested in agriculture to start producing results. Also, the production time in agriculture is not identical with the time of operation, as in other activities. The third characteristic refers to the price elasticity of demand, that is, supply. The price elasticity of demand shows the degree of correlation between the quantity of goods required and the size of the price, i.e. shows the extent to which demand changes if prices change, that is, if prices remain unchanged. The coefficient of price elasticity of demand for agricultural products is less than one. In case of an increase in supply, price inelasticity of demand causes a decline in prices of agricultural products. The income elasticity of demand for agricultural products is less than one, which means that demand for agricultural products is decreasing relative to the increase in income. Most often with the rise in income, the structure of demand for individual agricultural products is changing (higher demand for better products). The elasticity of substitution between specific agricultural items can be significant. It's about the so-called competitive products, where a change in the price of one of the competing products leads to a change in demand for another, a similar product. It should also be noted that demand for agricultural products has its own natural limitations. The analogous concept of elasticity of demand, the elasticity of supply represents the sensitivity of the offer to changes in the price of goods. In the short run, the supply of agricultural products is inelastic, which is conditioned by the relatively long production cycle in agriculture, as well as the long run periods of return of investment funds about other areas.

Miloš Parežanin is a teaching assistant for the scientific area of business economics and macroeconomics at Faculty of Organisational Sciences, University of Belgrade since 2011. He graduated from the Faculty of Economics, University of Belgrade in 2009. Currently he is Ph.D. student at same faculty. He received scholarship from: Ministry of Education (academic year 2005/06), city of Belgrade (academic year 2006/07), Foundation „Milivoje Jovanović and Luka Čelović“ (academic year 2007/08) and Fund for Young Talents (academic year 2010/11). He was a member of the jury for the selection of the best case study case at the Local Engineering Competition - Belgrade LEC 2012, organized by the student organization BEST and the Chair of the "Energy Efficiency" thematic area at the 16th International Conference "Quality and Reliability Management 2013" organized by the DQM Research Center. He has participated in several national and international scientific conferences. His research interests are Foreign Direct Investment, Energy Economics, Competitiveness of the Economy, European Integration, Economic Development.



3. FDI DETERMINATES IN AGRICULTURE SECTOR

In the short run, the government can increase GDP, if it is to use the available resources most efficiently. The consequence of such a policy can be to leave future generations without the necessary resources. Due to these negative effects, the government should analyze all available capital resources and, by appropriate economic policy, achieve long-run economic growth and development [3]. Due to the lack of domestic capital and savings, borrowing (loans) and foreign direct investment are considered the drivers of economic growth and development, especially in the East European transition economies and developing countries. From the experience of East European countries, FDI have the potential to generate employment, increase productivity, transfer technology, increase exports and contribute to economic development [4]. Due to that fact, all countries try to improve many factors and policies that attract foreign investors. However, it is challenging to attract foreign capital, which would trigger investment activities and the development of the economy. The poorly developed financial market and economic performance make it more difficult and slower.

There are different FDI determinates depends on sector and countries. Rashid & Razak (2016) [5] show that the most important determinants of FDI in the agriculture sector in OIC countries are market size and poverty, but also exchange rate, inflation and infrastructure. According to Bojnec et al. (2014) [6], technical efficiency in agriculture and rural development should increase living standards in agriculture. Doytch and Eren (2012) [7] study determinants of the sector FDI distributions. They show that human capital, host country state of democracy and natural resource endowments have a positive impact on the FDI in agriculture. Essential determinates in the food industry were: firm size, privatisation speed and value-added [8]. FDI inflows in agriculture sector influence on the higher agriculture exploitation, competitiveness of agriculture products, decrease of intensive migration of the population, especially young population, into cities, reduce poverty, and increase income and share in GDP [9]. Also, FDI could raise the level of productivity, modernisation, farm size, business activities and infrastructure [10].

4. FDI IN PRIMARY SECTOR

Agriculture is an essential sector of each economy. Besides, there is a need for its transformation and improvement in the developing countries and countries of East Europe. Agriculture remains much less capital intensive in those countries. Low- and middle- income countries invest in agriculture as much as developed countries in absolute numbers. There is the growth of investments in agriculture in each group of countries but on different rates, in developed countries by 2%, while in developing countries by 4% [11].

In 2016, global FDI flows fell by 2 %, to \$1.75 trillion. Investment in developing countries decreased, while in less developed countries remain low [12]. Comparing global inwards FDI stock by sector 2001, 2007 and 2015, it could be seen that service sector is still dominant in inward FDI stock (Figure 1). Primary sector has little improvement in FDI stocks. In 2015, two-thirds of global FDI stock was in the service sector, while manufacturing accounted 26 % and primary sector 6% [12]. FDI in extracting industries increases (oil and gas and metal mining), while investment stock in primary industry stays low. The reason for small FDI stock is weak commodities prices. For transition economies, the most promising industries to attract investments are ICT, agriculture and mining and quarrying. Still, the transition countries have the lowest share of total FDI.

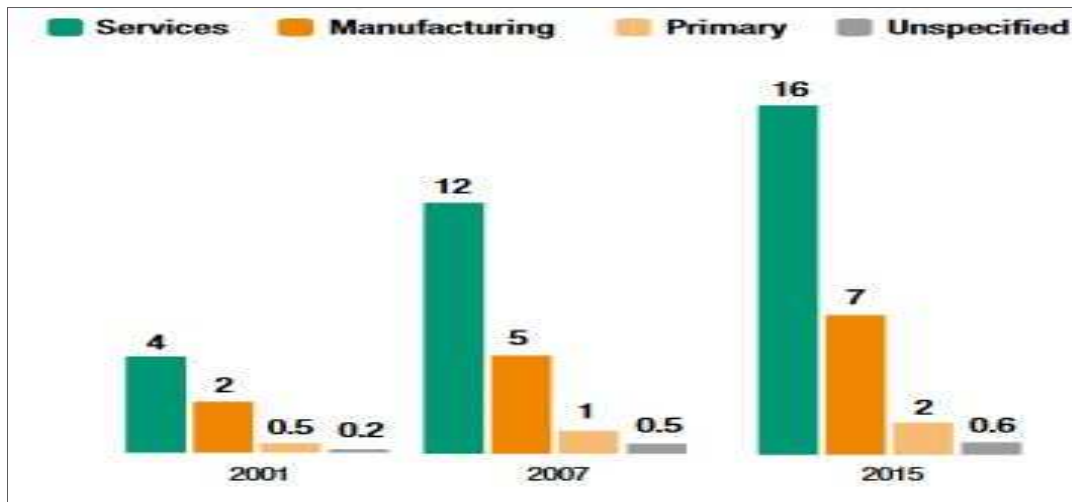


Figure 1: Estimated global inward FDI stock by sector, 2001, 2007 and 2015 (Trillions of dollars), Source: UNCTAD

Value of announced greenfield project show dominance of service and manufacturing sectors (Figure 2). From 2004 till 2016, cross-border M&As have been rising, while greenfield investments have modestly increased. The most greenfield investments have been in manufacturing. However, in 2016, manufacturing sectors have had a decline of greenfield investments, while the primary sector has had rise [12].

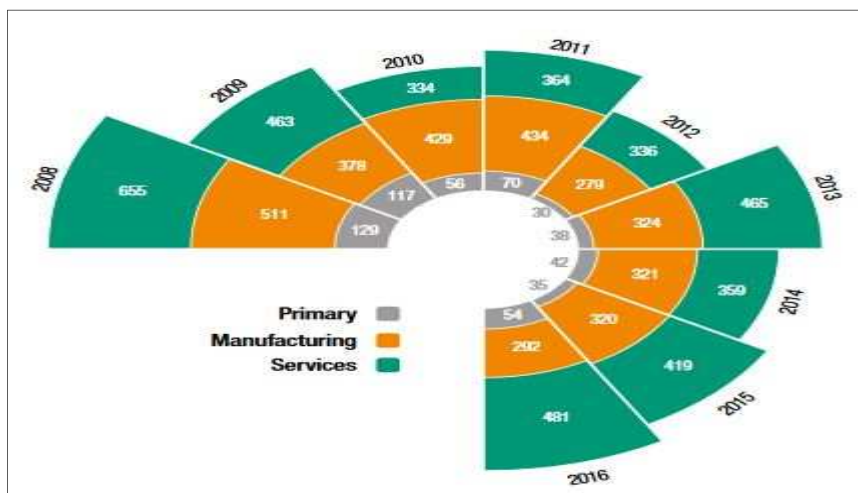


Figure 2: Value of announced greenfield projects by sector, 2008–2016 (Billions of dollars), Source: UNCTAD

Foreign investments have a significant role in the development of agriculture sector because of central government expenditures to agriculture decline. In 2001-2015, agriculture share of central government expenditures was less than half, i.e. under one-third of the sector's contribution to GDP [13]. Figure 3 shows that there is fall in total central government spending to the agriculture in developing regions even this sector contributes the most GDP. Asian and African countries lead government expenditure to agriculture. Besides, developed countries run a policy where government expenditures were oriented to the agriculture sector, and expenditures are higher than in developing countries.

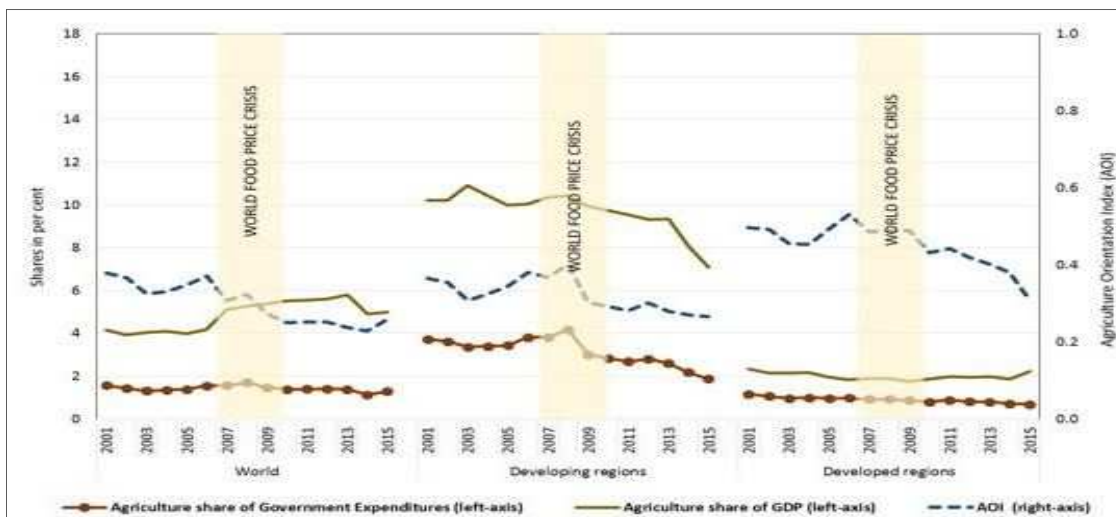


Figure 3: Trends in Central government spending on Agriculture by region, 2001-2015, Source: Food and Agriculture Organization of the United Nations

5. OVERVIEW OF MACROECONOMIC INDICATORS (GDP, EMPLOYMENT AND EXPORT) EAST EUROPEAN COUNTRIES

In Eastern Europe countries, the implementation of economic reforms, agriculture and land, institutional and policy reforms have changed the structure of the agricultural sector. Agriculture is a primary sector, and there is a high correlation between the agricultural sector and economic growth. The development of the agriculture sector is conditioned by the improvement of economic, biodiversity and climate, institutions and social environments. Output, income, employment and export of agriculture increase by implementing an adequate policy. Several economic indicators can serve to look at the agricultural production and its importance in the economic structure of selected Eastern European countries: share of agriculture of GDP, employment in agriculture sector and export of agriculture products.

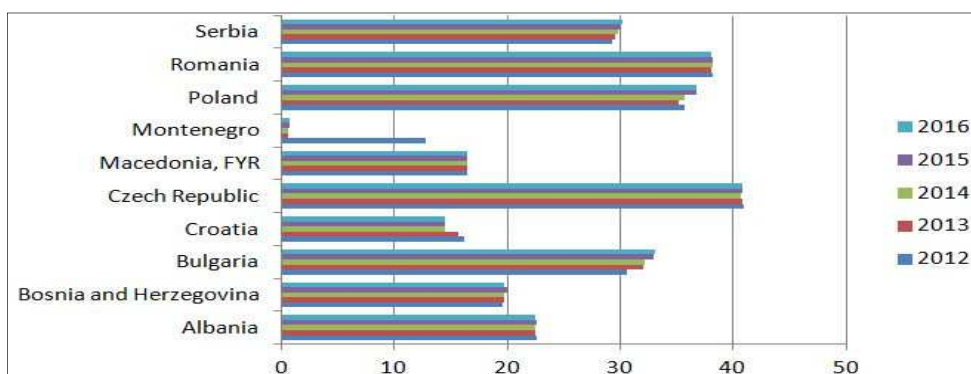


Figure 3: Arable land (% of land area), Source: World Bank

Over the last 50 years, the world's arable area has grown by 12 percent. The 11 % of the world's land surface is used for crop production [14]. Everywhere in the world, an attempt is made to increase the surface of the arable land. In observed East European countries, the number of overall farms decreases, while to 2 ha in size increases. Furthermore, lowland cover of 60% arable land and over half of arable land is used for wheat production [15]. Figure 3 shows that Czech Republic, Romania, Poland and Serbia have the highest land area that is arable. The shares of arable land are from 20 to around 40 % of land area. Serbia has 0.68 ha of available agriculture land per capita, the highest share from the West Balkan countries. Although

agricultural productivity is increasing in those countries, still their agriculture products are not increasing competitiveness.

Even Albania has less arable land than other observed countries; this country obtains the highest value added from agriculture. Agriculture contributes around 20 % of GDP (2015). Albania tries to boost agriculture by financial supports and investments. Macedonia, Montenegro and Serbia have value added by agriculture around 10 % of GDP. Those countries still have a lower level of development than other East European countries (Poland, Czech Republic, Bulgaria, Romania and Hungary), so the agriculture is dominated in value added to GDP.

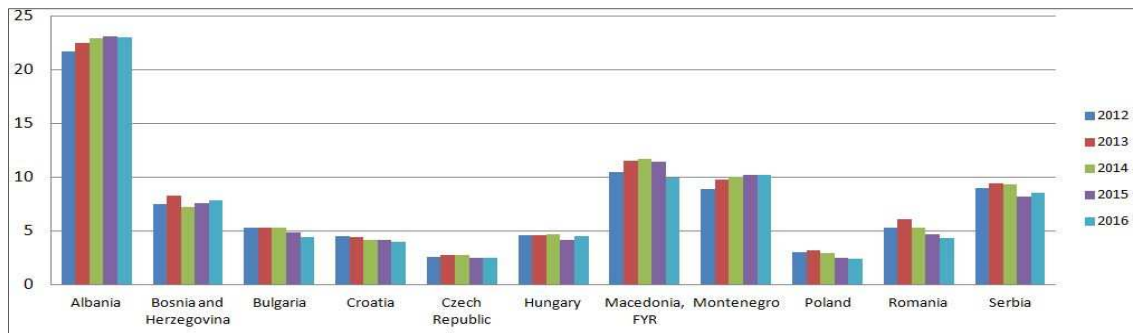


Figure 4: Agriculture, value added (% of GDP), Source: World Bank

If the economy has natural resources, there is a possibility that the labour force has a lower level of qualifications and education, especially for branches based on natural resources, such as agriculture. This leads to smaller investments in education, and thus to lower income. According to data from Figure 5, Albania has the highest employment in agriculture. Besides Albania, Romania, Serbia, Macedonia and Bosnia and Herzegovina have a high rate of employment in agriculture. However, during the time, that rate decreases but not so much. Employment across observed countries varies.

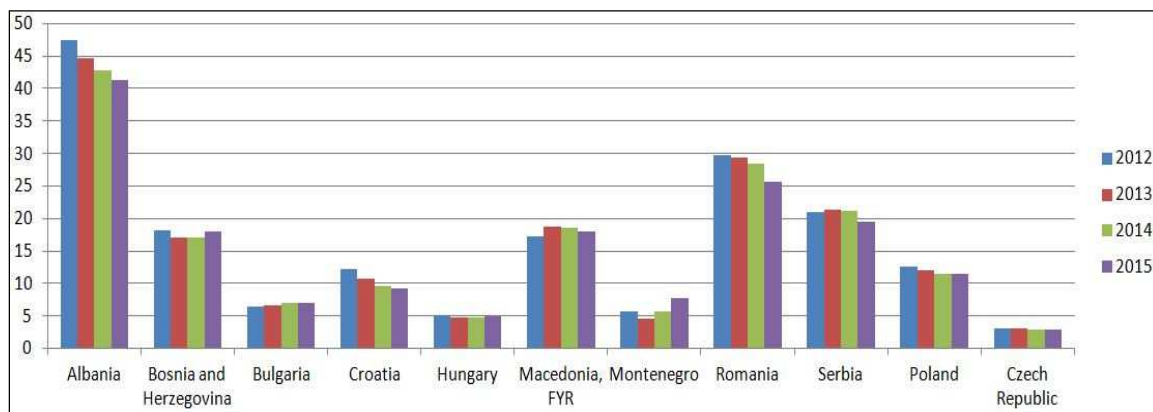


Figure 5: Employment in agriculture (% of total employment), Source: World Bank

Increasing GDP, employment and exports have a trend of growth in national economies. Agriculture is a dominant sector in these developing countries. In trade exchanges, agricultural products positively affect the foreign trade balance. However, it has to be pointed out that the most substantial participation in the exports has raw materials, while the share of final processing products is lagging behind. It is important to point out that the share of agriculture in GDP (value added of GDP) and employment decrease as economic development increases. Even economic progress decrease role of agriculture in growth, in some countries agriculture, has an impact on the growth due to favourable geographical location, natural resource quality, fertility and climate, as well as market share of national and regional markets and tax and

investments policies [16]. If countries are CEFTA or EU members, then their exports are directed to these markets. For example, the export of Serbia's agricultural products was dominated by CEFTA and the EU [17].

6. CONCLUSION

Agriculture can stimulate economic growth and development in developing countries of East Europe. Most of the countries have good key agriculture performances, but it should be more improved. The agriculture sector in East European countries still provides the most significant share of employment and share of GDP, and have a similar share of arable land. Investments, government expenditures or FDI, are needed to initiate further development of the agriculture sector. Government expenditure decreased as a share of agriculture, so the solution is attracting FDI. These countries have run agriculture and land reforms that change the structure of agriculture and economy. Reforms have obtained FDI. However, this is the small percents according to total FDI. Still, FDI inflows bring the efficiency of production in the agriculture sector and increase share in GDP. Furthermore, FDI influence the higher agriculture exploitation, competitiveness of agriculture products, better demographic structure, decrease of intensive migration of the population into cities, increase income and reduction of poverty. However, agriculture products are not competitiveness as products from developed countries, and the most exports are raw materials. In order to obtain progress in agriculture and a higher level of economic development countries should obtain more foreign capital and apply agriculture policy.

Dragana Kragulj. Doctor, Full Professor.

She graduated from the Faculty of Economics, University of Belgrade, where she also got her MSc degree and PhD degree. She was a Head of Center for Economic and Business Research. Now she is a Head of Department of Economics, Business Planning and International Management. She has published two monographs, several editions of different textbooks of Economics and over 100 peer-reviewed papers.



The areas of her research interest include macroeconomic problems, prices, market, inflation, economic development, investment, international trade, agriculture, energy economics, process of transition, international economic integrations, the European Union.

REFERENCES

- [1] Cypher James, M., & Dietz James, L. (2009). *The Process of Economic Development*, 3th Editon.
- [2] Kragulj D. (2016). *Ekonomija – osnovi mikroekonomske i makroekonomske analize*. Beograd.
- [3] Stiglitz, J. E. (2006). *Stability with Growth: Macroeconomics, liberalization and development*. Oxford University Press.
- [4] Parežanin, M., Jednak, S., & Kragulj, D. (2016). The impact of FDI on the economic growth of Serbia. *Management: Journal of Sustainable Business and Management Solutions in Emerging Economies*, 21(78), 25-32.
- [5] Rashid, I. M. A., & Razak, N. A. A. (2016). Determinants of Foreign Direct Investment (FDI) in Agriculture Sector Based on Selected High-income Developing Economies in OIC Countries: An Empirical Study on the Provincial Panel Data by Using Stata, 2003-2012. *Procedia Economics and Finance*, 39, 328-334.

- [6] Bojnec, Š., Fertó, I., Jámboř, A., & Tóth, J. (2014). Determinants of technical efficiency in agriculture in new EU member states from Central and Eastern Europe. *Acta Oeconomica*, 64(2), 197-217.
- [7] Doytch, N., & Eren, M. (2012). Institutional determinants of sectoral FDI in Eastern European and Central Asian countries: The role of investment climate and democracy. *Emerging Markets Finance and Trade*, 48(sup4), 14-32.
- [8] Walkenhorst, P. (2001). Determinants of foreign direct investment in the food industry: The case of Poland. *Agribusiness*, 17(3), 383-395.
- [9] Vukelić, G., & Đuričin, S. (2012). *Agricultural output growth at the regional level in Serbia*. Managing Structural Changes Trends And Requirements, Faculty of Economics of the University of Coimbra.
- [10] Jovanovic, S. S., & Dasic, B. (2015). *The Importance Of Foreign Direct Investment For South East European Countries'agriculture*. *Ekonomika Poljoprivrede*, 62(3), 661.
- [11] Food and Agriculture Organization of the UN (2017). The future of food and agriculture: Trends and challenges. Retrieved from <http://www.fao.org/3/a-i6644e.pdf>
- [12] UNCTAD (2017). World Investment Report 2017 - Investment and Digital Economy.
- [13] Food and Agriculture Organization of the United Nations (2017). Government expenditure on agriculture. Retrieved from <http://www.fao.org/economic/ess/investment/expenditure/en/>
- [14] Index Mundi (2017). Arable land (% of land area) – Europe. Retrieved from <https://www.indexmundi.com/facts/indicators/AG.LND.ARBL.ZS/map/europe>
- [15] European Commission. ACCELERATES — Result In Brief Retrieved from
- [16] http://cordis.europa.eu/result/rcn/82072_en.html
- [17] Filipović, S. (2012). *Competitiveness of Serbian agribusiness sector*. Managing Structural Changes Trends And Requirements, Faculty of Economics of the University of Coimbra.
- [18] Radosavljević, K. (2017). Marketing Channels and Competitiveness of Maize in Serbia. *Management: Journal Of Sustainable Business And Management Solutions In Emerging Economies*, 22(1), 59-70.

INTERACTION VARIETY AND MICROBIOLOGICAL FERTILIZER ON YIELD BEAN IN ORGANIC CULTIVATION

Gordana Dozet²⁶¹
Sufyan Abuatwarat²⁶²
Nenad Djuric²⁶³

Abstract: *Bean is an annual legume, which resembles an important plant species in production and an alimentation basis for many nations. In Serbia, bean is produced in organic production on vast surfaces. However, even if bean consumption is increasing, surfaces are linearly decreasing in the period from 2005 to 2014 ($r=-0.97$). Yields vary between 0.8 and 1.3 tha^{-1} . In Serbia, modern varieties from the state's official list of varieties are used for organic production. Bean makes 4.3 % of the total vegetable consumption structure in Serbia. Global bean consumption is 2.4 kg. In Europe, the consumption is very modest and amounts to 0.7 kg, which is 4.5 kg less than in Serbia. Bean consumption in Serbia is recording an increase. The research goal was to determine the interaction between the genetic factor and the application of microbiological fertilizers on bean yield in an organic breeding method, which would contribute to the consumption of food that is safe in terms of health and to environment preservation.*

*The experiment was set on an experimental plot of the Faculty of Biofarming in Bačka Topola. Plants were grown on calcareous chernozem. Determination of the content of mineral nitrogen is done before planting and after harvest. Bean was bred by the principles of organic production. The weather conditions during the experiment's realisation were tracked, therefore their influence on the interaction between the genotype and the microbiological fertilizers on yield was also measured. In an experimental biennial field plot arranged by split-plot method in four repetitions, two genotypes were used, bean varieties: Zlatko and Maksa. Large plots were varieties and subplots – control and variants of effective microorganism (EM) and *Trichoderma atroviride* use. The size of an elementary plot was 10 m^2 . A variance analysis was made and the average yield values of the bean from applied treatments were tested by LSD test (least significant differences).*

In both years of study, the variety Maksa had a statistically significantly higher yield in comparison with the variety Zlatko. The use of microbiological fertilizer didn't show any regularity in bean yield formation. The interaction between genotype and microbiological fertilizer is statistically significant. In both years the lowest yield was measured in the variant of treating the soil with EM before sowing. The interaction between microbiological fertilizer and variety was, in average for both years, statistically significant and regular. Both varieties have recorded the highest yield with the use of EM in the combination: soil treatment before sowing, in the pheno-phase of 3 to 4 leaves and beginning of flowering. Obtained results refer to a proposal of bean breeding in an organic breeding system. However, the researches should be continued on various localities which would be a factor of influence on interaction and bean yield.

Key words: *bean, interaction, microbiological fertilizer, organic breeding, variety, yield*

²⁶¹ University John Naisbitt, Faculty of biofarming, M.Tita 39, Backa Topola, Serbia

²⁶² University John Naisbitt, Faculty of biofarming, M.Tita 39, Backa Topola, Serbia

²⁶³ University John Naisbitt, Faculty of biofarming, M.Tita 39, Backa Topola, Serbia

1. INTRODUCTION

Beans are one of the basic vegetable crops that are used in human nutrition. In terms of nutrition, they are one of the richest sources of plant protein, carbohydrates, dietary fibers and minerals (Fe, Ca, Sn, Mo), biologically most valuable in human nutrition [1]. Beans are plants with a long cultivation tradition. It used to be cultivated as a intercrop in corn, but today it is cultivated on smaller surfaces, house gardens for personal use and on greater surfaces for industrial production.

Organic agriculture suits the general concept of sustainable development, because it tends towards ecologically clean, profitable, ethically acceptable and socially just agricultural production. Agricultural modernization led to a degradation of the link between ecology and agricultural production, because ecological principles are often ignored and neglected [2].

Organic agriculture is a sustainable, natural alternative for intensification of production methods. It uses traditional methods of soil cultivation and maintenance and control of weeds, pests and diseases. The impact of globalization and increasing world trade in agriculture, there remain large, persistent and, in some cases, worsening spatial differences in the ability of societies to both feed themselves and protect the long-term productive capacity of their natural resources. This paper explores these differences and develops a country×farming systems typology for exploring the linkages between human needs, agriculture and the environment, and for assessing options for addressing future food security, land use and ecosystem service challenges facing different societies around the world [3].

As the soil vitality was presented not only with a presence, but balanced interactions of organisms that inhabit it, there is a need for access, quantity growth and enzyme activity of soil flora and fauna correction. It would include an abolition of chemical pesticide and fertilizer

Gordana Dozet is associate professor of Faculty of Biofarming, Backa Topola, University »John Naisbitt«Belgrade. Field of scientific work: Biotechnology in crop production



PROFESSIONAL ORIENTATION

Scientific field: Biotechnology in crop production

Scientific field of interest: Productions of field plants (field and vegetable crops), Integrated, Biotechnology, Sustainable agriculture and Organic/Ecological agriculture etc.

Specialist scientific field: Productions of legumes

SCIENTIFIC AND RESEARCH PROJECTS

1.NGO »Hera« and NGO »Resource Center for Rural Development«, Backa Topola:

„Mechanisms to combat violence in the family“- Project Coordinator (2005-2006), Balkan Fund for Local Initiatives;

„Both women vote“ – Project participant (2005-2006)

2.TR31031: “Promotion of sustainability and competitiveness in organic plant and livestock production by means of novel technologies and inputs” (2011-2014)

3.III46006: „Sustainable agriculture and rural development in order to achieve the strategic objectives of the Republic of Serbia within the Danube region“ (2011-)

RESULTS OF SCIENTIFIC WORK

She has published over 200 scientific papers, Published two monographs of national significance, Published a textbook General Organic Vegetable Crops.

She is member in professional and scientific associations: Serbia Organica, Development Academy of Agriculture Serbia, Seed association of Serbia, ESA, ISF, Association of Agricultural Economists Balkans

use, that nonselectively decrease quantity or eliminate organism populations that are present and necessary in that soil, maintaining homeorhesis in it's common activities [4].

In Serbia, beans are produced in organic production on many surfaces. However, although the production of beans is being increased, the surfaces, in the period from 2005 to 2014. are linearly decreasing ($r=-0.97$). Yields vary from 0.8 to 1.3 tha^{-1} . Contemporary varieties from the state variety list are being used for organic production of beans. In the structure of total vegetable consumption in Serbia, beans take place with 4.3%. World beans consumption amounts 2.4 kg. In Europe, the consumption is very modest and it amounts 0.7 kg, which is 4.5 kg less than in Serbia. The consumption in Serbia is being increased.

Soil protection from degradation in agricultural production is one more measure in a frame of aims and directives of integral and organic production. Hence, there is an increasing number of researches that are oriented on finding the use of alternative measures in plant production, so that unwanted consequences can be avoided. One of the measures is the use of microbiological fertilizers [5]. Microorganisms that have both defensive and stimulative influence on plant growth and development, thus on their yield as well are contributors of biological soil activity intensification that and development. One of those microorganisms are also fungi from genus *Trichoderma spp.* Numerous experiments have determined that most of strains from this genus have a positive effect on plant growth and development, protection and on higher yield [6],[7]. *Trichoderma* does not show an unfavorable influence on microbiological processes in soil, on plants and surrounding environment, but it takes place in humigation and degradation of heavily degradable matter, such as hemicellulose and lignin [8], [9]. In order for the bean genus to have an organic status, it is necessary to carry out an organic production certification in accordance with the Organic Production Law (*Službeni glasnik RS*, No. 30/10) and it is obligatory in the Republic of Serbia.

The aim of this research was to determine genetic factor interaction and the use of microbiological fertilizers on bean yield in organic breeding technology, which would contribute to organic food consumption and environmental conservation.

Sufyan Abuatwarat

EDUCATION:

University of Novi Sad, Faculty of Agriculture, MSc in Agriculture, 2012. (Animal science). With grade of 8.5. (Carbohydrate Fraction Derived From Yeast as Growth of Chicks With Low Body Weights). University of Azzawiya, Faculty of Veterinary and Agricultural Sciences, BSc in Agricultural Sciences, 2002 -2006. (Proper Breeding of Poultry) GPA 70.00 %. Alaliga high school, 2002, with GPA 86.00 %. Jabar Primary South school, 1999, with GPA 78.00 %.

Employment:

Assistant at the Department of Animal Science, Faculty of Veterinary Medicine and Agricultural Sciences University of Azzawiya, 2007- 2010.

Current status: Studying PhD.

Honors and Awards

Achieved Scholarship from Government of Libya to achieve Master degree and PhD.

Languages spoken and Ability: Mother Language: Arabic.

English Language: reading and writing (excellent).



2. MATERIAL AND METHOD

The experiment was set on an experimental plot in Bačka Topola, Serbia. Plants were grown on calcareous chernozem. Bean was bred by the principles of organic production. Basic soil cultivation without mineral fertilizer use was done. Sowing was done in both experimental years in the first decade of May. A declared bean seed, obtained from the Institute of Field and Vegetable Crops from Novi Sad, Serbia was used for sowing. Two bean varieties were used in the experiment, Maksa and Zlatko.

EM preparation is a liquid concentrate, in which were bred more than 80 strains of main antibiotic organisms, which are in nature found in the soil. The preparation does not contain genetically modified organisms, but a stable community of aerobic and anaerobic microorganisms.

Both of them, regardless of different life forms, live in one environment in an active food source exchange regime. The metabolic products of one group represent food to the other group. In such a system, it comes to an accumulation of positive characteristics of the united microorganisms. Before sowing the soil was treated with EM preparation. In the third variant, EM preparations were applied before sowing+in pheno-phase 3-4 trifoliolate leaves+begining of butonization. TIFFI is a product made of live fungi spores (conidia and chlamyospores) and mycelia, genetically not modified. *Trichoderma atroviride* – 898G is a fungi strain which have a very antagonistic effect on many pathogenic fungi which live in the soil (*Fusarium spp.*, *Rhizoctonia sp.*, *Verticillium spp.*, *Armillaria spp.*, *Phyochaeta spp.*) and on plants (*Phytophthora spp.*, *Botrytis spp.* i sl.). Doses and application method: the powder has to be mixed with peat or soil before sowing or planting. For vegetables as tomato, cabbage, pepper, onion, potato, beans etc. it is necessary to use 1,5-2 kg ha^{-1} of powder. In the experiment, the seed was sprayed with the powder mixed with a little water. The other half of the TIFFI powder was mixed with water and sprayed ten days before sowing.

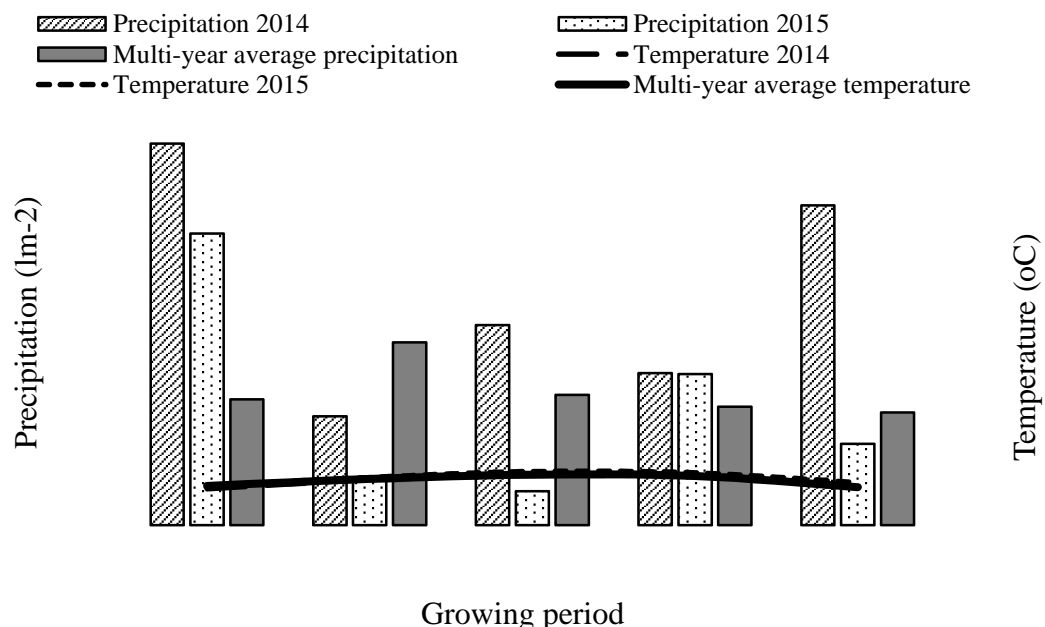


Figure 1: Average temperature and precipitation for the 2014 and 2015, and long term average (1983-2013)

The organic bean experiment was set after the first onion crop in 2014, while in 2015, the first crop was wheat.

The weather conditions during the experiment's realisation were tracked, therefore their influence on the interaction between the genotype and the microbiological fertilizers on yield was also measured. In an experimental biennial field plot arranged by split-plot method in four repetitions, two genotypes were used, bean varieties: Zlatko and Maksa. Large plots were varieties and subplots – control and variants of effective microorganism (EM) and *Trichoderma atroviride* use. Beans were sowed manually in four hoe made furrows with a row distance of 50 cm, distance of 4 cm between seeds and depth of 4-5 cm. The size of an elementary plot was 10 m².

Wether conditions

In the vegetation period of 2014, precipitation sum was 512.0 mm, which is 73.5% higher in comparison to the perennial average (Fig.1). Temperatures were lower in the beginning of the vegetation in comparison to the perennial average, while in September, it was 0.5°C higher in comparison to the perennial average. In general, they did not deviate significantly from the average for the analyzed vegetation period. In 2015, precipitation sum for the vegetation period was 48.0% lower in comparison to perennial period and 9.9% in comparison to 2014. Hence, the temperatures in 2015 were significantly higher in comparison to perennial period and 2014. That indicates the conclusion, that the 2014 was, from the aspect of weather conditions, more favorable for bean production in organic system of breeding.

2. RESULTS AND DISCUSSION

The average yield for both research years was 3896.5 kg ha⁻¹, taking in consideration that in 2014, it was 5367 kg ha⁻¹, and in 2015, 2426 kg ha⁻¹, which is 121.2% higher (Tab.1).

Year	Microbiological treatment (A)	Variety (B)		Average B	
		Maksa	Zlatko		
2014	Control	3881	5715	4798	
	EM (treatment soil)	3400	4625	4013	
	<i>Trichoderma</i> (treatment soil)	4115	7450	5783	
	EM (soil + 2x in vegetacion treatment)	4500	9300	6900	
	<i>Trichoderma</i> (treatment seed)	4400	6288	5344	
	Average A	4059	6676	5367	
2015	Control	2264	2730	2497	
	EM (treatment soil)	2024	2330	2177	
	<i>Trichoderma</i> (treatment soil)	2247	2878	2563	
	EM (soil + 2x in vegetacion treatment)	2474	2943	2708	
	<i>Trichoderma</i> (treatment seed)	1719	2652	2186	
	Average A	2145	2707	2426	
2014	Factor	A	B	AxB	BxA
	LSD _{0.05}	327	339	521	519
	LSD _{0.01}	684	495	741	738
2015	LSD _{0.05}	227	240	420	410
	LSD _{0.01}	580	390	640	620

Table 1

The obtained results were processed by the analysis of variance (ANOVA) for two-factorial trials in two years of study. The average yield values of the bean from applied treatments were tested by LSD test (least significant differences). Analyses were performed in GenStat (Trial version).

Very significant differences between vegetation years of bean yield were conditioned by a direct weather condition influence, which was prevailing during the research years. Year, that is, weather condition influence in wheat vegetation period on the yield level are determined in earlier researches [10] - [12]. In both research years Zlatko variety achieved, statistically, a significantly high yield in comparison to Maksa variety. That feature is genetically conditioned. There are similar results within other Leguminosae [11] - [14]. The lowest yield was measured when only the EM preparation was applied to the soil treatment, in the experiment. The use of *Trichoderme atroviride* in the soil treatment gave excellent results. In 2014, a yield of 5783 kg ha^{-1} was measured, which is 20.5% higher in comparison to control (4798 kg ha^{-1}). In 2015, a yield of 2563 kg ha^{-1} was achieved, and that is 2.6% higher in comparison to the control variant (2497 kg ha^{-1}). Similar results of positive *Trichoderma sp.* application stand out in their researches [15].

It is very important how each variety reacts to the applied treatments. In that manner we dispose with the interaction of variety and applied treatment. Observing both years, there was a very significant interaction of varieties and microbiological treatment (AxB). The highest yield was measured within both tested varieties with an EM preparation use variant before sowing with an application to the soil+treatment in pheno-phase 3-4 trifoliolate leaves+butonization (begining of flowering). Interaction BxA is highly significant as well ($p<0.01$).

3. CONCLUSIONS

The bean yield very depends of weather conditions, which were prevailing during the vegetation period. Yield is a genetically conditioned feature. In that manner, there were obtained statistically very significant differences between varieties. Microbiological preparations that were used, had an efficient effect to the yield increasement in both years. The highest yield was

Nenad A. Djuric was born on 21 November 1971 in Pancevo, Serbia. He graduated from the Faculty of Agriculture in Belgrade in 1996. Where he also completed his postgraduate studies in 2001, and defended his PhD thesis in 2013.



In 1996, he started working at the PKB Agroekonomik Institute, in Padinska Skela, Belgrade, in the Department for Wheat Selection. From 2000 to 2005, he was Head of the Department for Wheat Selection and Director of PKB Agroekonomik Institute Division for Crop and Vegetable Production. From 2005 to 2013, he was the Director of PKB Agroekonomik Institute in Padinska Skela.

In 2014, he begins working as Assistant Professor at John Naisbitt University, Faculty of Biofarming in Backa Topola.

He is the author or coauthor of 80 papers published in Serbia and abroad, of which five are on the SCI list, as well as of two monographs.

He is the coauthor of three wheat varieties recognized in Serbia, and five wheat varieties recognized in the European Union. He is also the coauthor of one variety of barley and two varieties of triticale recognized in Serbia. He is the coauthor two maize hybrids recognized in Serbia.

He is an active and full member of several academies, scientific and professional organizations in Serbia and abroad.

measured within the application of EM preparation variant before sowing+pheno-phase 3-4 trifoliolate leaves+begining of flowering. Interaction AxB and BxA are very significant. Both varieties reacted to the applicated treatments. Within all five variants there were significant differneces between the tested genotypes. Obtained results refer to a proposal of bean breeding in an organic breeding system. In order for bean genus to have an organic status, it is necessary to do a certification of organic production in accordance with the Organic Production Law. However, the researches should be continued on various localities which would be a factor of influence on interaction and bean yield.

Aknowledgement

These studies are part of the projects no. III 46006, financed by the Ministry of Education, Science and Technological Development of the Republic of Serbia

REFERENCES

- [1] Todorović, J., Vasić, M., Todorović, V. (2008) *Pasulj i boranija*, Institut za ratarstvo i povrtarstvo, Novi Sad.
- [2] Webster, R. (1997) *Regresion and functional relations*, Soil Science, Vol.48, Issue 3, pp. 557-566.
- [3] Hazell, P., Wood, S. (2008) *Drivers changes in global agriculture*, Philosophical Transactions Royal Society Lond. B Biol. Sci., Vol.363(1491),pp. 495-515.
- [4] Duram, L., Oberholtzer, L. (2010) *A geographic approach to place and natural resource use in local food systems*, Renewable Agriculture and Food Systems, Vol. 25, Issue 2, Special Issue: Sp. Iss. SI pp. 99-108.
- [5] Cvijanović, G., Milošević, N., Dozet, G., Lalević, B. (2010) *Značaj mikroorganizama u organskoj proizvodnji*. Međunarodni sajam turizma, Mediteranski dani: Međunarodna konferencija, Zdrav život, Tematski zbornik, Trebinje, Bosnia & Hercegovina, pp. 86-92.
- [6] Harman, G.E., Howell, C.R., Viterbo, A., Chet, I., Lorito, M. (2004) *Trichoderma species-opportunistic avirulent plant symbionts*. Nature Reviews Microbiology 2 (1), pp. 43-56.
- [7] Đoković, J., Galonja Coghill, T., Dozet, G., Bošković, J., Milenković, S., Kostadinović, Lj. (2012): *The influence of Trichoderma Harzianum on germination and growth of pepper varieties*. VI International ECO-Conference, 26.-29th september. SAFE FOOD. Ekoloski pokret Novog Sada, Proceedings, N. Sad, Serbia, pp. 363-370.
- [8] Cvijanović, G., Dozet, G., Cvijanović, D. (2013) *Menadžment u organskoj biljnoj proizvodnji*, Institut za ekonomiku poljoprivrede, Beograd.
- [9] Cvijanović, G., Dozet, G., Đukić, V., Đorđević, S., Puzić, G. (2013) *Microbial activity of soil during the inoculation of soya bean with symbiotic and free-living nitrogen-fixing bacterial*. African Journal of Biotechnology, Vol. 11(3), pp 590-597.
- [10] Dozet G. (2009). *Influence of fertilization of pre-culture with nitrogen and application of Co and Mo on yield and properties of soya bean*. Doctoral dissertation, Megatrend University Belgrade, Faculty of biofarming Bačka Topola, Serbia.
- [11] Dozet G., Đukić V., Cvijanović M., Đurić N., Kostadinović Lj., Jakšić S., Cvijanović G. (2015). *Influence of organic and conventional methods of growing on qualitative properties of soybean*. Book of Proceedings from Sixth International Scientific Agricultural Symposium "Agrosym 2015", October 15-18, Jahorina, Bosnia and Hercegovina, Faculty of Agriculture University of East Sarajevo, Faculty of Agriculture University of Agriculture University of Belgrade, CIHEAM-Mediterranean Agronomic Institute of Bari (CHIEAM-IAMB), pp.407-412.

- [12] Dozet G., Balesevic Tubic S., Kostadinovic Lj., Djukic V., Jaksic S., Popovic V., Cvijanovic M. (2016). *The effect of preceding crops nitrogen fertilization and cobalt and molybdenum application on yield and quality of soybean grain*. Romanian Agricultural Research, No. 33., pp.133-143.
- [13] Dozet, G., Cvijanović, G. (2012) *Varietal Adaptability of Organic Green Beans Cultivated Using Microbial Preparations*. The Forth Joint UNS-PSU International Conference on BioScience: Biotechnology and Biodiversity. Book of the Proceeding and Conference Proceedings, pp.431-443.
- [14] Dozet, G., Cvijanovic, G., Djukic, V. (2013) *Changes in the technology of soybean production*. CHAPTER 1 FROM THE BOOK - Sustainable Technologies, Policies and Constraints in the Green Economy, Advances in Environmental Engineering and Green Technologies (AEEGT) Book Series, IGI GLOBAL BOOK USA, pp. 1-22.
- [15] Galonja Coghill, T., Đoković, J., Dozet, G., Kostadinović, LJ., Bošković, J. (2013) *The impact of trichoderma harzianum on sprouting and early development of pepper until thinning*. Zbornik matice srpske za prirodne nauke/Jour. Nat. Sci, Matica Srpska Novi Sad, № 124, pp. 273-279.

NEW BUSINESS MODEL OF PRECISE AGRICULTURE

Mirjana Kranjac²⁶⁴

Srdan Tomić²⁶⁵

Jakob Salom²⁶⁶

Stanko Bulajić²⁶⁷

Abstract: *European Union is facing big problem of depopulation of rural areas. EU tries to keep inhabitants in rural areas by making these areas more attractive places for living. An important factor in keeping inhabitants out of urban areas is to ensure new jobs and to intensify their activities. The authors present their research on implementation of smart specialization strategy for research and innovation (RIS3) with focus on agriculture; with food production and information-communication technology as defined for the region of Vojvodina in Serbia. The authors were members of a team who was preparing an application for Horizon 2020 program funded by European union. The aim of their activities was sustainable development of rural areas in more than ten European countries by implementing different models of start up incubators or accelerators. Having in focus specifics of Vojvodina identified in RIS3, they developed a model of smart farming accelerator. It should encompass different stakeholders who might support this goal. Smart farming accelerator should enable and enhance implementation of precise agriculture in the region of Vojvodina. The authors of the paper will describe benefits that such accelerator bring to its members and how the accelerator can spread its results to broader areas.*

Key words: *Smart farming, business model, rural development, new technology, accelerator*

1. INTRODUCTION

Rural or intermediate rural regions represent about 88% of EU territory and account for 48% of the Gross Value Added (GVA). Predominantly rural regions contribute with 16.5% of the GVA. They are the primary source of the future European bioeconomy as producers of healthy food and being a reservoir of natural resources. In spite of such potential, many European rural regions face similar challenges: depopulation and ageing population going in hand with decreasing economic activity and a further decline of attractive job creation and innovation capacity. Especially several central and eastern EU members show particularly high difference between employment rates in rural and urban regions notably in Bulgaria (12.8 % higher unemployment in rural regions), Slovakia (10.9%), and Lithuania (7.1%), Nevertheless the agricultural, forestry, and fisheries sector still remain an important contributor to employment and the GDPs of eastern member states - Bulgaria (11.2 %), Lithuania (11.0%) and Poland (8.5%). Looking at differences between value added and employment contributions, eastern and southern EU members show particularly large differences (>10%), notably in Romania, Bulgaria, Poland and Portugal [1].

²⁶⁴ Faculty of technical sciences, Novi Sad, Trg D. Obradovića 6, Novi Sad, Serbia

²⁶⁵ Faculty of engineering management, Belgrade, Vojvode Mišića 43, Serbia

²⁶⁶ Institute for mathematics, Serbian academy of sciences, Belgrade, Kneza Mihaila 36, Serbia

²⁶⁷ Faculty of engineering management, Belgrade, Vojvode Mišića 43, Serbia

OECD concept “New Rural Paradigm” aims to support transition of traditional rural economies towards modern and into the European bioeconomy integrated cross-sectorial rural economic regions.

The authors present in this paper some ideas and solutions developed through creation of application for HORIZON 2020 program. Their concept is implementation of different models of startup incubators or accelerators to foster sustainable development of rural areas in more than ten European countries keeping in mind sectoral focuses of smart specialization for each country or region. In this way specific start up incubators and accelerators use the most specific potential of each region. Having in focus specifics of Vojvodina in Serbia they elaborated model of smart farming accelerator. It should encompass different stakeholders who could support development of smart farming value chain. Smart farming accelerator should enable and enhance implementation of different business models that will apply precise agriculture concept in the region of Vojvodina. The authors will describe benefit of being members of an accelerator and how the accelerator could give spillover effect of its results to broader areas.

2. LITERATURE REVIEW

Smart specialization is a European approach to research and innovation, which has been actively promoted as a tool for the strategy Europe 2020. It should ensure avoiding of dissipation of the EU funds and European human resources, and aiming them on those innovative sectors that are of the highest potential and attractive for investors [2].

The smart specialization strategy is now in process of attainment. Most regions and nations completed the technical fulfilment and defined the related action plans. The first evaluation studies have been launched. Now it is time of moving from the design to the implementation phase [3].

Mirjana Kranjac

PhD of technical sciences, industrial engineering and management - Topic: Model of EU funded projects implementation

Present position: Head of department for industry and telecommunication in the Provincial Secretary for economy and tourism, at Government of Autonomous Province of Vojvodina responsible for employment and entrepreneurship (70%) + assistant professor (docent) at Faculty of technical sciences Novi Sad (30%)

Mirjana is authors of many papers. Some of the are:

- *Do European funds generate countries sustainable development, Actual problems of economics, ISSN 1993-6788, Vol. 5 (131), pp. 386-396, (Thomson Reuters citation)*
- *Possible development scenarios of innovation management in transition countries, Actual problems of economics, ISSN 1993-6788 (Thomson Reuters citation)*
- *Cross-border innovation process within the EU economy, Actual problems of economics, ISSN 1993-6788, (Thomson Reuters citation)*
- *Cross border protection of clusters' intellectual property in agricultural sector, Agricultural economics, Czech Academy of Agricultural Sciences, Vo. 61, , ISSN 0139-570X pp. 23-30*
- *Cross-border innovation process within the EU economy, Jahorina, SymOrg2012, pp. 103-112, ISBN978-86-7680-255-5*
- *Effect of specific factors on innovation outcomes in the European union countries, Ekonomski anali, Subotica*
- *Program for smart specialization in research and innovation for the Provincial government of Vojvodina 2015-2020, Novi Sad, Assembly of Vojvodina*

The EU policy framework currently emphasizes importance of a European bioeconomy. The Commission's proposal on the bioeconomy has in focus greater resource-efficiency, largely within an industrial perspective on global economic competitiveness, benefiting capital-intensive industries at higher levels of the value chain. However a responsible bioeconomy must initially address the sustainable use of resources. Many farmers are not only commodity producers but also providers of quality food and managers of the eco-system. A public goods-oriented bioeconomy emphasizes agro-ecological methods, organic and low (external) input farming systems, ecosystem services, social innovation in multi-stakeholder collective practices and joint production of knowledge. The potential of farmers and SMEs to contribute to innovation must be fully recognized. This approach recognizes the importance of local knowledge enhancing local capabilities, while also accommodating diversity and complexity. Therefore the bioeconomy concept should have a much broader scope than the dominant one in European Commission innovation policy. Socio-economic research is needed to inform strategies, pathways and stakeholder cooperation towards sustainability goals [4], [5], [6].

Srdjan Tomic

Born in Vrsac.

Married with two children.

Works at Faculty for engineering management, Belgrade

Doctorate: Quality management with special emphasis on international and European standards of quality management system, Faculty of Engineering International Management, 2010.

Magistar / Master: Comparative approach to management in brewing, Faculty of Engineering International Management, 2004.

Diploma: Management in the automotive industry, Faculty of Engineering International Management, 1999.

Bioeconomy has implications on rural development. The bioeconomy is broadly defined and has strong implications on transformation of the economies of rural regions. It provides a broader framework for the development of rural regions and their economies. It includes use of bio products and bio processes, regional energy balance and utilization of waste streams [7], [8], [9].

Smart Farming is a development that emphasizes use of information and communication technology in the farm management cycle. Internet of Things and Cloud Computing as new technologies are expected to leverage such development and to introduce artificial intelligence in farming. Big Data applications introduce in Smart Farming new socio-economic challenges so that it goes beyond primary production with its influence on the entire food supply chain. This whole system is being used to drive real-time operational decisions and provide predictive insights with redesign of business processes and models [10].

RESEARCH METHODOLOGY

The authors present new concept of rural areas development created through several workshops initiated to develop a Horizon 2020 application [11],[12].

After a success with the basic concept of the project proposal and pass through the first stage of assessment, it was necessary to find consensus within partnership and give new ideas in line with the primary concept and finalize project application. The proposal of the lead applicant was to organize a workshop to go through such a process. The workshop consisted of:

- Prepared and presented concept of the lead applicant about basic ideas of the project,

- Presentation about specific potential in bioeconomy sector of each partner representing one country or region,
- Brainstorming discussion, and
- Tuning of the detailed structure of the new project including workpackages and timeframe.

Project encompasses 16 partners from 13 EU countries including Serbia, Moldova and Ukraine, which are not member states.

The core idea of the project is to develop incubators or accelerators (IA) that will attract stakeholders who are active in bioeconomy. Management of each incubator or accelerator should implement at least two new rural business models into the activities of its members.

Partners were invited to define for each incubator and accelerator (IA) the following issues:

- Vision and mission;
- Strategic goals;
- Preconditions (current state of surroundings and background): Description of the environment (demand for IA) and how to fulfil its demand. Links to existing strategies.
- Legal status, location and readiness level: Description of the institutional set up and physical location. Readiness level which will be achieved during the project.
- Infrastructure and human resources that will be used: Description of the infrastructure which will be offered to customers/beneficiaries.
- Target groups and services: Could be farmers association, University students, municipalities, companies, and “special” groups such as: women entrepreneurship, new farm entrants, immigrants, minorities.
- KPI indicators: Defined services according to target customers/beneficiaries.
- Business model/Value Chains: Definition and description of business models which incubator/accelerator will implement during the project life time.

Jakob Salom

Experience:

Consultant

Company Name Self

Employed Independent IT

Consultant

Dates Employed Dec 2012

– Present

Fields and activities:

- *DataFlow HPC computing (High Performance Computing)*
- *Tutoring students in HPC programming using FPGA DataFlow Maxeler computers*
- *Data warehousing, data archiving and data mining*
- *Preparing, writing and organizing FP7 EU projects,*
- *Preparing, writing and organizing Bilateral projects (projects between Serbia and another country)*
- *Implementing MindGenomics in marketing*

Product expert

Company Name Halcom a.d. Beograd

Dates Employed Dec 2010 – Nov 2012

Employment Duration 2 yrs

Location Belgrade

Head of E-banking dept.

Company Name Hypo Alpe-Adria-Bank d.d.

Dates Employed Mar 2003 – Dec 2010

Employment Duration 7 yrs 10 mos

Location Belgrade

Head of E-banking dept.

Company Name Hypo Alpe-Adria-Bank d.d.

Dates Employed Mar 2003 – Dec 2010

Employment Duration 7 yrs 10 mos

Location Belgrade

Positions:

- *Deputy General Manager,*
- *Development Sector Manager,*
- *Technical Support Manager,*
- *Project Manager,*
- *Developer.*



- (Future) Cost & Income Model: How can an incubator or accelerator become sustainable? Focus on future revenue streams and funding opportunities.

DISCUSSION AND CONCLUSION

The main goals of incubators and accelerators were created abiding to smart specialization focus sectors defined in smart specialization strategy of included regions. This made the project concept aligned with recommendations of the EU to unify European research area and not to fragment it [13], [14], [15], [16].

Partner decided, based on competences and resources of their regions, to create the following business incubators and accelerators, for specific sectors:

1. Supply solutions for biobased ecosystem incubator,
2. Forestry accelerator,
3. Utilization of bio waste, bio products and bio energy incubator,
4. Bio food processing value chain accelerator,
5. Renewable energy sources accelerator,
6. Biomass accelerator,
7. Smart farming accelerator, and
8. Bio value chain accelerator.

Smart farming accelerator was proposal for the region Vojvodina in Serbia, based on the existing Smart specialization strategy for research and innovation (RIS3) witch defined focus sectors in Vojvodina as “agriculture with food production and information-communication technology”.

Project aims to co-develop, above all incubators and accelerators, a virtual open access and open innovation one stop shop named “Rural Business Knowledge Platform”. It gathers information and tools on rural business models and their creation as well as supportive innovation ecosystems to develop, finance, support and implement such models in their respective regional context. The virtual platform will be accompanied by the formation of “Rural Accelerators” engaging regional stakeholders along the value chains by offering trainings, consulting services and financial instruments. In such way rural entrepreneurs will be strengthened through co-creation, adaptation and implementation of promising business models and, therefore, will increase potential for rural economic diversification, added value production, and high-quality jobs creation leading to a better integration into the European bioeconomy.

Doc. dr Stanko Bulajić

Dr. Stanko Bulajic was born in 1981 in Zajecar. He finished elementary and high school in Belgrade. In 2000 he enrolled in the Faculty of Management at the University of "Braca Karic" and a graduate of the same in 2004 and became a graduate manager with an average score of 8.54. He received his MA degree at the Faculty of Management, "ALFA" University in 2008 on the subject "The impact of management on the legal and economic aspects of free zones in our country and in the world" and became Master of Economic Sciences. He earned his doctorate at the Faculty of Trade and Banking University Alfa 2014 on the subject "Designing and positioning free zones in the conditions of globalization of international trade" and became a Doctor of Economic Sciences. In 2015, he was elected Assistant Professor at the Faculty of Engineering Management, University "Union-Nikola Tesla". He is currently Vice Dean for Teaching at the Faculty of Engineering Management and is engaged in subjects of Economics, Strategic Management, Marketing for Engineers (Basic Studies) and Project Financing (Master Studies).



Smart farming concept in Vojvodina is a good example of unification of two most important sectors resulted from potentials of a region, in this case, Vojvodina. Smart farming accelerator should enable, and later enhance, implementation of precise agriculture in the region of Vojvodina. It would bring benefits to its members through the “Rural Business Knowledge Platform”, which will be linked to the “Rural Business Knowledge Platform”s of other regions and their incubators or accelerators what will cause spill over effect of results of each of them. This will drive modernization and rural economic development, as well as social empowerment, forward [17].

REFERENCES

- [1] Urban rural topology, http://ec.europa.eu/eurostat/statistics-explained/index.php/Urban-rural_topology_update
- [2] Rusu, M. (2013) Smart Specialization a Possible Solution to the New Global Challenges, *Procedia Economics and Finance*, Volume 6, Pages 128-136.
- [3] Capello, R., Kroll, H. (2016) From theory to practice in smart specialization strategy: emerging limits and possible future trajectories, *Journal European Planning Studies*, Volume 24, 2016 - Issue 8: Regional Innovation Strategies 3 (RIS3): From Concept to Applications, pp. 15-25.
- [4] Schmidt, O., Padel, S., Levidow, L. (2014) The bio-economy concept and knowledge Base in a public goods and farmer perspective, *Bio-based and applied economics*, Firenze University Press, pp. 23-35.
- [5] Komninos, N., Musyck, B., Reid, A. (2016) Smart specialization strategies in south Europe during crisis, *European Journal of Innovation Management*, Vol. 17 Issue: 4, pp.448-471, <https://doi.org/10.1108/EJIM-11-2013-0118>
- [6] Foray, D. (2014) From smart specialisation to smart specialisation policy, *European Journal of Innovation Management*, Vol. 17 Issue: 4, pp.492-507, <https://doi.org/10.1108/EJIM-09-2014-0096>
- [7] EC (2010) An integrated industrial policy for the globalisation era: putting competitiveness and sustainability at centre stage, COM (2010) 614. Brussels: European Commission
- [8] McCann, P, Ortega-Argilés, R. (2013) Smart specialization, regional growth and applications to European Union cohesion policy. *Regional Studies* 47: 1–12
- [9] Johnson, T., Altman, I. (2014) Rural development opportunities in the bioeconomy, *Biomass and Bioenergy*, Volume 63, pp. 341-344.
- [10] Wolfert, S., Verdouw, C., Bogaardt, M. (2017) Big Data in Smart Farming – A review, *Agricultural Systems*, Volume 153, pp. 69-80.
- [11] Ipale, N., David, G., Iaple, L., Bogdan, A. (2015) *The Bioeconomy Model in Future Sustainable Development*, Studia Universitatis Vasile Goldis Arad, Seria Stiinte Economice. 2015;25(2):115-123 DOI 10.1515/sues-2015-0016
- [12] Ipate, L., Bogdan, A., Ipate, N., Trandafir, M., Trandafir, Mi., Claudiu, N. (2015), Green grown- Bases of bioeconomy models in correlation with Danubian projects, *Journal of Danubian Studies and Research*, Vol 5, No 1, pp.15-20.
- [13] Hansen, L., Bjørkhaug, H. (2017), Visions and Expectations for the Norwegian Bioeconomy, *Sustainability*, pp.1-17.
- [14] Grin, J., Rotmans, J., Schot, J. (2010) *Transitions to sustainable development: New directions in the study of long term transformative change*, Routledge: New York, NY, USA, pp. 123-130
- [15] OECD. *Agricultural Policy Monitoring and Evaluation* (2016) OECD Publishing, The Organisation for Economic Co-Operation and Development: Paris, France

- [16] McCormick, K., Kautto, N. (2013) The bioeconomy in Europe: An overview. *Sustainability* 2013, 5, pp. 258–260
- [17] Warwick, K. (2013) *Beyond Industrial Policy: Emerging Issues and New Trends*. OECD Science, Technology and Industry Policy Papers, No. 2. Paris, OECD.

HOUSEHOLD CHARACTERISTICS DETERMINING SLOVAK MILK PURCHASE BEHAVIOUR

Klaudia Kurajdová²⁶⁸
 Janka Tábovecká-Petrovičová²⁶⁹
 Gabriela Nedelová²⁷⁰

Abstract: *Eating habits of humans are started to be formed at early years of a life within households to which they are born, and later on they are subjected to more or less significant changes within self-established households. Characteristics of household act as important determinant of not only the quantity but also the structure, kinds and reasons of purchased foodstuff. The aim of this paper is to examine the influence of household characteristics, specifically household state, size and number of children, on behaviour of Slovak consumers of milk, as one of historically oldest foodstuff in the world. The nature of Slovak consumer milk behaviour was analysed by the means of 7 O's framework via consumer survey whose results were tested for detecting mutual dependencies. The results demonstrated the suitability of using all studied household characteristics in determining purchase motives, quantity, information sources and purchase roles of Slovak milk consumers. Conversely, none of tested variables were found to be correlated to the frequency of purchasing milk. These findings may be useful for segmenting consumer milk market, adjusting package size and design and determining target audience, place, message and tools for communicating and supporting milk's sale.*

Key words: *Consumer behavior, factors, 7 O's framework, milk, household.*

1. INTRODUCTION

Hunger and thirst represent the most basic human needs calling for attention several times a day. “Since the beginning of the life of every single mammal kind, milk becomes essential and the only component of food income” [1]. Later on, maternal milk is replaced by various milk alternatives and a diet extends to other foodstuff. The dairy economy was established in the central Europe 6,500 years ago when “dairying practices spread from the Middle East ... as part of the Neolithic transition” [2]. Today, several European countries, such as Italy or France face shrinking of dairy herds and milk consumption, too [3]. Similar trend has been observed in Slovakia, where the number of dairy cows fell by 56.3 thousands of pieces and milk consumption fell by 7.6 kg per capita in period 2005–2015 [4]. Therefore, the issue of milk consumption and factors influencing it have become core research areas.

Consumer behaviour presents behaviour consumers “display in searching for, purchasing, using, evaluating and disposing of the products and services that they expect will satisfy their needs” [5]. The aim of a consumer is reaching satisfaction that occurs, when his expectations are in line or lower than perceived reality. What, how and why do people eat is affected by many factors. Experts agree on a taste is a top factor influencing food choices [6], [7] and [8].

²⁶⁸ Matej Bel University in Banska Bystrica, Tajovskeho 10, 975 90 Banska Bystrica, Slovakia

²⁶⁹ Matej Bel University in Banska Bystrica, Tajovskeho 10, 975 90 Banska Bystrica, Slovakia

²⁷⁰ Matej Bel University in Banska Bystrica, Tajovskeho 10, 975 90 Banska Bystrica, Slovakia

However, as Martinac [9] said, decisions on food go beyond taste and other sensory attributes, reflecting a complex web of social, environmental and economic influences consumers may not even be aware of.

One of key social factors determining food choices is a family because the formation of eating habits takes place in a home since early childhood [10]. Family shares similar values, needs and lifestyles and thus has an impact on its individual's behaviour. Under the influence of many changes within today's society, the image of a family has changed, too. Rising rate of divorces and cohabitation, postponing marriage and motherhood, rising number of extramarital and boomerang children and preferring career over having a big family – these are key social factors that have caused the formation of non-traditional family compositions [5]. Therefore, in the literature, it started to be used the aggregate term “household” for covering all family structures.

2. MATERIALS AND METHODS

The aim is to examine the influence of household characteristics on behaviour of Slovak milk consumers. By browsing literature, we got to know that researchers usually examined the influence of household characteristics on consumer behaviour in combination with other personal factors. Table 1 provides an overview of researches on specifying the influence of household-related variables on behaviour of milk consumers.

Year	Authors	Title	Findings
2015	Mor, Sethia	Today's Consumer and Their Milk Consumption – An Empirical Study of Haryana	Presence of children in a household has positive impact on milk consumption.
2015	Ogola, Kosgey, Jerop	Analysis of Demographic Factors that Influence the Purchasing Behaviour of Goat Milk and Their Implications for a Dairy Goat Breeding Programme in Siaya Country, Kenya	Demand for goat milk decreases with increasing household size and increasing number of children in a household.
2014	Dharmasena, Capps	Unravelling Demand for Dairy – Alternative Beverages in United States. The Case of Soymilk	Demand for white, flavoured and soymilk increases with increasing number of children in a household.

Kludia Kurajdová is post-doc researcher at the Department of Corporate Economics and Management at the Faculty of Economics, Matej Bel University in Banská Bystrica, Slovakia. She obtained a PhD degree in Business Economics and Management at Matej Bel University in Banská Bystrica, Slovakia in 2016. Within her PhD study she got the grant from the Ministry of Education, Science, Research and Support of the Slovak Republic to realize a short-term research stay at the Institute for Higher Education in Agricultural Sciences Montpellier SupAgro, France. She is a lecturer of the courses of Customer Relationship Management and Service Marketing within English study programs. She participated in different national marketing research projects and currently she is devoted to the research focused on the determinants of consumer behaviour when purchasing milk as tools for increasing consumption of milk in Slovakia and Europe. In this field she, as a co-author, published two papers in various academic journals indexed in WOS and Scopus. Currently she is also a reviewer of an international scientific journal.



2014	Trung, Giam, Hai, Thao, Hang, Son, Linh	Factors Influencing Milk Consumption of Rural Households in Northern Vietnam	Increasing number of children in a household has positive impact on buying milk and the level of expenditures on milk.
2006	Hsu, Lin	Consumption and Attribute Perception of Fluid Milk in Taiwan	Demand for fluid milk purchase increases with increasing household size.
2004	Hatirli, Ozkan, Aktas	Factors Affecting Fluid Milk Purchasing Sources in Turkey	Demand for fluid milk purchase rises with rising household size and number of children in a household. Demand for processed fluid milk rises with decreasing household size and is bigger for households with children. Demand for unpacked fluid milk rises with rising household size.
1998	Nagyova, Stehlikova, Kretter	Factors Affecting Purchasing Decision on the Milk and Milk Product Market	The dependency between the demand as well as frequency of purchasing different kinds of milk and household size was not confirmed.
1998	Watanabe, Suzuki, Kaiser	Factors Affecting Consumers' Choice of Beverages in Japan	Members of larger families showed to be more frequent consumers of flavoured milk. Consumer's marital status was statistically significant factor associated with the consumption of lactic acid beverages.

Table 1: Overview of Researches on the Influence of Household-related Variables on Consumer Milk Behaviour Source: Own research.

We were inspired by above researches and decided to study 3 household characteristics, i.e. household state, number of children and household size. Regarding this, we formulated following hypotheses:

- H1: There exists dependency between household state and milk consumer behaviour.
H2: There exists dependency between number of children in a household and milk consumer behaviour.
H3: There exists dependency between household size and milk consumer behaviour.

The study of consumer behaviour is very difficult due to its dynamic and very complex character. Nevertheless, marketing literature provides an effective tool for its understanding – 7 O's framework. Brief description of individual dimensions along with its application in our survey is in Table 2.

No.	7 O's Categorization	Definition	Application
1.	Occupant	Who is the consumer? (geographic, demographic, psychographic and media graphic profile of the consumer)	Household state, number of children and household size of the consumer
2.	Objective	Why is the consumer purchasing? (benefits the consumer expects the product to serve)	Motives to purchase a milk
3.	Object	What does the consumer purchase? (product propositions)	Kinds of purchased milk and purchase quantity
4.	Occasion	When do the consumer purchase? (purchase frequency and occasion on which the consumer purchase the product)	Timing/occasion of a milk's consumption and purchase frequency

5.	Outlet	Where do the consumer purchase? (the type and nature of outlets from where the customer makes a choice)	Places to purchase a milk
6.	Operations	How do the consumer purchase? (the way of purchasing, information sources and kinds of information seek by the consumer)	Information sources used when purchasing milk
7.	Organizations	Who is involved in purchasing? (roles played by people in the purchase process)	Roles in purchasing milk

Table 2: 7 O's Framework Application in the Survey

Source: Own research inspired by Tapan [11].

We conducted a quantitative survey for gaining data on behaviour of milk consumers via the method of questioning and the tool of on-line questionnaire. In questions, we applied closedended format and sorting and rating scaling technique. Collected questionnaires were processed by using the SPSS software. The results of Spearman Correlation and Fisher Exact Test were availed for evaluating hypotheses on the 5% level of significance. The level of Cramer's V and Spearman's rho was considered for determining the nature of dependencies.

The data collection was done within 15 April and 15 July 2015 and it was participated by 91% respondents who purchase and consume milk and 9% those who purchase but do not consume milk. Together, the survey was participated by 975 respondents reached by systematic sampling method while considering the criterion of Slovak nationality and age of minimum 18 years. The sample consisted of 61% women and 39% men from which 41% were 18–35, 49% were 36–65 and 10% were 65+ years old. The profile of respondents by studied variables is in Table 3.

Socio-demographic Variable		Number	Percentage
Household State	Single/Unmarried	247	25
	Married	495	51
	Divorced	46	5
	Widowed	56	6
	In Partnership	131	13
Number of Children	None	607	62
	One	190	19
	Two	142	15
	Three and More	36	4
Household Size	1	103	11
	2	260	27
	3	209	21
	4	254	26
	5	109	11
	6	29	3
	7	7	0.7
	8	1	0.1
	10	2	0.2
	12	1	0.1

Table 3: Profile of Respondents by Studied Variables

Source: Own research.

3. RESULTS AND DISCUSSION

Consumers purchase products because of specific reasons, i.e. motives (objective). Therefore, we asked respondents why they buy milk and provided them with 11 answer options (see Table 4). We identified 4 weak dependencies (M1, 2, 7 and 8) and 1 medium dependency (M5) based on the results of Fisher Exact Test. Health effect (22%) and recommendations from specialists (5%) were crucial for widowers. We may see a certain linkage between our finding on buying milk because of health by widowers (whose majority of them were older than 65 years) and findings of Stitt et al. [12]. Taste of milk was top motive in single (22%), children in married (10%) and positive promotion in divorced respondents (4%).

70	Question	Occupant					
		Household State		Number of Children		Household Size	
		P-value	Cramer's V	P-value	Spearman's rho	P-value	Spearman's rho
Objective <i>Milk Motives</i>	M1 (health)	0.000	0.164	0.841	-	0.180	-
	M2 (taste)	0.000	0.150	0.010	- 0.082	0.835	-
	M3 (favour)	0.077	-	0.036	- 0.067	0.034	- 0.068
	M4 (habit)	0.788	-	0.065	-	0.236	-
	M5 (children)	0.000	0.348	0.000	+ 0.501	0.000	+ 0.292
	M6 (tradition)	0.887	-	0.406	-	0.384	-
	M7 (use in kitchen)	0.903	0.121	0.143	-	0.068	-
	M8 (to a coffee)	0.090	0.117	0.042	-	0.333	-
	M9 recommendations from specialists)	0.006	-	0.128	-	0.988	-
	M10 (positive promo)	0.003	-	0.887	-	0.750	-
	M11 (other)	0.058	-	0.125	-	0.962	-
Object <i>Kinds of Milk</i>	Cow	0.846	-	0.609	-	0.890	-
	Sheep	0.259	-	0.564	-	0.914	-
	Goat	0.011	0.120	0.587	-	0.655	-
	No-fat	0.258	-	0.405	-	0.447	-
	Low-fat	0.629	-	0.818	-	0.744	-
	Reduced-fat	0.594	-	0.081	-	0.022	+ 0.073
	Whole milk	0.851	-	0.940	-	0.773	-
	Flavoured	0.158	-	0.489	-	0.289	-
	Fermented	0.000	0.179	0.875	-	0.057	-
		0.002	0.106	0.000	+ 0.210	0.000	+ 0.226
<i>Quantity</i>	Occasion						
	<i>Timing of Milk Consumption</i>	Breakfast	0.000	0.150	-	-	-
	<i>Frequency</i>	Anytime/Day	0.003	0.132	-	-	-
	Other	0.030	0.123	-	-	-	
		0.494	-	0.713	-	0.064	-
Outlet <i>Purchase Place</i>	P1 (local retail shop)	0.000	0.143	0.212	-	0.034	- 0.068
	P2 (supermarket, hypermarket)	0.000	0.203	0.613	-	0.026	+ 0.071
	P3 (company store)	0.091	-	0.118	-	0.347	-
	P4 (specialized store)	0.254	-	0.129	-	0.666	-
	P5 (milk automat)	0.580	-	0.100	-	0.292	-
	P6 (service yard)	0.597	-	0.298	-	0.993	-
	P7 (e-shop)	0.093	-	0.715	-	0.808	-
	P8 (cartage)	0.866	-	0.642	-	0.306	-
	P9 (other)	0.703	-	0.471	-	0.835	-

Operations <i>Information Sources</i>	I1 (advertisement)	0.001	0.096	0.011	+ 0.082	0.000	+ 0.121
	I2 (reputation)	0.097	-	0.323	-	0.337	-
	I3 (independent tests)	0.196	-	0.757	-	0.230	-
	I4 (seller)	0.172	-	0.192	-	0.632	-
	I5 (family and relatives)	0.040	0.083	0.891	-	0.182	-
	I6 (friends)	0.275	-	0.707	-	0.095	-
	I7 (doctors and experts on food)	0.428	-	0.038	- 0.066	0.824	-
	I8 (previous personal experiences)	0.042	0.084	0.890	-	0.015	- 0.078
Organizations <i>Purchase Role</i>	R1 (initiator)	0.873	-	0.981	-	0.631	-
	R2 (influencer)	0.217	-	0.454	-	0.088	-
	R3 (decision maker)	0.000	0.120	0.011	+ 0.081	0.167	-
	R4 (purchaser)	0.014	0.089	0.263	-	0.026	- 0.071
	R5 (consumer)	0.000	0.221	0.000	- 0.175	0.006	- 0.088

Table 4: The Results of Statistical Tests

Source: Own research.

Based on the Spearman Correlation Test, we identified 3 dependencies in number of children and 2 dependencies in household size. The number of children was weakly negatively correlated to M2 and 3 and positively strongly correlated to M5. This implies that households with less children buy milk because of taste and favour, and conversely those with more children just because of children. The household size was weakly negatively correlated to M3 weakly positively correlated to M5 what means that smaller households buy milk due to favour and bigger households due to children. Our finding on children being a motive for milk's buy is in line with the research of Rasouli et al. [13].

Second element of consumer behaviour in the concept of 7 O's is object. In regard to this, we asked respondents to specify kinds of milk they buy. We acknowledged a presence of a weak dependency between household state and goat and fermented milk, and weak positive dependency between household size and reduced-fat milk. Goat (53%) and fermented (54%) milk was mostly preferred by married respondents, and reduced-fat milk was preferred by respondents from bigger households. The dependency between goat milk and household size and number of children found by Ogola et al. [14] was not confirmed in our survey. But, the dependency between milk (by fat content) and household size, not confirmed by Nagyova et al. [15], was confirmed (in fat milk) by our survey. Finally, regarding the research of Watanabe et al. [16], the dependency between household size and flavoured milk was not proved, but the dependency between acid/fermented milk and marital state was proved in our case.

Beyond kinds of milk, we were interested in the quantity of its purchase. We detected a weak dependency in all studied variables. Number of children and household state were positively correlated to purchase quantity, what implies that consumers living with more children and members inclined to buying bigger quantities. This is in line with the findings of Dharmasena and Capps [17], Trung et al. [18], Mor and Sethia [19] and Hatirli et al. [20] regarding number of children, and then Hsu and Lin [21] and Hatirli et al. [20] regarding household size. In household state, it was showed that majority of singles (37%) prefer to buy 1; most of married (42%) and those living in a partnership (46%) 2-4; and finally divorced (39%) and widowed (41%) respondents 1 or 2-4 one-litre packs of milk.

Time (occasion) represent another important dimension in consumer behaviour. We researched purchase frequency and timing of milk's consumption in the survey. Resulting from results, we did not confirm any dependency with respect to purchase frequency, but, on the other hand, we did identify 3 weak dependencies with respect to timing of milk's consumption. All of them were related to the variable of household state. Specifically, the dependency was identified in breakfast, any and other time. Breakfast (48%) and anytime (50%) was preferred by married consumers. We see a certain linkage between these results and the correlation of breakfast time with household state, found by Pearson et al. [22]. Other time, such as "when I have a taste", "still", or "differently" was preferred by respondents in a partnership (57%).

Further element determining behaviour of consumers is a purchase place (outlet). Regarding this, we asked respondents on places, where they usually buy milk, and offered them 9 answer options. We identified household state and size as statistically significant in relation to purchase place P1 and 2. Local retail shops were mostly selected by widowers (48%) and those living in smaller households. Respondents living in bigger households and those of single (50%), married (49%), divorced (51%) and in-partnership (51%) status preferred supermarkets and hypermarkets for buying milk. Positive correlation between age and local shops used for buying food found by Meneely et al. [23] was partially confirmed in our case since majority of our widowed respondents were older than 65 years.

Consumers use various info sources (operations) when making purchase decisions. In our survey, we studied the influence eight info sources. In pursuance of the results, we confirmed dependency in each studied variable. Household state was weakly correlated to I1, 5 and 8. Ads had highest importance in married respondents (weighted average: 2.09). Family, relatives (3.52) and personal experiences (4.50) were most significant for widowers.

Janka Táborecká-Petrovičová is Associate Professor and Deputy Head of the Department of Corporate Economics and Management at Faculty of Economics, Matej Bel University, in Banská Bystrica, Slovakia;



member of the Faculty Scientific Council and guarantee of bachelor degree Business Economics and Management. Previously she was also lecturer, module leader and consultant within MBA study in co-operation with Nottingham Trent University for the courses *Managing Strategic Marketing, Understanding Strategy, Consultancy Project and Dissertation* and course lecturer of *Sales Management for MBA Slovakian Sales Manager Akademie*.

Her research and educational interests cover areas of consumer behaviour, strategic marketing and management issues or service quality and customer satisfaction. In this field she published as author or co-author papers in various indexed academic journals and 3 chapters in scientific monographs issued by Springer or IGI Global. Currently she is a member of editorial board and reviewer for various international journals.

She has taught at several universities abroad (Italy, Turkey, Hungary, and Netherland) and actively participated in a number of conferences (Romania, Hungary, UK, Austria). She coordinated or participated in many national projects (related to consumer ethnocentrism or market orientation and business performance) and international projects (Consumer Behaviour Research Network "COBEREN" involving 30 countries in Europe; "Hidden Champions in Central and Eastern Europe" project involving 12 countries; or "Management and Leadership Development Needs in Dynamically Changing Societies" involving 19 countries).

We perceive a relative confirmation of this finding in the research of Edewor et al. [24]. Number of children and household size were positively weakly correlated to I1, what means that ads were crucial in households of more members and children. Moreover, number of children was weakly negatively correlated to I7, and household size to I8. This means that advices from doctors and experts were more important for households with less children and personal experiences for smaller households.

The last dimension of 7 O's framework includes roles (organizations) consumers play in purchase process. We identified at least 1 dependency in all studied variables. Household state was weakly correlated to role R3, 4 and 5. The role of decision maker was mostly selected by divorced (23%) and married (20%) respondents. The role of purchaser was picked mainly by married respondents (35%) or those living in a partnership (32%). Finally, the role of consumer definitely dominated by single respondents (38%). Number of children was weakly positively correlated to R3 and weakly negatively correlated to R5. This means that (adult) respondents living with more children performed the role of decision makers and those living with less children performed the role of consumer. The role of children in family food's purchase decision making was also emphasized by Pavleen and Raghbir [25]. Again 2 weak negative dependencies were detected between household size and R4 and 5 meaning that respondents living in smaller households usually put themselves into the role of purchaser and/or consumer.

Gabriela Nedelová is a university teacher at the Department of Quantitative Methods and Information Systems at the Faculty Economics, Matej Bel University in Banská Bystrica, Slovakia. She is a course lecturer of Statistics, Quantitative Methods in the Public Sector, Quantitative and Qualitative Business Research, etc. She is a graduate of the study program of Probability and Mathematical Statistics at Comenius University in Bratislava, Slovakia. She obtained a PhD degree in Business Economics and Management at Matej Bel University in Banská Bystrica, Slovakia. Within her scientific work, she devote to the utilization of statistical methods in economics and analytical methods applied in a market research.



Resulting from above results we evaluate hypotheses as follows (see Table 5).

Hypothesis	Purchase Motive	Kinds of Milk	Purchase Quantity	Consumption Time	Purchase Frequency	Purchase Place	Information Sources	Purchase Role
	Number of Dependencies							
H ₁	4 weak 1 medium	1 weak	weak	3 weak	×	2 weak	3 weak	3 weak
H ₂	1 + strong 2 - weak	×	+ weak	×	×	×	1 + weak 1 - weak	1 + weak 1 - weak
H ₃	1 + weak 1 - weak	1 + weak	+ weak	×	×	1 + weak 1 - weak	1 + weak 1 - weak	2 - weak

Table 5: Final Evaluation of Hypotheses

Source: Own research.

4. CONCLUSION

Humans are social beings that tend to live in communities, where they mutually communicate, interact and share feelings, experiences and life events. This have a direct impact on their personality, thinking and behaving. One of such communities are households. In this article, we

aimed on studying the influence of 3 household characteristics on behaviour of Slovak milk consumers. Based on outcomes of applied statistical tests, we could denote all studied characteristics as suitable determinants of purchase motives, quantity, information sources and roles. On the other hand, we cannot consider any of tested variables as predictors of milk purchase frequency. Regarding remaining dimensions of consumer milk behaviour, the demand for different kinds of milk and selection of purchase place were found to be correlated to household state and size, and consumption time of milk was found to be correlated to household state.

The practical implication of these findings could be seen in segmentation, product and communication strategy. Specifically, based on consumer's life stage, number of children and household size, it is possible to predict milk's purchase motives, quantity, info sources, places and role played in purchase process. This may inspire milk businesses on how to enhance package size (results on purchase frequency) and design of milk boxes (results on motives and kinds of milk) or to determine the audience, place and way of promoting and supporting milk's sale (results on info sources, purchase place, roles and consumption time).

REFERENCES

- [1] Kurajdova, K. Taborecka-Petrovicova, J. (2015): Literature Review on Factors Influencing Milk Purchase Behaviour. *International Review of Management and Marketing*, 5, 1: 9–25. ISSN: 2146-4405.
- [2] Curry, A. (2013): The milk revolution: when a single genetic mutation first let ancient Europeans drink milk, it set the stage for a continental upheaval. *Nature*, 500: 20–22.
- [3] Central Statistics Office. (2015–2017): *Milk Statistics: CSO statistical release*. Available at: <http://www.cso.ie/en/releasesandpublications/er/ms/milkstatisticsfebruary2017/> (accessed May 29, 2017).
- [4] RIAFI (Research Institute of Agriculture and Food Industry) – MARD SR (Ministry of Agriculture and Rural Development of the Slovak Republic) (2006–2016): *Milk: Situational and Outlook Report*. Available at: http://www.vuepp.sk/04_komody.htm (accessed May 19, 2017).
- [5] Schiffman, L. O'Cass, A. Pladino, A. Carlson, J. (2014): *Consumer Behaviour*. 6th edition. Pearson Australia, French Forest. ISBN: 97814-42561533.
- [6] Breaic, R. Mesic, Z. Cerjak, M. (2017): Importance of Intrinsic and Extrinsic Quality Food Characteristics by Different Consumer Segments. *British Food Journal*, 119, 4: 845–862.
- [7] International Food Information Council Foundation (2016): *2016 Food and Health Survey: Executive Summary*. Available at: http://www.foodinsight.org/sites/default/files/2016_executivesummary_final_web.pdf (accessed May 22, 2017).
- [8] Kourouniotis, S. Keast, R.S. Riddell, L.J. Lacy, K. Thorpe, M.G. Cicerale, S. (2016): The importance of taste on dietary choice, behaviour and intake in a group of young adults. *Appetite*, 1, 103: 1–7.
- [9] Martinac, P. (2017): *What Are Four Things That Can Affect Food Choices?* Available at: <http://healthyeating.sfgate.com/four-things-can-affect-food-choices-3699.html> (accessed May 22, 2017).
- [10] EUFIC (European Food Information Council) (2006): *The determinants of food choice*. Available at: <http://www.eufic.org/en/healthy-living/article/the-determinants-of-food-choice> (accessed May 22, 2017).

- [11] Tapan, K.P. (2007): *Marketing Management: Text and Cases*. 2nd edition. EXCEL BOOKS, New Delhi. ISBN: 978-81-7446-548-1.
- [12] Angell, R. Megicks, P. Memery, J. Heffernan, T. Howell, K. (2012): Understanding the older shopper: A behavioural typology. *Journal of Retailing and Consumer Services*, 19, 2: 259–269.
- [13] Rasouli Valajoozi, M. Zangi, N.O. (2016): A review on visual criteria of pure milk packaging for parents and their children (case study: Teheran, Iran). *British Food Journal*, 118, 1: 83–99.
- [14] Ogola, T.D.O. Kosgey, I.S. Jerop, R. (2010): Consumers' fluid milk consumption behaviors in Turkey: an application of multinomial logit model. *Quality & Quantity*, 44: 87–98.
- [15] Nagyova, L. Stehlíkova, B. Kretter, A. (1998): *Factors Affecting Purchasing Decision on the Milk and Milk Product Market*. Available at: <http://www.agris.cz/clanek/105187> (accessed August 31, 2017).
- [16] Watanabe, Y. Suzuki, N. Kaiser, H.M. (1998): Factors Affecting Consumers' Choice of Beverages in Japan. *Agribusiness*, 14, 2: 147–157.
- [17] Dharmasena, S. Capps, O. (2014): Unravelling Demand for Dairy-Alternative Beverages in the United States: The Case of Soymilk. *Agricultural and Resource Economics Review*, 43, 1: 140–157.
- [18] Trung, T. Giam, D. Hai, V. Thao, L. Hang, N. Son, L. Linh, B. (2014): Factors Influencing Milk Consumption of Rural Households in Northern Vietnam. *Greener Journal of Business and Management Studies*, 4, 2, 2014: 31–40. ISSN: 2276-7827.
- [19] Mor, K. Sethia, S. (2015): Today's Consumer and Their Milk Consumption – An Empirical Study of Haryana. *Acme Intellects International Journal of Research in Management, Social Sciences & Technology*, 12, 12: 1–9. ISSN: 2320-2939.
- [20] Hatirli, S. Ozkan, B. Aktas, A. (2004): Factors Affecting Fluid Milk Purchasing Sources in Turkey. *Food Quality and Preferences*, 15: 509–515.
- [21] Hsu, J. Lin, Y. (2006): Consumption and Attribute Perception of Fluid Milk in Taiwan. *Nutrition & Food Science*, 36, 3: 177–182.
- [22] Pearson, N. Atkin, A. J. Biddle, S.J.H. Gorely, T. Edwardson, Ch. (2010): Parenting styles, family structure and adolescent dietary behaviour. *Public Health Nutrition*, 13, 8: 1245–1253.
- [23] Meneely, L. Burns, A. Strugnell, Ch. (2009): Age associated changes in older consumers retail behaviour. *International Journal of Retail & Distribution Management*, 37, 12: 1041–1056.
- [24] Edewor, N. Ijiekhaumhen, O.P. Emeka-ukwu, U.P. (2016): Elderly People and Their Information Needs. *Library Philosophy and Practice*, paper 1332.
- [25] Pavleen, K. Raghbir, S. (2006): Children in family purchase decision making in India and the west: a review. *Academy of Marketing Science Review*, 8: 1–30.

FARM MANAGEMENT SOFTWARE: A CONCEPTUAL FRAMEWORK

Tome Dimovski²⁷¹

Ilija Hristoski²⁷²

Abstract: *The Republic of Macedonia, as a developing country, is at the very beginning vis-à-vis the adoption and implementation of contemporary concepts related to a modern and efficient agriculture, based on agricultural cooperatives, extensive usage of knowledge, and applied ICT solutions. The number of agricultural cooperatives in the country is relatively small, whilst the majority of farmers are individuals. Moreover, they are, in general, smallholder farmers. On the other hand, the price, robustness, and complexity of commercially available software solutions for managing farm-related activities are considered the most prominent obstacles on the way towards their adoption, implementation, and usage. The main objective of this paper is to present a conceptual framework for building Web-based Farm Management Software (FMS) that will help farmers to gain adequate agricultural knowledge and access to up-to-date information, as well as to provide lean software management tools for effectively administering and decision making. The development of such Web-based FMS will provide multiple benefits for both individual farmers and cooperatives, including public and free-of-charge access to a knowledge base, as well as a relatively cheap, yet an easy-to-use platform for managing farm resources and inventory, farm economics, analytics, and reporting. All of these can significantly contribute to efficient decision making, which is a basic premise to increased productivity and competitiveness.*

Key words: *Farm management software, conceptual framework, agriculture, applied ICT*

1. INTRODUCTION

Agriculture, also known as farming, is the art and science of cultivating the soil, growing plants and other crops, as well as raising animals for food, other human needs, or economic gain [1]. The Balkan and Near Eastern countries are generally agricultural countries. In those countries:

- The agricultural land, which includes the cultivable land and pastures, took a significant share of the total area of the country;
- The national agricultural sectors' shares in the total employment are amongst the highest ones;
- The national agricultural sectors' shares in GDP are, also, amongst the highest ones.

These facts confirm the high importance of the agriculture as a reliable source of livelihood for the population. Agriculture plays a vital role in national economies in many countries, making itself 'a backbone' that considerably contributes to the economic development in many specific ways, regardless of the development stage a certain country is in.

In developed countries, agricultural sectors are based on the existence of big agricultural organizations/collectives/associations, which employ a considerable number of employees,

²⁷¹ "St. Kliment Ohridski" University - Bitola / Faculty of Information and Communication Technologies, Partizanska bb, 7000 Bitola, Macedonia

²⁷² "St. Kliment Ohridski" University - Bitola / Faculty of Economics, Marksova 133, 7500 Prilep, Macedonia

cultivating quite big land areas. Also, use of innovations in information and communication technologies (ICTs) on all levels in agriculture significantly helps at every stage in the agricultural value chain, from soil and water management to seed hybridization, post-harvest logistics, and improved market access.

The Republic of Macedonia, as a developing country [2], [3], is at the very beginning vis-à-vis the adoption and implementation of contemporary concepts related to a modern and efficient agriculture, based on agricultural cooperatives, extensive usage of knowledge, and applied ICT solutions [4]. The number of agricultural cooperatives in the country is relatively small, whilst the majority of farmers are individuals. Moreover, they are, in general, smallholder farmers. On the other hand, the price, robustness, and complexity of commercially available software solutions for managing farm-related activities are considered the most prominent obstacles on the way towards their adoption, implementation, and usage [5]. As a result:

- a) The smallholder farmers' access to key information about the best agricultural practices and standards, including agricultural know-how is, in the best case, too limited or does not exist at all;
- b) Free-of-charge or, at least, relatively cheap, easy-to-use farm management software (FMS) tools which are necessary for easy planning, monitoring and analyzing the farm-related activities, are currently not available for both cooperatives and smallholder farmers.

These observations raise the necessity for the development of easy-to-use FMS software products that would be both exclusively dedicated and well-balanced to satisfy the needs of smallholder farmers, especially of young ones who have just started their agricultural business or plan to do so.

The main objective of this paper is to present a conceptual framework for building Web-based FMS that will help farmers to gain adequate agricultural knowledge and access to up-to-date information, as well as to provide lean software management tools for effectively administering and decision making. The proposed FMS solution consists of three logical parts: Configuration Web portal, Public Web portal and Management Web portal. The basic role of the Configuration Web portal is to provide registration of various kinds of agricultural products (crops, vegetables, fruits), including a comprehensive knowledge base/repository of all necessary activities/phases for their production, based on the best practice processes and activities for successful production; registration of relevant data about suppliers/producers of seeds, fertilizers, agrochemicals, spare parts, etc. in the country; posting announcements about new agricultural trends and practices. The Public Web portal allows one an open access to all information available through the Configuration Web portal. The Management Web portal is projected to consist of several software modules, supporting the basic farm-related activities.

Tome Dimovski received his BSc and MSc degrees from the Technical University – Gabrovo, Bulgaria, in 2004 and 2005, respectively. He received his PhD degrees from the Faculty of Technical Sciences, “St. Kliment Ohridski” University in Bitola, R. Macedonia in 2013. His current position is Assistant professor at the Faculty of information and communication technologies, St. Kliment Ohridski University in Bitola, R. Macedonia. His research interests include Information Systems, Distributed Databases, Computer Networks and Mobile Computing.



The development of such Web-based FMS will provide multiple benefits for both individual farmers and cooperatives, including public and free-of-charge access to a knowledge base, as well as a relatively cheap, yet an easy-to-use platform for managing farm resources and inventory, farm economics, analytics, and reporting. All of these can significantly contribute to efficient decision making, which is a basic premise to increased productivity and competitiveness.

The rest of the paper is organized as follows. Section 2 describes the specific tasks and key management activities that farmers are expected to perform. This section also proposes a general, two-tiered Web architecture for a Web-based FMS. Section 3 presents our proposed conceptual framework for farm management software. Section 4 concludes.

2. FARM MANAGEMENT INFORMATION SYSTEMS IN AGRICULTURE

Information system (IS) is a collection of components (both hardware and software), that work together towards fulfilling a common goal, i.e. to provide an accurate, timely, complete, and relevant information to management which will enable them to make

decisions which ensure that an organization is controlled [6]. By helping the agribusiness clients to truly transform their operations, agricultural IS can help agricultural companies and people involved in agricultural activities significantly enhance their competitive advantage. This can be achieved by improving underlying business processes with the support of robust and secure IS. Innovative information systems and data utilization are the inputs of today's agribusiness, transforming the agribusinesses across the whole value chain. The agribusiness industry is benefiting from advances in technology that allow companies to stay ahead of the market and succeed even in times of low commodity prices.

In the ongoing academic discourse, three main factors why the need for a sophisticated farm management is recognized as a highly important and challenging task have been identified, including [7]:

- (a) *The complex environment* (dealing with biological systems, uncertain weather conditions, market-related risks, financial risks, etc.);
- (b) *The complex inner farm structure and organization* (involvement of numerous different processes and operations); and

Ilija Hristoski was born in Prilep, Macedonia, in 1967. He received his B.Sc. Eng degree in Informatics from the Military-Technical Faculty at Technical Military Academy in Zagreb and Belgrade (ex-Yugoslavia) in 1992, MSc degree in Electrical and Computer Engineering from the Faculty of Electrical Engineering and Information Technologies at 'Ss. Cyril and Methodius' University in Skopje, Macedonia, in 2001, and a Ph.D. degree in Technical Sciences from the Faculty of Technical Sciences at the 'St. Kliment Ohridski' University in Bitola, Macedonia, in 2013. Since 2006 he has been with the Faculty of Economics in Prilep, 'St. Kliment Ohridski' University in Bitola. Currently, he is an assistant professor and the Head of the Department of Business Informatics. His primary research interests include behavioral-based performability modeling and evaluation of e-Commerce systems, Petri nets, Discrete Event Simulation, Systems Thinking and System Dynamics. He has published more than 30 papers in journals and refereed conference proceedings and has lectured widely on these topics.



- (c) *The introduction of modern ICT technologies in the agricultural sector* (computers: hardware & software, communications, the Internet ...).

All of these generate large volumes of data, which have to be adequately gathered, transformed, stored, processed, managed, and utilized for obtaining meaningful and useful information needed in the complex processes of strategic decision making. To handle and benefit from such enormous data volumes, farmers are expected to be capable of performing the following tasks ([8], [9]):

- (a) *Data acquisition;*
- (b) *Data processing;*
- (c) *Providing data;* and
- (d) *Using data.*

One possible layout of a Web-based FMS general architecture is schematically depicted in Figure 1 [10]. It is based on a two-layered (i.e. two-tiered) Web architecture. Each tier handles a particular set of functions. The first layer, also called the *presentation layer*, embodies the user interface with the Web services. FMS Web users (e.g. farmers/farm owners, agriculture engineers/agronomists, farm managers/supervisors, and administrators) enter data, edit data, and receive information through their Web browsers, which interpret HTML or XML code. New interfaces are already available for processing Web services from mobile devices (smartphones, PDAs, tablet computers, laptop computers). This layer consists of Web servers. The second layer embodies both the *business logic layer*, also known as the *application layer*, and the *data service layer*. The application layer, which consists of application servers, encapsulates a collection of rules to implement the application logic through the implementation of FMS system modules and FMS system features/functionality. The data service layer, which consists of a database server and other types of servers (e.g. e-Mail server, file server, FTP server, streaming media server, etc.), is a repository of persistent data that are managed by mechanisms guaranteeing reliability, stability, and availability. The separation of the second layer from the first layer results in new levels of autonomy and security and makes the Web applications more robust. Such architecture allows the FMS Web users to access the information anytime, at any place, by any device. It also helps farmers to increase operational efficiency at reduced costs, so they can improve their yields and reach a higher production level.

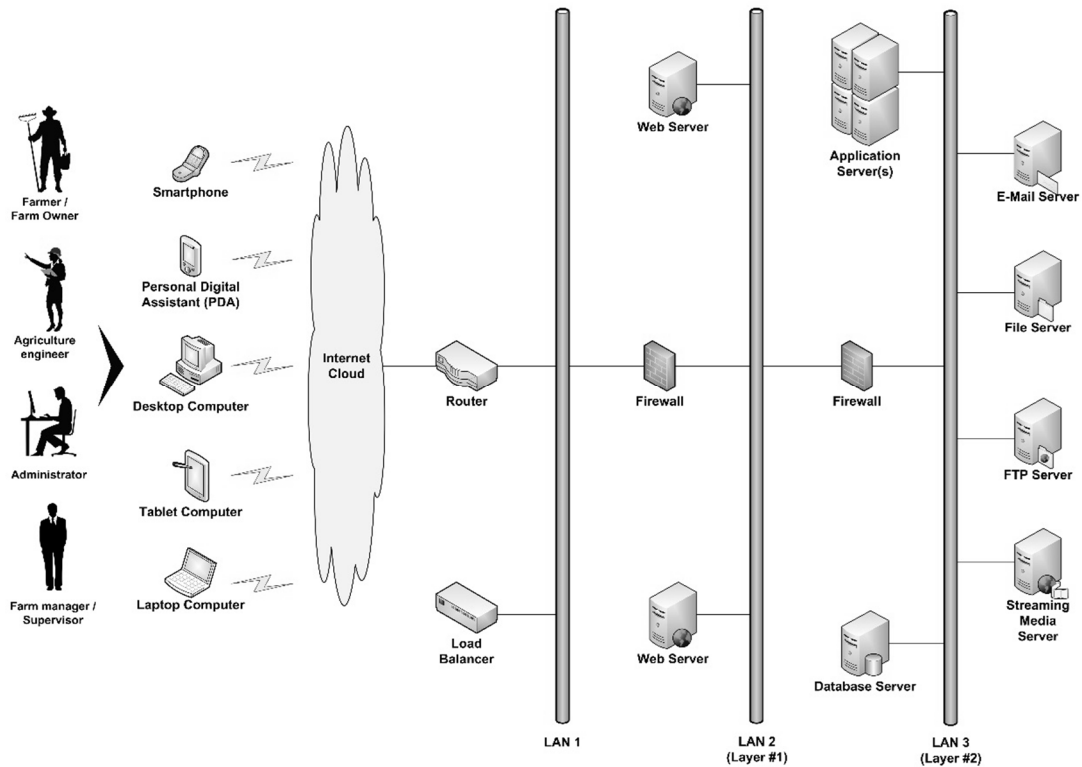


Figure 1: Typical two-tier Website architecture of an FMS system
(Source: Authors' own representation)

3. CONCEPTUAL FRAMEWORK FOR FARM MANAGEMENT SOFTWARE

In this paper, we are presenting a **conceptual framework** (Figure 2), for building Web-based FMS that will help farmers to gain adequate agricultural knowledge, access to up-to-date information and to satisfy the needs of smallholder farmers, especially of young ones who have just started their agricultural business or plan to do so.

Our proposed conceptual framework for FMS solution consists of three, mutually dependent and inter-related logical parts:

- Configuration Web portal;
- Public Web portal;
- Management Web portal.

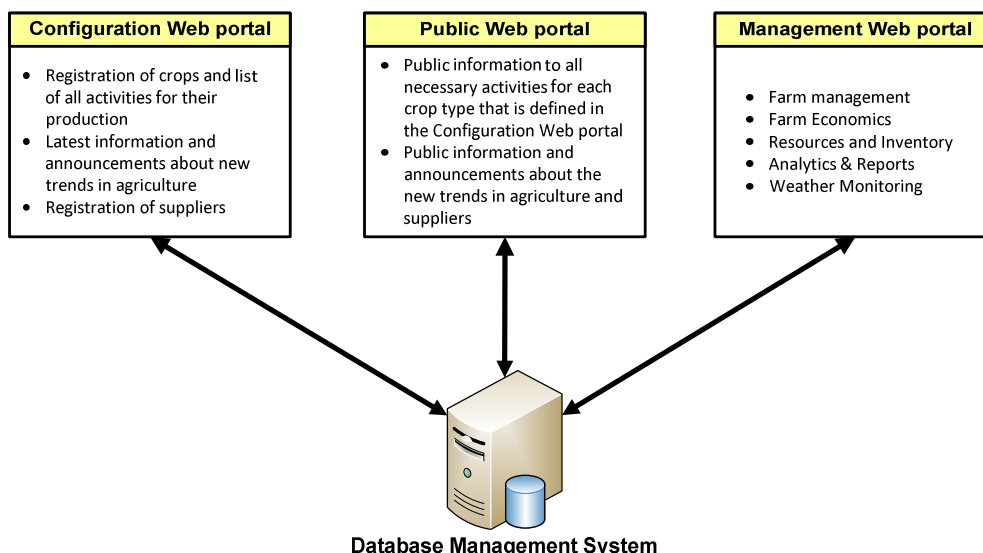


Figure 2: Conceptual Framework for FMS (Source: Authors' own representation)

3.1. Configuration Web Portal

The basic role of Configuration Web portal is comprised of the following activities (Figure 3):

- Registration of crops and all necessary activities (phases) for their production. A list of all related activities, for each crop type, will be defined by the Federation of farmers, agricultural cooperatives, agronomists, and/or agricultural engineers;
- Building up a knowledge base, containing the best practice processes and activities for successful crop production;
- Posting latest, up-to-date information and announcements about new trends in agriculture;
- Registration of suppliers for fertilizers, seeds, agro-chemicals, agricultural machinery and spare parts, fuel, etc.

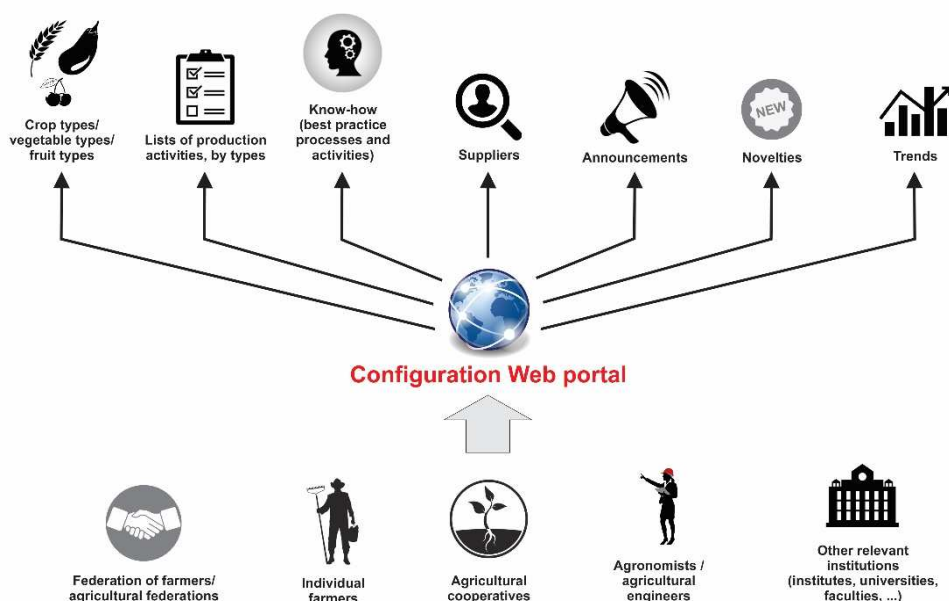


Figure 3: Configuration Web Portal (Source: Authors' own representation)

3.2. Public Web Portal

The Public Web portal contains publicly available and accessible information (Figure 4), which can be used free-of-charge by the previously registered individual farmers and cooperatives' members. Such information encompasses:

- Public information about all necessary activities ordered chronically for each crop type that is going to be defined in the Configuration Web portal;
- Public information and announcements about the new trends in agriculture;
- Public information about suppliers/producers of fertilizers, seeds, agro-chemicals, agricultural machinery and spare parts, fuel, etc.

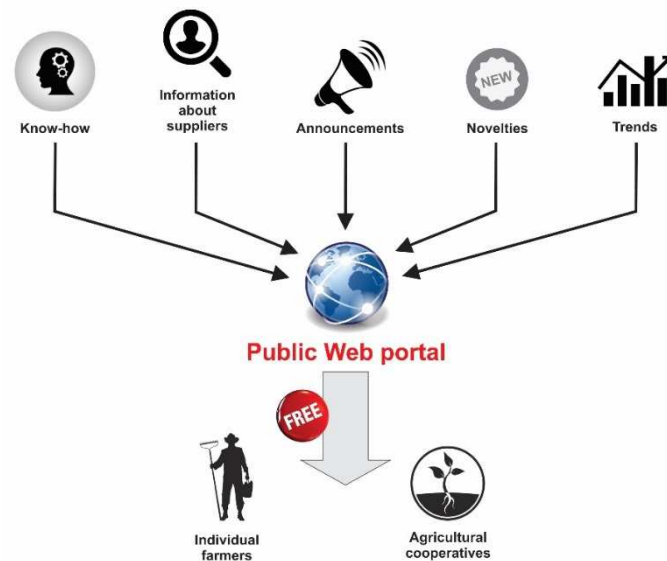


Figure 4: Public Web Portal (Source: Authors' own representation)

3.3. Management Web Portal

The Management Web portal consists of several modules (Figure 5), supporting the basic farm-related activities like:

- **Farm Management** - allows one an easy planning, monitoring and analyzing of all farm-related activities – from planting and crop protection to harvesting. This will be enabled by creating a separate task for each crop production activity, defined in the Configuration Web portal.
- **Farm Economics** - refers to keeping farm-related financial records and documents in a single place, including track sales, expenses, capital investments, costs and work hours for every activity, as well as allocating them easily to each type of crop production.
- **Resources & Inventory** - central registry for employees, seasonal workers, machinery and fields (arable lands) will help the farmer keep the control over his/her own resources.
- **Growing Analytics & Reports** - includes various kinds of analytics and reports for monitoring, controlling and optimizing the production activities, financial expenditures, engaged workers, mechanization, etc.

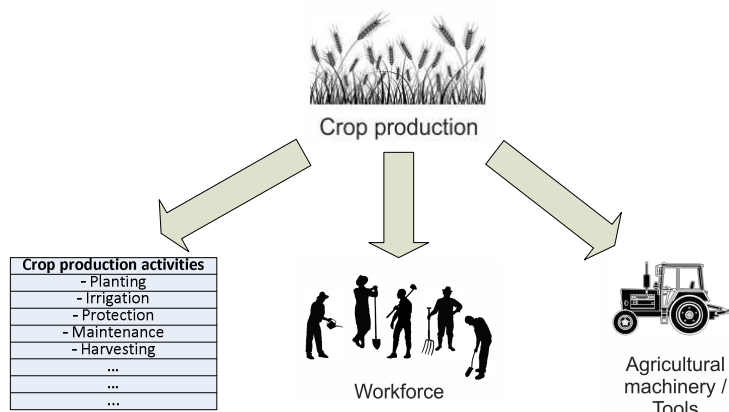


Figure 5: Management Web Portal (Source: Authors' own representation)

4. CONCLUSION

Today, the usage of farm management software and other related ICT technologies becomes an inevitable part of advanced agricultural management. The usage of FMS appears to be a powerful, convenient and crucial tool to cope with the newly enacted conditions found in contemporary farming.

In this paper, we presented a *conceptual framework*, for building Web-based FMS that will help farmers to gain adequate agricultural knowledge, access to up-to-date information and to satisfy the needs of smallholder farmers, especially of young ones who have just started their agricultural business or plan to do so. The proposed FMS solution consists of three logical parts: Configuration Web portal, Public Web portal and Management Web portal.

The development of such Web-based FMS will provide multiple benefits for both individual farmers and cooperatives, including public and free-of-charge access to a knowledge base, as well as a relatively cheap, yet an easy-to-use platform for managing farm resources and inventory, farm economics, analytics, and reporting.

REFERENCES

- [1] Bareja, B. G. (2014) *What is Agriculture, Definition of Agriculture*, Cropsreview.com, Retrieved from <http://www.cropsreview.com/what-is-agriculture.html>
- [2] Dimovska, G. (2013) *Осврт за развојот на земјоделството во Македонија во последните десет години [An overview of the agriculture development in Macedonia in the last ten years]*, Skopje, Macedonia: Center for Economic Analyses (CEA), Retrieved from <http://www.cea.org.mk/documents/CEA%20osvrt%20zemjodelie-1.pdf>
- [3] Angelovska, V. (2016) *Домашните ниви ги работат 170.581 индивидуален земјоделец и 304 фирми [Domestic fields are cultivated by 170,581 individual farmers and 304 firms]*, *Dnevnik (Daily Macedonia)*, Year XX, No. 6175, Tuesday, September 27, 2016, pp. 6–7.
- [4] RSM (2016) *Компјутеризирање на фармите за конкурентно и извозно ориентирано земјоделство [Computerization of the farms for a concurrent and export-oriented agriculture]*, Radio Slobodna Makedonija, Retrieved from <http://rsm.mk/web/компјутеризирање-на-фармите-за-конку/>
- [5] FFRM (2014b) *Управување на фарма со компјутер [Farm managing with a computer]*, Skopje, Macedonia: Federation of Farmers of the Republic of Macedonia, Retrieved from

- http://www.ffrm.org.mk/index.php?option=com_content&view=article&id=1172:upravuvanje-na-farma-so-kompjuter&catid=41:nastani&Itemid=74
- [6] Hardcastle, E. (2011) *Business Information Systems*, bookboon.com, Retrieved from <http://bookboon.com/en/business-information-systems-ebook>
- [7] Sørensen, C. G., & Bochtis, D. D. (2010) *Conceptual model of fleet management in agriculture*, *Biosystems Engineering*, 105(1), pp. 41–50.
- [8] Husemann, C., & Novković, N. (2014) *Farm Management Information Systems: A Case Study on a German Multifunctional Farm*, *Economics of Agriculture*, 2(2014), pp. 441–452.
- [9] Novković, N., Husemann, C., Zoranović, T., & Mutavdžić, B. (2015) *Farm Management Information Systems*, *Proceedings of the 7th International Conference on Information and Communication Technologies in Agriculture, Food and Environment (HAICTA 2015)*, Kavala, Greece, pp. 705–712.
- [10] Hristoski, I., Kostoska, O., Dimovski, T., & Kotevski, Z. (2017) *Farm Management Software for Increased Productivity and Competitiveness*, *Proceedings of The Fifth International Balkan and Near Eastern Social Sciences Conference Series (IBANESS 2017)*, Kırklareli, Turkey, pp. 375–392.

VALUATION OF PLANT BIOLOGICAL ASSETS - FAIR VALUE VERSUS HISTORICAL COST

Dawid Obrzeźgiewicz²⁷³

Abstract: *The object of the present work is to point the reader's attention to the issue of valuation of plant biological assets (growing crops), and to provide an answer to the question of the most adequate method for valuating agricultural activities – the fair value or the historical cost.*

The paper presents results of empirical research concerning valuation of growing crops with methods of historic cost and income value. The empirical research was conducted on the basis of valuation of a 1 hectare plantations of wheat and rape as of 30.06.2017.

The research conducted, together with critical analysis of available subject literature proved that the valuation with use of methods based on fair value reflects the value of growing crops in a more adequate way. Nevertheless one should remember that this valuation does not include the meteorological risk connected with agricultural activities.

Key words: *Valuation, fair value, historical cost, plant biological assets, growing crops*

1. INTRODUCTION

For many years now the scientists involved in the broadly understood accounting activities were arguing, which value was the most adequate when valuing the elements of assets and liabilities of a balance sheet – was it the historical cost or fair value? This problem also concerns the valuation of plant biological assets (growing crops). The specifics of agriculture requires the utilization of specialized solutions for adequate valuation of biological assets. The risk that is inseparable from agricultural activities implies problematic issues in the field of plant-derived biological assets. The valuation of growing crops is a special case in this field. The researchers that deal with the issue of valuation of growing crops continue to argue, which method is the most adequate for representation of value of plantations of respective crops at their growing stage – is it the fair value or the historic cost?

Even with numerous examples of polemics concerning the superiority of fair value over historical cost, and vice versa present in literature (both Polish and foreign), we still notice lack of publications concerning the very procedure for valuation of growing crops. This lack applies both to the fair value valuation, and to the historic cost.

The object of the present work is the valuation of growing crops with use of methods based on fair value and historic cost. The subject of our considerations are economic units that conduct agricultural activities and are subject to Polish act on accountancy. The research problem that is discussed in the present work is the valuation of 1 hectare of wheat and rape plantations with use of methods based both on fair value, and the historic cost. The aim of the present paper is to point the attention to the problem of valuation of growing crops and the difficulties inherent to the valuation process. We will also present, and compare, the two opposing types of valuation – the fair value and the historic cost valuations.

²⁷³ Poznań University of Economics and Business, al. Niepodległości 10, 61-875 Poznań, Poland

2. HISTORIC VALUE VALUATION OF GROWING CROPS

The historic cost method is classified as a classic valuation method in accountancy. It is based on the concept of monetary minimalism. The basic assumption of this method is the valuation of assets and liabilities at their prices or production costs at the moment of their production or occurrence [1]. E.A. Hendriksen and M.F. van Breda define the historic cost as the total price paid by an economic entity to purchase the property of an element of assets, including the cost of purchase (e.g. transport, adaptation of asset for use). The advantage of this method is the ease of its verification and its objectivism. It is the direct result of negotiations of seller and buyer, forming minimum value of the respective element of assets of the enterprise from the viewpoint of the purchasing entity. We may thus say that the historic cost is the minimum value of the respective asset. The main disadvantage of this method of valuation is its lack of consideration of the changes of value of the asset in time. In longer time perspectives this method may completely fail to reflect the value of the respective asset, both when valuating company assets, and in course of estimation of future economic profits [2].

The definition of historic cost is included in the international balance sheet law. The International Financial Reporting Standards (IFRS) treat the historic cost as a rule for valuation, in which the assets are valued at their purchase date with value equal to the sum of monies paid for them or the fair non-monetary payment made in order to acquire them. When it comes to liabilities the historic cost is understood as a rule for valuation, in which the liabilities are valued at the sum of income received in return for adoption of the respective liability or the monetary assets or their equivalents that are expected to be paid in settlement of the liability over the course of normal business activities [3].

Dawid Obrzeźgiewicz

2017 – present: Assistant Professor, Dep. of Accounting, Faculty of Management, Poznań University of Economics and Business

2013 – 2017: **PhD student**,

Poznan University of Economics and Business

2012 – present: **Accountant**, Accounting Office Anna Stefańska

Research interests

- Value measurement and reporting
- Agricultural accounting
- Accounting policy
- Tax accounting

Selected publications:

2016 - **Real options in valuation of plant production in progress** (Polish)

Finanse, Rynki Finansowe, Ubezpieczenia, no. 4 (82), Szczecin, pp. 635-650.

2016 - **Impact of VAT on financial liquidity of company** (Polish)

Prace Naukowe Uniwersytetu Ekonomicznego (AE) we Wrocławiu, no. 439, Wrocław, pp. 253-264

2016 - **Valuation of Plant Production in Progress. Fair Value and Historical Cost** (Polish)

Studia i Prace Kolegium Zarządzania i Finansów, no. 147, Warsaw, pp. 223-248.

2015 - **Valuation methods of plant production in progress on the example of rape - comparative analysis** (Polish)

Zeszyty Naukowe Uniwersytetu Szczecińskiego. Finanse, Rynki Finansowe, Ubezpieczenia, no. 77, Szczecin, pp. 139-150.

2015 - **Hedging methods of swiss franc currency fluctuations** (Polish),

Rachunkowość Warta Poznania - teoria, praktyka, polityka rachunkowości, Remlein M. (ed.), Uniwersytet Ekonomiczny w Poznaniu, Poznań, pp. 189-198.

2015 - **Identification of risk in farm business for purposes of accounting** (Polish)

Paradygmat zrównoważonego rozwoju lokalnego i regionalnego we współczesnej gospodarce, Borusiak B., Pająk K. (ed.), CeDeWu, Warszawa, pp. 237-251.



The most frequent method for valuation of growing crops that is based on the historic cost is the method of valuation according to the cost incurred from the moment of preparation of field for crops, till the valuation date. The core of this method is based on adding all costs incurred till the valuation date. Table 1 presents the valuation of a 1 hectare wheat plantation as of 30.06.2017. This valuation includes all costs incurred from August of the preceding year till 30.06.2017.

I.	Seed	Degree of qualification	Unit of measure	Quantity	Price (EUR)	Value (EUR/ha)
1.	Winter wheat	Base material	kg	200	0,40	80,95
II.	Mineral fertilizers	Type of fertilizer	Term of treatment (decade / month)	Dose (kg / ha)	Ingredient price (PLN / kg)	Value (EUR/ha)
1.	Lime fertilizer	CaO	2/08	750	0,03	21,43
2.	Polyphorus 6:20:30	N	2/09	18	0,76	13,71
3.		P	2/09	60	0,84	50,43
4.		K	2/09	90	0,56	50,79
5.	Ammonium sulphate	N	2/03	60	0,80	47,86
6.		N	3/04	40	0,80	31,90
Total						216,12
III.	Plant protection products	Type of agent (herbicides, fungicides, insecticides, growth regulators)	Term of treatment (decade / month)	Dose (kg / ha)	Ingredient price (PLN / kg)	Value (EUR/ha)
1.	Maraton 375 S.C.	Herbicide	1/10	4	6,80	27,19
2.	Moddus 250 EC	Growth regulator	2/04	0,4	60,60	24,24
3.	Tilt Turbo 570 EC	Fungicide	3/04	1	28,38	28,38
4.	Wirtuoz 520 EC	Fungicide	1/06	1	33,57	33,57
5.	Fastac 100 EC	Insecticide	1/06	0,12	41,33	4,96
Total						118,34
IV.	Variable machine costs - work of own machines	Type of agrotechnical activity	Term of treatment (decade/ month)	Duration of surgery (hours/ha)	Cost of surgery (EUR/hour)	Value (EUR/ha)
1.	60KM tractor + RCW-3 lime spreader	Liming	1/08	1	8,10	8,10
2.	80KM + 5-furrow plow + 3-harrow	Grate with harness	2/08	1,5	13,50	20,25
3.	60KM tractor + fertilizer spreader 300kg	Sowing of NPK	2/09	0,5	11,09	5,55
4.	Tractor 80KM + 4-furrow plow	Seedling	2/09	2	12,81	25,62
5.	Tractor 80KM + tillage unit 2.8m	Pre-sowing	3/09	0,7	13,99	9,79
6.	Tractor 60KM + seed drill 3m	Sowing	1/10	1,2	15,34	18,40
7.	Tractor 60KM + field sprayer 12m	Spray on weeds	1/10	0,4	11,71	4,69
8.	60KM tractor + fertilizer spreader 300kg	Sowing N - 1 dose	2/03	0,3	11,09	3,33
9.	Tractor 60KM + field sprayer 12m	Spray - shortening the blade	2/04	0,4	11,71	4,69
10.	Tractor 60KM + field sprayer 12m	Fungicide spray	3/04	0,4	11,71	4,69
11.	60KM tractor + fertilizer spreader 300kg	Sowing N - 2 doses	3/04	0,3	11,09	3,33
12.	Tractor 60KM + field sprayer 12m	Fungicide spray + insecticide	1/06	0,4	11,71	4,69
Total						113,10
DIRECT COSTS TOTAL (EUR/ha)						528,51

Table 1: Valuation of growing wheat crops – incurred cost method

Table 2 presents the valuation of a 1 hectare rape plantation using the incurred cost method.

I.	Seed	Degree of qualification	Unit of measure	Quantity	Price (EUR)	Value (EUR/ha)
1.	Winter oilseed rape	K1	kg	4	11,05	44,19
II.	Mineral fertilizers	Type of fertilizer	Term of treatment (decade / month)	Dose (kg / ha)	Ingredient price (PLN / kg)	Value (EUR/ha)
1.	Polyphorus 6:20:30	N	2/08	30	0,76	22,86
2.	Polyphorus 6:20:30	P	2/08	100	0,84	84,05
3.	Polyphorus 6:20:30	K	2/08	150	0,56	84,64
4.	Potassium salt	K	2/08	50	0,59	29,52
5.	Ammonium sulphate (21% N)	N	2/03	84	0,93	78,00
6.	Ammonium sulphate	N	2/04	85	0,80	67,80
Total						366,87
III.	Plant protection products	Type of agent (herbicides, fungicides, insecticides, growth regulators)	Term of treatment (decade / month)	Dose (kg / ha)	Ingredient price (PLN / kg)	Value (EUR/ha)
1.	Butisan 400 SC	Herbicide	3/08	2	27,17	54,34
2.	Command 480 EC	Herbicide	3/08	0,2	52,65	10,53
3.	Fusilade Forte 150 EC	Herbicide	3/08	0,5	30,23	15,11
4.	Caramba 60 SL	Fungicide	3/09	0,7	26,69	18,69
5.	Proteus 110 OD	Insecticide	3/03-1/04	0,1	25,29	2,53
6.	Horizon 250 EW	Fungicide	3/04 - 2/05	1	25,63	25,63
7.	Mospilan 20 SP	Insecticide	2/05	0,12	115,60	13,87
Total						140,70
IV.	Variable machine costs - work of own machines	Type of agrotechnical activity	Term of treatment (decade/ month)	Duration of surgery (hours/ha)	Cost of surgery (EUR/hour)	Value (EUR/ha)
1.	80 hp tractor + 5-furrow plow + 3-harrow harrow	Grate with harness	2/07	1,5	13,50	20,25
2.	60KM tractor + fertilizer spreader 300kg	Spread NPK + potassium salt	2/08	0,5	11,09	5,55
3.	60KM tractor + fertilizer spreader 300kg	Sowing N - 1 dose	2/08	0,3	11,09	3,33
4.	Tractor 80KM + 4-furrow plow	Cereal with Campbell shaft	2/08	2	15,28	30,55
5.	Tractor 80KM + tillage unit 2.8m	Pre-sowing	3/08	1	13,99	13,99
6.	Tractor 60KM + seed drill 3m	Rape seedling	3/08	1,5	15,34	23,01
7.	Tractor 60KM + field sprayer 12m	Spray on weeds 2 x	3/08	0,8	11,71	9,37
8.	Tractor 60KM + field sprayer 12m	Spray on monocotyledonous weeds	3/03	0,4	11,71	4,68
9.	Tractor 60KM + field sprayer 12m	Fungicide spray	3/03	0,4	11,71	4,68
10.	Tractor 60KM + field sprayer 12m	Spraying insecticide	3/03-1/04	0,4	11,71	4,68
11.	60KM tractor + fertilizer spreader 300kg	Sowing N - 2 doses	2/04	0,3	11,09	3,33
12.	Tractor 60KM + field sprayer 12m	Fungicide spray	3/04 - 2/05	0,4	11,71	4,68
13.	Tractor 60KM + field sprayer 12m	Spraying insecticide	2/05	0,4	11,71	4,68
Total						132,79
DIRECT COSTS TOTAL (EUR / ha)						684,55

Table 2: Valuation of growing rapeseed crops – incurred cost method

In the results of valuation with use of the incurred cost method the value of 1 hectare of wheat plantation as of 30.06.2017 was set at 528.51 Euro. The value of 1 hectare of rape plantation was set at 684.55 Euro as of 30.06.2017. The valuation with use of incurred cost method includes only the direct cost incurred from the preparation of field for crops, to the valuation date. It is the classic valuation method, based on historic cost.

3. FAIR VALUE VALUATION OF GROWING CROPS

The significance of the fair value category saw a rise in recent years. This trend is strongly tied to the transition from the result-based approach, which is based on information on income and cost incurred, to the concept of value, according to which the most important information for the investor is the value of the unit and their variations. This implies the growing interest of stakeholders of the economic unit in the balance of the enterprise, and not only – as it was in the first half of the 20 century – solely in the profit and loss account (result sheet). That is why the growing information demand of investors (mainly the company stakeholders) is perceived as the main reason behind the introduction of the fair value category [4]. According to the International Financial Reporting Standards (IFRS) the fair value is the sum that the respective asset could be replaced and in case of liability (granted capital instrument) settled, between informed and interested parties in a direct transaction there between [3].

In praxis the fair value valuation of some of the assets and liabilities is deemed relatively simple. This is particularly the case of items, for which an active market is present. The valuation is made on the basis of market price. When the group of assets and liabilities devoid of an active market is considered, the fair value can only be estimated. This implies a more complex valuation, largely depending on the properties of the valued items and the method indicated in accounting law or the one selected by management of the unit.

The method most frequently applied in economy for valuation of fair value of e.g. land property is the method of value of expected profits minus the cost incurred from the date of valuation till the economic profit is attained, so called income value. This method can also be applied for valuation of growing crops. This method consists in the deduction of discounted value of non-incurred cost from the expected income. This discount is made as of the date of valuation, that is 30.06.2017. The expected income reflects the market price of growing crops at the moment of their transition in final product. The non-incurred costs are the cost that the economic entity involved in agricultural activities expects to incur from the date of valuation to the date of transformation in the final product, that is till harvest date. The expected income is calculated by multiplying the crop yield of wheat (rapeseed) per hectare and the price of wheat (rapeseed), keeping the appropriate units, e.g. centals (dt). The expected income also includes the value of direct payments for each hectare of plantation of the respective crop. The discount rate was adopted at 7.03%. Table 3 presents the calculations connected with estimation of fair value for 1 hectare of wheat plantation.

I.	Seed	Degree of qualification	Unit of measure	Quantity	Price (EUR)	Value (EUR/ha)
1.	No agrotechnical treatment during the analyzed period					
Total						0,00
II.	Mineral fertilizers	Type of fertilizer	Term of treatment (decade / month)	Dose (kg / ha)	Ingredient price (PLN / kg)	Value (EUR/ha)
1.	No agrotechnical treatment during the analyzed period					
Total						0,00
III.	Plant protection products	Type of agent (herbicides, fungicides, insecticides, growth regulators)	Term of treatment (decade / month)	Dose (kg / ha)	Ingredient price (PLN / kg)	Value (EUR/ha)
1.	Tractor 60KM + trailer 7t	Grain transport to the farm	2/08	0,5	13,02	6,51

2.	60KM tractor + round baler	Straw pressing	2/08	1,2	21,96	26,35
3.	60KM tractor + front loader	Loading straw	2/08	2	11,33	22,66
4.	Tractor 60KM + trailer 7t	Straw picking	2/08	2	13,02	26,05
Total						81,57
IV.	Exterior Services	The type of service	Term of treatment (decade/ month)	Duration of surgery (hours/ha)	Cost of surgery (EUR/hour)	Value (EUR/ha)
1.	Straw pressing	Twine	2/08	1	8,33	8,33
2.	Combine Bizon Record Z 058/5	Wheat harvest	2/08	1,2	75,48	90,57
Total						98,90
V.	Income	Type of income	Unit of measure	Quantity	Price (EUR)	Value (EUR/ha)
1.	Main product	Wheat grain	dt	60	15,00	900,00
2.	Subsidies	Direct payment	Ha	1	221,01	221,01
Total						1 121,01
Month	Total production value	Discount rate	The number of months since the valuation date	Discount factor	Discounted value of benefits	
08/2017	1 121,01	7,03%	2	0,9884	1 107,99	
Month	Costs incurred by month	Discount rate	The number of months since the valuation date	Discount factor	Discounted value of not incurred costs	
08/2017	180,48	7,03%	2	0,9884	178,38	
INCOME VALUE						929,61

Table 3: Valuation of growing wheat crops – income method

Table 4. presents calculations required for valuation of 1 hectare of rape plantation according to its fair value.

I.	Mineral fertilizers	Type of fertilizer	Term of treatment (decade / month)	Dose (kg / ha)	Ingredient price (PLN / kg)	Value (EUR/ha)
1.	No agrotechnical treatment during the analyzed period					
Total						0,00
II.	Mineral fertilizers	Type of fertilizer	Term of treatment (decade / month)	Dose (kg / ha)	Ingredient price (PLN / kg)	Value (EUR/ha)
1.	No agrotechnical treatment during the analyzed period					
Total						0,00
III.	Variable machine costs - work of own machines	Type of agrotechnical activity	Term of treatment (decade / month)	Dose (kg / ha)	Ingredient price (PLN / kg)	Value (EUR/ha)
1.	Tractor 60KM + trailer 7t	Grain transport to the farm	1/07	0,5	13,02	6,51
Total						6,51
IV.	Exterior Services	The type of service	Term of treatment (decade/ month)	Duration of surgery (hours/ha)	Cost of surgery (EUR/hour)	Value (EUR/ha)
1.	Combine Bizon Record Z 058/5	Rape harvest	1-3/07	1,2	75,48	90,57
Total						90,57
V.	Income	Type of income	Unit of measure	Quantity	Price (EUR)	Value (EUR/ha)
1.	Main product	Rape grain	Dt	40	37,50	1500,00
2.	Subsidies	Direct payment	Ha	1	221,01	221,01
Total						1721,01

Month	Total production value	Discount rate	The number of months since the valuation date	Discount factor	Discounted value of benefits
07/2017	1 721,01	7,03%	1	0,9942	1 710,98
Month	Costs incurred by month	Discount rate	The number of months since the valuation date	Discount factor	Discounted value of not incurred costs
07/2017	97,08	7,03%	1	0,9942	96,52
INCOME VALUE					1 614,46

Table 4: Valuation of growing rapeseed crops – income method

In the results of the fair value valuation the value of 1 hectare of wheat plantation as of was estimated at 929.61 Euro, and the value of 1 hectare of rape plantation was set at 1 614.46 Euro as of 30.06.2017. The value of a single hectare of plantations of both wheat and rape, valued with fair value method is significantly higher than the value of the same current assets estimated with methods based on historic cost. Still the methods based on the fair value include one, basic flaw. Similar to methods based on historic cost they don't fully include the risk connected with agricultural activities. This risk is a specific risk and it is hard to eliminate it or include in the commonly applied growing crops valuation methods. It is difficult to include risk that results from meteorological factors that influence crop plantations. It is often the case that a whole field can be destroyed in matter of seconds, by a flood or a violent storm.

4. COMPARATIVE ANALYSIS OF VALUATION OF GROWING CROPS

Among the scientists, both the Polish and the foreign ones, involved in valuation of growing crops, there was a prolonged discussion of advantages and disadvantages of historic cost and fair value valuations. The majority speaks for use of methods based on fair value in valuation of growing crops. D. Kovanicová [5] notices that the specific of agricultural production contributes to the creation of ambiguity and disputes in application of valuation methods based on the historic value of growing crops. The models of evaluation that are based on historic cost do not include the critical moments connected with the biological transformation of growing crops, such as growth, production, reproduction and degeneration. All of these processes are an indispensable element of valuation of plant biological assets. This condition encourages the scientists to develop more credible, and concurrent with commonly adopted standards, valuation methods based on fair value.

J.M. Argiles, J.G. Blandon, T. Monllau [6] notice that all international accountancy standardization institutions aim to value the growing crops according to their fair value.

M. Penttinen [7] stands in opposition to the international institutions, opposing the valuation of growing crops according to their fair value. He claims that use of fair value as a method of valuation causes discrepancies in net profit of agricultural company that differ from real conditions. J.M. Argiles and J. Slof [8] in turn express their satisfaction that the IAS 41 "Agriculture" base the valuation of the growing crops on their fair value. They indicate the basic advantage of valuation methods based on fair value, that is the low cost of evaluation. In their opinion the valuation of fair price requires lower expenses than the historic cost one.

Summarizing our considerations both the fair value, and the historic cost have their advantages and disadvantages. If the entry point for valuation was to include the risk connected with agricultural activities, then the method that is better at reflecting them is the fair value with income method. Still, we have to stress that the valuation with use of that method does not fully reflect the risk of the entity involved in agricultural activities.

Table 5 presents the comparison of results obtained for evaluation of 1 hectare wheat and rape plantations, as of 30.06.2017, utilizing direct cost method, based on historic cost method, and the income method that is based on fair value.

Growing crops	Historic cost	Fair value
	Direct costs	Income value
Winter wheat	528,51	929,61
Winter oilseed rape	684,55	1 614,46

Table 5: Comparison of valuation results for historic cost and fair value methods

The comparison of empirical research results of table 5 shows large spread between the results obtained when valuating with use of historic cost method, and that with fair value method. As of 30.06.2017 the fair values of both 1 hectare of wheat and 1 hectare of rapeseed plantation were almost twice their historic cost values. The value obtained for both crops with historic cost method is underestimated and does not reflect the biological growth potential of the subsequent periods. In contrast the fair value obtained with income method is overestimated as of the date of valuation – as it does not include the risk connected with meteorological factors, which may significantly decrease the value of plant biological assets till its harvest date.

5. CONCLUSION

The critical analysis of literature and the research conducted that are presented in this paper proved that the valuation of fair value proves more adequate for reflecting the value of plant biological assets in their production stage (growing crops). The valuation based on the historic cost underestimates the value of growing crops, and in particular in the second stage of the production cycle. Furthermore the historic cost evaluation method is more expensive than the fair value valuation. The variations of fair value are better in reflecting the biological transformations. The historic cost does not include the plant's ability to generate future economic profits due to the process of photosynthesis.

Nevertheless it is worth stressing that the fair value, in the context of the income method, is far from perfect a measure, which would unanimously reflect the specific of agricultural activities. This value does not include the risk connected with meteorological factors. Violent atmospheric phenomena, such as thunderstorms or floods can significantly reduce the value of growing crops in matter of minutes, or even, in extreme cases, lead to the total destruction of crop plantations. The literature sources known to the author of the present paper does only indicate the issue of risk in valuation of plant biological assets. Nevertheless no method for valuation that would fully include the risk of agricultural activities was developed to date, and the author of the present paper believes this is impossible with currently used valuation methods.

REFERENCES

- [1] Remlein, M. (2009), *Za i przeciw wartości godziwej w warunkach kryzysu finansowego*, Rachunkowość i audyt w warunkach kryzysu finansowego, Poznań, pp. 131-136.
- [2] Hendriksen, E.S., Van Breda, M.F., (1992), *Accounting Theory*, Irwin Professional Publishing.
- [3] *International Financial Reporting Standards* (2017), IFRS Foundation, London.
- [4] Wierzbńska, Z. (2014), *Wycena aktywów i pasywów a oczekiwania informacyjne użytkowników sprawozdań finansowych*, SOEP, vol. 2, no. 4 (265), Poznań, pp. 152-155.

- [5] Kovanicová, D. (2003), *Problems of valuation in the light of modern financial accounting*, „Rozvoj finanční a účetní teorie a její aplikace v praxi z interdisciplinárního hlediska”, VŠE, Praga, pp. 326–379.
- [6] Argiles, J.M., Blandon, J.G., Monllau, T. (2009), *Fair Value and Historic Cost Accounting of Biological Assets*, Working Papers in Economics, University of Barcelona, Barcelona, pp. 1-13.
- [7] Penttinen, M., Latukka, A., Meriläinen, H., Salminen, O., Uotila, E., *IAS fair value and forest evaluation on farm forestry*, Proceedings of Human dimension of family, farm and community forestry international symposium.
- [8] Argilés, J.M., Slof, J., *New opportunities for farm accounting*, European Accounting Review, 10(2), 2001, pp. 361-383.

DIACRONIC ANALYSIS OF THE LAND USE OF THE VLĂSIA PLAIN (ROMANIAN PLAIN) IN THE PERIOD 1864-2012

Răzvan Oprea²⁷⁴
 Roxana Cuculici²⁷⁵
 Iulian Săndulache²⁷⁶

Abstract: *The purpose of the study is to analyze the use of land in the Vlăsia Plain (2977 km²) in correlation with environmental conditions (soil, relief, climatic conditions). The analysis was carried out both in the Vlăsia Plain as a whole and within its subunits (Snagov Plain, Movilița Plain, Plain of Bucharest, Câlnaul Plain, Maia Plain, Argeș-Sabar Plain). We analyzed both the recent situation (according to Corine Land Cover 2012), but also the past situation since 1990 (according to Corine Land Cover 2012) and since 1864.*

For the analysis of 1864 we used the Southern Romanian Map (Szathmári Map), which in the studied sector uses topographic elevations since 1856. Several agrarian reforms (in the years 1864, 1921, 1945, 1990) took place over the analyzed period with impact on land use. For soil conditions we interpret the information provided by the Map of Soils of Romania 1:200 000 (1963-1994), correlating them with other spatial data sources. We have chosen the Vlăsia Plain (subunit of the Romanian Plain) because in this geographical unit is the city of Bucharest, which was and is a polarizing center of greatest importance for the economic activity in the neighboring regions. At the same time, in the Vlăsia Plain there is the eastern boundary between the nemoral area and the silvo-steppe, and the areas occupied by the forest have narrowed considerably over the analyzed period. Thus, in 1864 the forests occupied 33.4% of the analyzed area, which was reduced to 11.2% in 1990 and to 8.3% in 2012. The share of the other categories of land increased steadily, with the indication that the lands arable sectors expanded between 1864 and 1990 by 22.1% for then by 2012 to narrow by 1.1%.

Key words: *Land use change, soil conditions, Vlăsia Plain*

1. INTRODUCTION

With a total area of 2 977 km², which represent approximately 6% of the surface of the Romanian Plain, Vlasiei Plain got our attention by some distinctive features. Vlăsei plain has a central position in the Romanian Plain (Figure 1). This is one of the causes of the intersection of many roads and the establishment of Bucharest, being Romania's first rank polarising center for economic activity in the neighboring regions. Vlăsia plain was one of the oldest and intense populated areas from the Romanian Plain. The archeological findings, historical documents, old documents certify the cartographic habitation in that territory from ancient times [1] and a long tradition in the practice of agriculture.

Another specific characteristic of the Vlăsia Plain is that there are favorable conditions for the development of forest vegetation. In the Vlăsia Plain is the eastern boundary between the

²⁷⁴ University of Bucharest, Faculty of Geography, 1st., Nicolae Bălcescu Bd. 010041, Bucharest, Romania

²⁷⁵ University of Bucharest, Faculty of Geography, 1st., Nicolae Bălcescu Bd. 010041, Bucharest, Romania

²⁷⁶ University of Bucharest, Faculty of Geography, 1st., Nicolae Bălcescu Bd. 010041, Bucharest, Romania

immortal area and the forest steppe. Nowadays (Present day), only the fragments remain in the old of Vlășia woods, which are, however, among the largest and best-preserved forests of the Romanian Plain [1]. Restriction of areas with natural vegetation is due to the constant process of anthropic impact on the environment.

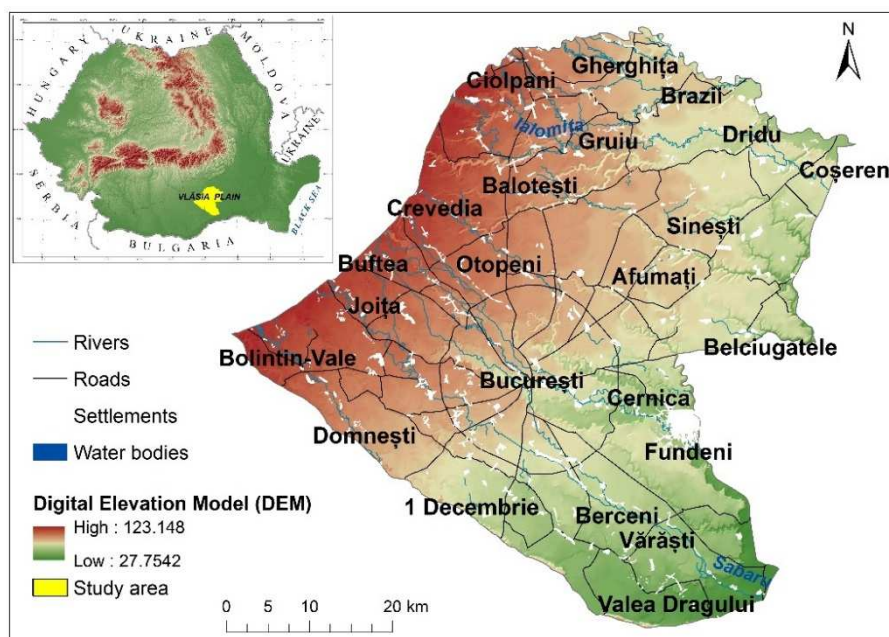


Figure 1: Study area

That is why we have proposed ourselves to analyze the land use in this plain region and to emphasize the relationship with organic soil groups. It has been tracked how land use has changed over time between 1864-2012. The recorded changes in land use were observed both at the overall level of Vlășia Plain and at the level of its subunits. Six subunits can be distinguished [1].

The Buceurești Plain (34.3% of the total) shows slopes, no terraces and old divagations in the north. Then succeeds a Piedmont field, but where the terraces are missing, these starting to appear only in the south. The altitudes at the field are between 65 and 115 m. The Câlnaului Plain (8.5% of the total) has a slightly higher slope being the forefront of the old cone. The rivers deepen by 10-30 m. At the level of the higher fields and terraces, there are many creeks. The altitudes vary between 40 and 65 m. The Movilita Plain (22.7% of the total), with altitudes similar to those of the Buceurești Plain, makes its way to the silvosteppe area. There are many corks.

RĂZVAN OPREA

Associate Professor, Ph.D. Degree.

*University of Bucharest
Faculty of Geography
Department of
Geomorphology-Pedology-
Geomatics.*



The Snagov Plain (13.6% of the total), with altitudes of 100-120 m, has a dense network of boulders, junctions and larger valleys with limans. The Maia Plain's (8.9% of the total) altitude varies between 124 and 76 m. It appears as a continuation of the Snagov Plain, but smoother and with a thinner loess layer. It is a Piedmont-Terminal Plain with subordinate areas. Argeș-Sabar Plain (11.9% of the total), with widths of 3-6 km, combines low meadow characters

(along with the Argeş and Sabar rivers) and meadow terrace (especially in the central part). In the Argeş floodplain is recorded a minimum altitude of about 30 m.

2. MATERIALS AND METHODS

For the studied area a variety of vector and raster data were extracted from the Romanian Soils Map, scale 1: 200 000, Bucharest maps [2], Neajlov [3], Ploiesti [4], Topographic Map of Romania, scale 1: 50 000 [5], Map of Southern Romania (Szathmári Map) [6], made in 1864, but which uses the older information (1856), Corine Land Cover (CLC), scale 1:50 000 [7], 1990 and 2012. From the last two listed sources, information on land use was extracted.

In this study, it was necessary to reclassify the land use categories according to the characteristics of the analyzed area and to comply with the information obtained from the various sources mentioned (Map of Southern Romania, CLC, 1990 and 2012). Thus, the data were grouped into 7 categories: forests, pastures, arable, vineyards/gardens/orchards, waters, non-productive (reindeer, eroded surfaces at the head of the terrace or along valleys, excavations for gravel and sand extraction, etc.), built-up area. This information processing has been transformed into maps of the distribution of the main categories of land use (Figure 2).

Another stage was the ecological classification of the soils in the Vlăşia Plain. This classification reflects the use and management of different soils in relation to land use. The criteria used for the classification of the various soils in the respective ecological groups [8] were: soil type, soil subtype, soil texture, parental material, hydric regime, saline regime, edificial volume, the extent to which the soil is affected by current geomorphological processes. Romania's territory has been established [8] a number of 13 groups of soils with different environmental specifications.

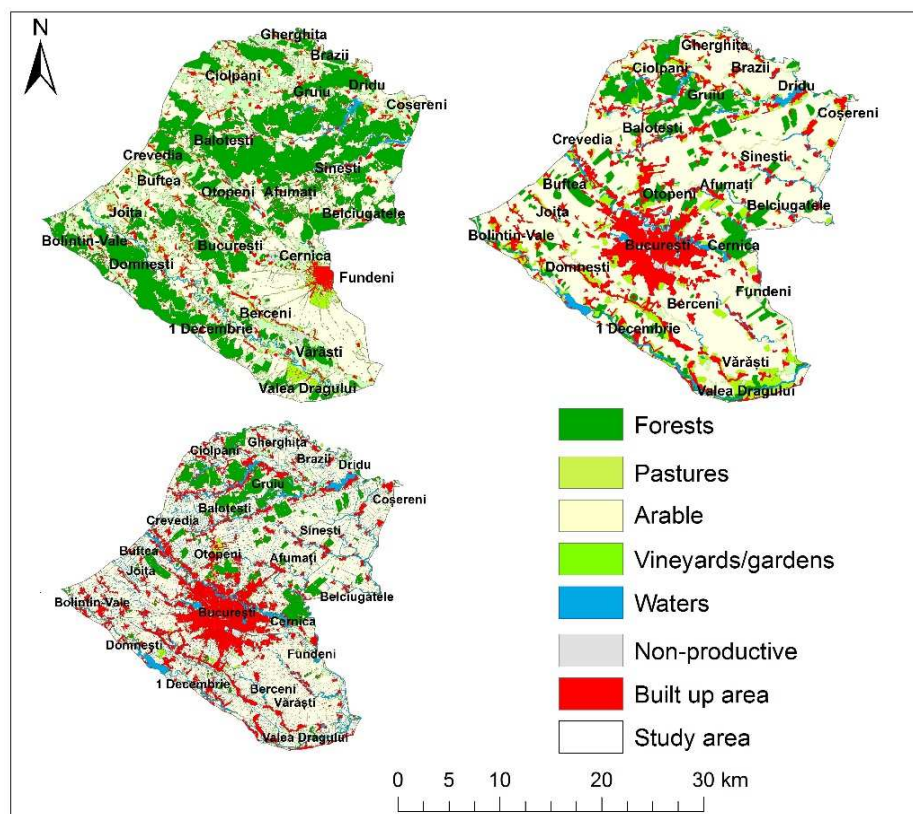


Figure 2: Land change / Land cover (1864, 1990, 2012)

Of these, in the Vlasia Plain as a whole, there were identified 8 ecological groups of soils. The maximum number of groups (eight) is found in the Argeş-Sabar Plain and the minimum number (four) in the Plain of Maia. These soil groups were then reported to the analyzed area at the general level of the Vlasia Plain and at the level of each subunit. Thus, the weight of each soil organic group was calculated. Finally, a correlation was made between the environmental groups of soils and the different land use categories. This analysis was made only for the Vlasia Plain as a whole.

ROXANA CUCULICI
Lecturer, Ph.D. Degree.
University of Bucharest
Faculty of Geography
Department of Regional and
Environmental Geography



3. RESULTS AND DISCUSSION

Currently (2012) the arable land has the highest ratio, reported to all sub-units of Vlăsia Plain (table 1). The maximum value is found in Călnăului Plain (85,5%), and the minimum value is in Snagov Plain (50,4%). Overall, in the Vlăsia Plain reaches the value of 59,9%. Secondly come to the constructed fields, which reaches a maximum value of 25,1% in Bucureşti Plain. They are exceeded by the surfaces with forests just in two sub-units, in Snagov Plain and Moviliştei Plain. However, in Moviliştei Plain the forested surfaces overcome just 2,4% of the constructed fields.

<i>CLC 2012 (%)</i>	<i>Forests</i>	<i>Pastures</i>	<i>Arable</i>	<i>Vineyards/ gardens/ orchard</i>	<i>Waters</i>	<i>Non-productive</i>	<i>Built up area</i>
<i>Vlăsia Plain</i>	8,3	3,4	59,9	6,6	4,3	3,6	13,9
<i>Bucureştiului Plain</i>	6,6	2,4	55,2	0,7	3,8	6,2	25,1
<i>Călnăului Plain</i>	0,6	3,2	85,5	0,0	2,6	2,4	5,7
<i>Moviliştei Plain</i>	7,9	2,0	78,7	0,3	3,2	2,4	5,5
<i>Snagovului Plain</i>	27,3	2,4	50,4	0,6	6,5	2,4	10,4
<i>Maia Plain</i>	6,6	8,8	69,4	0,0	4,9	3,7	6,6
<i>Argeş-Sabar Plain</i>	2,1	5,2	65,0	0,8	8,1	5,0	13,8

Table 1: Share of land use categories in 2012

The arable lands had the highest ratio also in the year of 1990 (table 2) on both Vlăsia Plain area (61,0%) and its sub-units. Also, in the first place was Călnăului Plain (77,1%), but the last place was occupied by Argeş-Sabar Plain (47,7%). Argeş-Sabar Plain, which offers a good supply of soil of the groundwater, was preferred in the period of 1990-2012 for extension of the arable surfaces with about 17,3%.

Maintaining the constructed fields to relatively close values between 1990-2012, can be related to the demolition of various constructions belonging to the large farms linked to socialist-cooperative agriculture. This situation compensated for the extension of the new buildings

connected to the preferences of the Bucharest citizens to move in rural areas next to the capital. Regard in the city of Bucharest, the extensions of the residential and commercial areas have been frequently built in the emptied spaces by the demolition of former industrial parks [9].

<i>CLC 1990 (%)</i>	<i>Forests</i>	<i>Pastures</i>	<i>Arable</i>	<i>Vineyards/ gardens/ orchard</i>	<i>Waters</i>	<i>Non-productive</i>	<i>Built up area</i>
<i>Vlăşia Plain</i>	11,2	3,6	61,0	4,8	3,0	1,9	14,4
<i>Bucureştiului Plain</i>	8,5	1,8	54,8	5,8	2,2	2,3	24,7
<i>Câlnăului Plain</i>	3,3	2,8	77,1	7,7	1,3	0,7	7,2
<i>Moviliştei Plain</i>	9,6	2,5	75,8	2,6	2,0	0,5	7,1
<i>Snagovului Plain</i>	30,5	2,3	48,8	3,7	3,2	1,7	9,7
<i>Maia Plain</i>	8,7	6,7	68,9	4,5	3,3	0,2	7,6
<i>Argeş-Sabar Plain</i>	10,1	4,0	47,7	17,4	7,6	1,4	11,7

Table 2: Share of land use categories in 1990

In 1864 (table 3) the forests had a bigger surface than now, recording at the Vlăşia Plain level 33,4%. We appreciate that this surface could have been in the past of this year even bigger because reddish brown soils with or without eluvial occupy 37,5 % in Vlăşia Plain.

<i>Szathmári Map (%)</i>	<i>Forests</i>	<i>Pastures</i>	<i>Arable</i>	<i>Vineyards/ gardens/ orchard</i>	<i>Waters</i>	<i>Non-productive</i>	<i>Built up area</i>
<i>Vlăşia Plain</i>	33,4	19,9	38,9	2,3	1,1	0,7	3,8
<i>Bucureştiului Plain</i>	22,0	22,8	44,8	3,0	1,0	0,8	5,3
<i>Câlnăului Plain</i>	7,2	22,9	58,1	5,9	1,2	1,9	2,7
<i>Moviliştei Plain</i>	52,2	10,2	32,6	0,7	1,8	+	2,6
<i>Snagovului Plain</i>	34,4	21,8	37,4	1,7	0,6	0,4	3,6
<i>Maia Plain</i>	40,1	29,2	23,5	1,6	0,3	1,3	4,0
<i>Argeş-Sabar Plain</i>	42,0	17,7	34,9	2,1	0,7	0,3	2,2

Table 3: Share of land use categories in 1864

These soils [10] may be regarded as a clear indicator of the oak forests spread (*Quercus cerris*, *Q. frainetto*, *Q. robur*), in which vegetates and other species of trees (*Tilia tomentosa*, *Ulmus minor*, *Fraxinus angustifolia*, *Acer campestre*, *A. tataricum*, etc.).

In the World Reference Base for Soil Resources (WRB-SR) are included in Chromic Luvisols (with or without eluvial horizon). Reddish-brown soils that mollic surface horizon rich in humus are treated with Luvi-chromic Phaeozems [11]. The share of these soils varies from a minimum of 5-8.3% in Argeş Sabar Plain and Movilița Plain respectively, up to a maximum of 64,3-74,5% in Bucharest and Snagov Plain respectively. In the Maia and Călnău Plains the percentages are similar, 22.6% and 24.8%, respectively. They shall be added and other soils with well developed argic horizon formed in the forest areas (Haplic Luvisols, Haplic Planosols, Albic Planosols, Luvic Stagnosols, Albic Stagnosols), with a share of approximately 1,2 % at the level of Vlăsiei Plain.

More than that, as we mentioned, the eastern limit between the forest area and the Silvesteppe is in Vlăsiei Plain. From pedological perspective [12], an indicator of the Silvesteppe areas is the presence of Haplic and Luvic Chernozems and Haplic and Luvic Phaeozems. At the level of Vlăsiei Plain percentage occupied by these soils is 35.5%. If we take into account a degree of afforestation of approximately 50-75 % in the former Silvesteppe, it is possible to reach a degree of afforestation up to 18-27% of the surface of Vlăsiei Plain (meaning 1/2 or 3/4 of the area occupied by the above-mentioned soils).

The percentage of afforestation estimated for areas with specific Silvesteppe soils are checked thoroughly with the existing situation in the year of 1864 in Moviliței Plain. Here, the specific Silvesteppe soils are prevailing in the pedogeographic landscape, and the share of the forest was 52,2 % in the year specified above. In the conditions in which anthropic activity in the region was already present, many human settlements occurred with a population which carried a farming activity well represented in the territory (arable land totaling up to 32,6 %). Summing the percentage of specific soils in the broad-leaved forest area with the possibility for afforestation of specific Silvesteppe soils reach the potential for afforestation of approximately 57-66 % in Vlăsiei Plain.

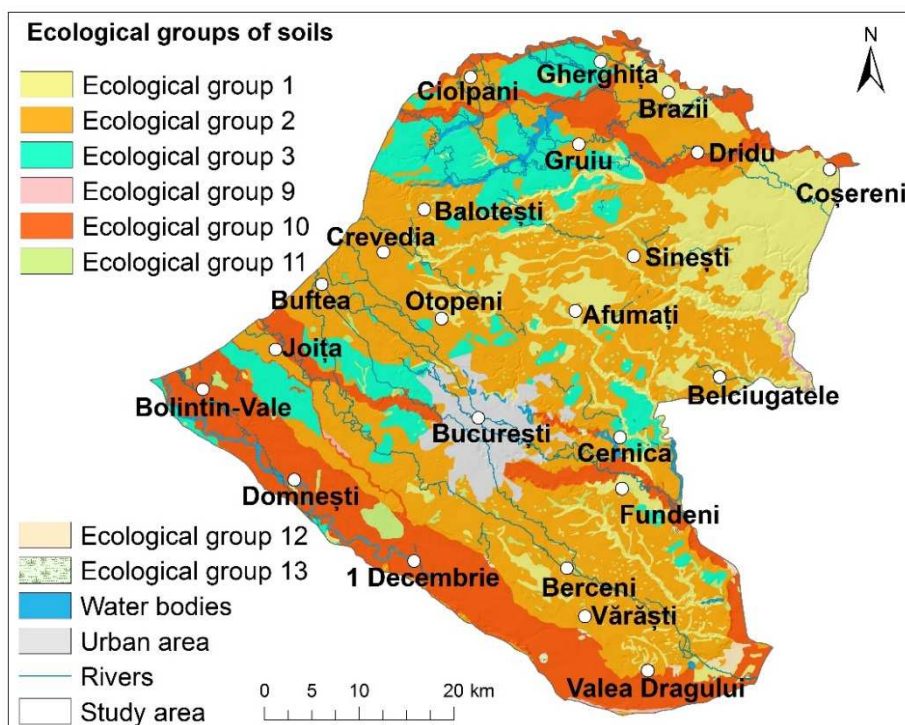


Figure 3: Ecological groups of soils

If we add to this the meadow forests, the percentage of the total area with a potential for afforestation increases. In Vlasiei plain as a whole, on the meadow terraces Lunca de Jos, in the areas better drained, can be found about 1,3 % of Cambisols (with eutric fluvic properties) formed on the parent material, which generally is formed under the forests.

A percentage of approximately 10.3% of Fluvisols with a thick humic horizon, where, generally, meadow forests can grow in good conditions, is added. As a matter of fact, in Arges-Sabar Plain with meadow and partly meadow terrace character the percentage of Fluvisols, including Haplic Fluvisols less value is approximately 85,2%, and the degree of afforestation was in 1864 of 42%. Taking into account these last items mentioned, initial afforestation at the level of the plain Vlasiei could reach between approximately 68-69% and 77-78%.

IULIAN SĂNDULACHE

Lecturer, Ph.D. Degree.

University of Bucharest

Faculty of Geography

Department

of

Geomorphology-Pedology-

Geomatics.



The analysis of ecological groups of soils is used to give us an overview of a wider territory about the productive valences of these soils/lands, the limitations in their use and the possibilities of protection and improvement. The discussion on this mode of classification of the soil was carried out for the whole of the plain Vlasiei and its subunits making (Figure 3). The weights (Table 4) and a character peculiar to each group green ground identified are shown below [8].

Chernozemics soils (1) (Chernozems, Haplic Chernozems); they underwent fertility high humidity of the droughts periods is the limiting factor; improper irrigation can cause salinization risk and secondary overwetting; it is recommended to prevent subsidence, destructuring, nutrient depletion.

Soil with argic horizon/argic soils (2), (Luvic Phaeozems Haplic Luvisols, Chromic Luvisols); a deficit of moisture less than (appears in the droughts years); fertility is good; it is recommended to prevent destructuring, compaction and nutrient depletion.

Soils with the argic and eluvial horizon/luvic soils (3) (Chromic Luvisols, Haplic Luvisols with eluvial horizon); fertility is low to moderate; limitations imposed by the reaction of an acid, nutrient and poverty rain excess moisture; current measures aimed at removing excess water and erosion; calcareous amendments, fertilization can be added.

AREA	Ecological groups of soils %							
	1	2	3	9	10	11	12	13
Vlăşia Plain	16,6	47,1	14,1	0,3	19,9	1,6	0,3	0,1
Bucureştiului Plain	7,9	61,4	15,4	0,2	13,1	1,9	-	0,1
Câlnăului Plain	11,6	72,8	2,2	-	10,2	2,0	0,9	0,2
Moviliştei Plain	46,8	48,5	1,5	0,8	1,2	1,2	-	-
Snagovului Plain	7,9	47,1	37,0	-	6,8	1,2	-	-
Maia Plain	9,2	32,1	32,1	-	26,6	-	-	-
Argeş-Sabar Plain	2,0	4,8	1,7	0,7	85,2	3,3	1,9	0,4

Table 4: Share of ecological groups of soils

Eroded soils (9) (Regosols, eroded soils); low fertility because of the horizon A erosion. Aluvial soils (10) (Fluvisols, Cambisols with eutric properties on the fluvic parent material). Some of them can be relatively fertile; measures can be taken to prevent excessive moisture. Soils strongly affected by moisture (humidity) (11) (Gleysols, Stagnosols); those with moisture, groundwater can be used in particular for meadows, and those affected by stagnant water raises existing problems with luvic soils. Halomorphic soils (12), (Solonetz); very low fertility. Histosols (peaty soils) (13).

4. CONCLUSIONS

This study indicated first the constant restriction of the areas occupied by the forest, with 25,1 % between 1864 and 2012. The process is carried out as a result of the increasing number of the population over time. This is possible because of the very favorable potential of the natural habitat, linked to the fertility of at least 63,7 % of the existing soils, the abundant water resources, the forests which have offered sanctuary, standing timber and resources of food. The development of the settlements was originally carried out especially in the existing glade or in those created by the grubbing-up inside the forests. Climatic Conditions (annual average temperatures around 10,5-11⁰C and the average annual rainfall of approximately 516-672 mm) with a character of transition [1], the oceanic and moderate submediterranean to the excessive continental, have favored the process of increasing population density and practicing of intensive agriculture. Also, an important role has had the historical, social and political conditions. Briefly, we mention a few important moments. The Peace Treaty of Adrianople, liberalizing trade in cereals, animals, wood, has stimulated deforestation and increased agricultural areas surfaces. Other important moments were agrarian reforms in the years 1864, 1921 (after The First World War), 1945 (after The Second World War), 1990 (the passage from the socialist economy to a market economy). At present 50,8% of the agricultural land occupies the argic group of soils and 53% of the forest land occupies the luvic group of soils.

REFERENCES

- [1] Posea, G., Bogdan, O., Popescu, C., Buza, M., Posea, A., Drugescu, C. (2005) *Vlășia Plain*, in *Geography of Romania Vol. V*, Romanian Academy Publishing House, Bucharest, pp. 307-338.
- [2] Cernescu, N., Florea, N., Conea, A., Gogoșă, T., Oancea, C., Asvadurov, H., Predel, F. (1964) *Soil Map of Romania*, scale 1:200 000, Bucharest sheet, Institute of Geology, Bucharest.
- [3] Florea, N., (coord. editor), (1970) *Soil Map of Romania*, scale 1:200 000, Neajlov sheet, Geological Institute of Geology, Bucharest.
- [4] Florea, N., (coord. editor), (1986) *Soil Map of Romania*, scale 1:200 000, Ploiești sheet, Institute of Geology and Geophysics, Bucharest.
- [5] *** (1989) *Topographic Map of Romania*, scale 1:50 000, DTM, Bucharest.
- [6] Szathmári, C., P. (1864) *Map of Southern Romania*, available on www.charta1864.ro.
- [7] *** (1990, 2012) *EEA-Corine Land Cover (1990, 2012)*, <http://www.eea.europa.eu/data-and-maps/data/clc-1990,2012>.
- [8] Florea, N. (2003) *Degradation, protection and improvement of soils and lands*, S.N.R.S.S., Bucharest, pp. 257-275.
- [9] Pătroescu, M., Vânău, G., Niță, M., R., Iojă, C., Iojă, A. (2011), *Land Use Change in the Bucharest Metropolitan Area and its Impacts on the Quality of the Environment in Residential Developments*, Forum Geografic. Geographical studies and environment protection research, Vol. X, Issue 1/June 2011, pp. 177-186.

- [10] Grigoraş, C., Boengiu, S., Vlăduţ, A., Grigoraş, E.,N. (2006) *The soils of Romania* Vol. I, Universitaria Publishing House, Craiova, pp. 215, 236.
- [11] Florea, N., Munteanu, I. (2012) *The Romanian System of Soil Taxonomy (RSST)*, SITECH Publishing House, Craiova, pp. 170, 172.
- [12] Puiu, Ş. (1980) *Pedology*, Ceres Publishing House, Bucharest, pp. 203, 207.

THE ROLE OF FARMERS IN IMPLEMENTING ECOSYSTEM-BASED APPROACH FOR FLOOD RISK MANAGEMENT – A CASE STUDY IN BULGARIA

Kristina Todorova²⁷⁷

Abstract: *Farmlands play a key role in flood risk management mainly due to the formation of surface water runoff on their territory. The growing interest in natural solutions for flood risk reduction somehow coincides with the reforms in the Common Agricultural Policy after 2013. Consequently, there is a prerequisite for strengthening the link between flood risk management and the introduction of environmentally friendly farming practices. Farmers have a central role in flood risk management mainly as key actors in implementing measures targeting surface runoff regulation and reduction of soil erosion. It is therefore necessary to reveal the main factors which affect their attitudes towards the implementation of ecosystem-based solutions for flood risk management. The review of the literature shows that the conducted scientific research on farmers' attitudes towards the implementation of flood risk reduction measures is limited. However, since the 1990s, there has been a strong research interest in the field of farmers' adoption of conservation measures. In Europe, research focuses on farmers' participation in agri-environmental measures under the Common Agricultural Policy.*

The aim of this paper is to discuss the role of farmers in flood risk reduction by examining their attitudes to adopt agri-environmental measures. The adoption behavior is analyzed by conducting a survey among 77 farmers in Iskar river catchment in Bulgaria. A structured interview was carried out in order to reveal willingness to adopt three types of measures whose purpose is to regulate the surface runoff and to reduce soil erosion. At the present moment, all of the measures are subsidized by the Pillars of the Common Agricultural Policy which raises the question about the current level of implementation of these measures in Bulgaria. In this regard, the structured interview includes questions about the implementation of Rural Development Program 2014-2020. The main findings concentrate around the conclusion that the level of information regarding the possibilities for implementing ecosystem-based measures as well as the potential effect of their provision is low. Also, the prevailing practice for one-year contracts for agricultural land implies a lack of motivation to undertake a long-term environmental commitment. For the majority of the farmers is visible that there is a lack of understanding about the positive effects of the measures on the regulation of surface runoff and reducing flood risk.

Key words: *flood risk management, agri-environmental measures, ecosystem-based approach*

1. INTRODUCTION

The uptake of agri-environmental measures which are beneficial for the provision of ecosystem services depends on the willingness of farmers to adopt these measures. Ecosystem services are defined as benefits for the society which can be received directly and indirectly, and basically are divided into four types - supportive, material, cultural and regulative. The main focus in this study is on the regulating ecosystem services for flood reduction. Ecosystems can affect both the probability and the intensity of an extreme

²⁷⁷ University of National and World Economy, Sofia, Bulgaria

phenomenon. The main capacity of agricultural land in flood risk management consists in the ability of soils to store huge amounts of water and to ensure that surface runoff is absorbed and transformed into subsurface runoff and groundwater flow, thus prevent or reduce the risk of flooding [1]. The ecosystem approach uses ecosystem services as a strategy to adapt to the adverse effects of climate change and to reduce flood risk. In this context, natural water retention measures use the ecosystem approach to help regulate surface water runoff, enhance ecosystem resilience to climate change, create carbon stocks and improve biodiversity [2].

Some of the studies conducted within the European Union manage to categorize different public goods that can be provided by farmlands. In this regard, some authors [3] identify the role of agri-environmental measures (AEMs) to reduce flood risk. Possible practices within arable lands can have an effect not only on the particular farm, but above all on reducing the risk of flooding at local level in the river catchment. Deploying such activities aimed at improving the soil's capacity to retain and regulate surface water runoff can achieve this goal. Natural water retention measures at farm level can be considered as those who intend to capture flood water at source, mainly by providing the possibility for slow infiltration into the soil, in other words - by encouraging the retention of water within a catchment and, through that, enhancing the natural functioning of the catchment [4].

The economic activity has always been an altering factor for the natural environment, including changing the landscape for agricultural needs and development of the rural areas. Agriculture has its role in the acquisition of natural resources, as nearly 40% of the terrestrial surface is now in the form of croplands and pastures [5]. Activities in an agricultural holding can often show features of public goods or services. Delivering different ecosystem services from agricultural lands places a focus on the inclusion of farmlands in the policies to promote the delivery of public goods. Farm operators are key actors in implementing agri-environmental measures and therefore providing ecosystem services.

Farmlands play a key role in flood risk management mainly because of the formation of surface water runoff on their territory [6]. Various studies show the relationship between the formation of runoff and agricultural practices and, respectively, the risk of flooding [7]-[9]. Some authors reflect the link between land use change in rural areas and surface water runoff [10]. Farmers have a central role to play in flood risk management as key actors in implementing flood risk mitigation measures, mainly by increasing the capacity of land to retain water. The nature of ecosystem services as public goods raises the problem of their maintenance and delivery, which confronts the interests of private entities such as farmers. Ecosystem services on agricultural land determine, on one hand, their importance for the whole society and their supply should be promoted through different policies. This places a focus on the importance of the Common Agricultural Policy (CAP) and its mechanisms to provide an initiative for their supply, as currently in Bulgaria the main mechanism for paying for ecosystem services is namely through the CAP mechanisms.

The concept of ecosystem services began to take its positions into the agricultural policy of the EU since the concept of public goods began to gain its good foundation in the CAP as new way for public intervention in the sector [11]. Currently, the instrument which offers the possibility for introducing measures to regulate surface water runoff and reduce flood risk, is the CAP through its two pillars - Green Direct Payments and the Rural Development Program. One of the objectives of implementing the EU's rural development policy is to reflect the role of farmers in improving the environment by implementing certain practices, as these can be

subsidized under Measure 10 Agroecology and Climate, part of the Rural Development Program 2014-2020.

For the purpose of this study, three types of agri-environmental measures have been analyzed, which fall under the implementation of the Rural Development Program 2014-2020, as well as one practice which is out of range of the Program. These are - buffers strips, crop rotation along contours (strip-cropping) and transformation of arable lands into permanent grasslands. Also, one type of measure - creation of small ponds – is suggested to the respondents to assess the main barriers and benefits of its implementation.

2. MATERIALS AND METHODS

In order to reveal the willingness of farmers to adopt three types of measures for flood risk reduction and to assess the applicability for creation of small ponds, a structured interview was conducted with 77 farmers located in the Iskar River Basin (Figure 1). The scenarios included in the survey assess the characteristics of each measure regarding the following: 1) whether or not the measure is technically applicable for the farm; 2) whether or not the measure will create difficulties in farmland activities; 3) duration of the contract for participation in the Program (5 years according to the requirements); and 4) clarity about the requirements and conditions of the measure.

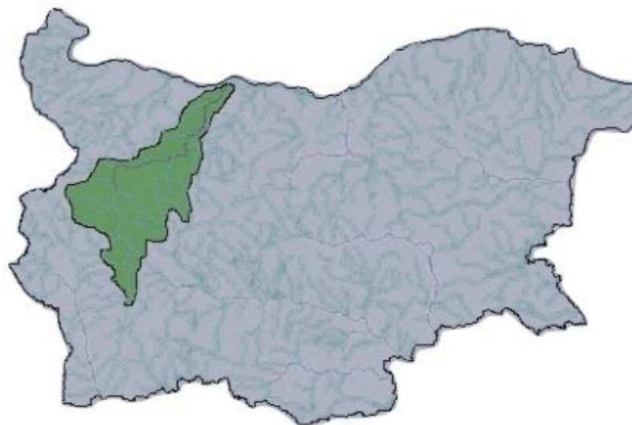


Figure 1 Map of the catchment area of the Iskar River in Bulgaria

3. RESULTS

The results from the structured interview are presented regarding the four types of measures based on the ecosystem approach for flood risk management.

Creation and maintaining of buffer strips

Of the surveyed farmers, 45.5% said they wanted to implement this measure, while the remaining 55.5% are not willing to implement it. The reasons for refusing to apply this measure, as well as for the other two measures, are shown in Table 1. Obviously, the highest percentage of responses concerns insufficient clarity about the requirements and conditions for the implementation of the measure (41%), as well as the duration of the program (35%).

	Buffer strips	Strip cropping	Grasslands
The measure is not technically applicable to their farms	18%	16%	-
The measure will create difficulties in farmland activities	6%	29%	-
The duration of the measure is too long (5 years)	35%	22%	54%
The requirements and conditions of the measure are not clear enough	41%	33%	46%

Table 1 Reasons for non-adoption of the measures buffer strip, strip cropping and grasslands
Source: Author's findings

Strip cropping

In relation to strip cropping, 35.1% of the respondents show willingness to adopt it on their farms. The reasons for refusal are presented in Table 1. The smallest percentage of respondents believes that the measure is not technically applicable to their farms. Nearly one-third of respondents believe that the measure will create difficulties in farmland activities. Half of the farmers indicate reasons for refusal - its duration and clarity about the conditions of implementation.

Transformation of arable lands into permanent grasslands

Applying this measure is of interest for 50.6% of the respondents. The reasons for refusal are presented in Table 1. In this measure the responses are divided only between the requirements of the program and duration of implementation.

Awareness of the positive effects of the three measures

In regard to the effects which these three measures will have on the reduction of flood risk, a small percentage of the respondents are of the opinion, that the measures will have positive effect (Figure 2). Only for the measure "transformation of arable lands into permanent grasslands" the awareness of the positive effects among farmers is higher – 47%. It appears that the majority of the respondents doesn't recognize the potential positive effects of the measures, or are simply unaware. This suggests lack of information among the farmers for the beneficial outcome of introducing agri-environmental measures in their farmlands.

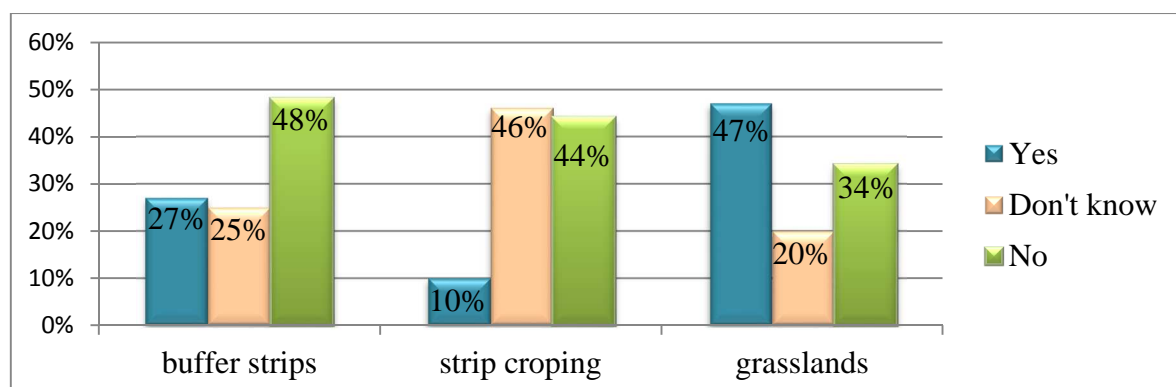


Figure 2 Awareness of the positive effects of the measures on flood risk reduction
Source: Author's findings

Construction and maintenance of furrows and creation of small ponds

Besides the three measures described above, a fourth one is proposed to the respondents for assessment of its applicability. This is the practice for construction and maintenance of furrows and creation of small ponds. No level of compensation is provided for this measure under the current rural program. By its nature, this measure is designed to remove the surface water runoff formed on farmlands and to gradually discharge it into a collector which further transfers it into the hydrographic network. The aim is, on one hand, to safely take off the runoff from the adjacent agricultural lands and on the other to gradually infiltrate it into the soil. This achieves the objective of capturing and retaining rainwater where it falls (on spot) without creating the conditions for flooding and increasing the surface water flow downstream.

Kristina Todorova

Assistant prof. at the University of National and World Economy and PhD in Environmental Economics. The theme of the doctoral thesis is about flood risk management through ecosystem



services in farmlands. The aim of the research was to evaluate the attitudes and willingness of farmers to adopt measures for natural water retention, as well as proposing guidelines and recommendations for improving the flood risk management in the context of ecosystem-based approach. Currently, the research interest is focused mainly on water resource management, including flood risk management. So far, the author's publications are concerned with the subject of the doctoral thesis

The survey results show the following most frequently mentioned barriers according to the respondents:

- Requires serious efforts and financial resources for construction;
- Difficult to apply in small-sized blocks;
- Will occupy large area in the farmland which otherwise would be used to grow crops;
- Requires consent from the owner of the land;
- Long-term investment;
- It can occupy the lands of different users, which requires further negotiations among neighboring farmers.

Such barriers imply that the implementation of the measure can be hampered by the fragmentation of the arable land and the need for consent of the owners. Respondents believe that such measure would take too much of the arable land that would reallocate the land from crop production. Some of the respondents believe that this measure will require a serious financial resource.

Respondents were asked to assess the environmental benefits for regulating the surface runoff from the implementation of this measure. The question was evaluated by Likert's five-step scale. Of the respondents, 82% believe that the implementation of this measure is rather beneficial. Other respondents cannot express an opinion. Regarding the possibilities for using the water from the ponds for irrigation, 65% of the respondents believe that there are such benefits, 19% cannot decide, and 16% believe that there are no benefits.

4. CONCLUSION

The paper presents some insights into the farmers' willingness to adopt agri-environmental measures, which will have effects on the regulation of the surface runoff and the reduction of flood risk. These measures are considered as such that contribute to the provision of ecosystem services, namely the regulating one. Farmers are seen as main actors in providing such services and different types of incentive can be created for raising their awareness of the beneficial impacts of such measures, as well as compensating their efforts in this regard. The conducted survey has highlighted several points for discussion. On one hand, there is obvious lack of understanding about the potential effects these measures could have on the reduction of flood risk. On the other hand, there is insufficient information among farmers about the requirements for the implementation of the measures under the Rural Development Program 2014-2020, which can lead to low uptake of AEMs. Also, the duration of implementation for the measures (5 years) is found too long for the respondents, which can be explained by the fact that the prevailing practice is for one-year contracts. This implies a lack of motivation to undertake long-term environmental commitments. The construction and maintenance of furrows and creation of small ponds as a measure to tackle flood risk is hampered by fragmentation of the arable land and the need for consent of the owners, as well as the reallocation of arable land for production to natural water retention measures.

REFERENCES

- [1] Millennium Ecosystem Assessment, (2005), *Ecosystems and Human Well-being: Synthesis*. Island Press, Washington, DC.
- [2] DG Environment, EU & Stella Consulting, (2012), Report on the Costs, benefits and climate proofing of natural water retention measures, "EU policy document on Natural Water Retention Measures", WG PoM, 2014
- [3] Cooper, T., K. Hart and D. Baldock (2009), *The Provision of Public Goods through Agriculture in the European Union*, report prepared for DG Agriculture and Rural Development, Contract No 30-CE-023309/00-28, Institute for European Environmental Policy, London.
- [4] Todorova, K. (2016), *Ecosystem-based approach for flood risk reduction in Bulgaria* ICODECON, 9-12.06.2016, Thessaloniki, Greece. Conference proceedings, ISBN 978-618-82146-3-7
- [5] Foley, J.A, DeFries, R., Asner, G.P., Barford, C., Bonan, G., Carpenter, S.R, Chapin, F.S., Coe, M.T., Daily, G.C., Gibbs, H.K., (2005) *Global consequences of land use*, Science 309, 570 (2005)
- [6] Posthumus, H., Hewett C., Morris JI., (2008), *Agricultural land use and flood risk management: Engaging with stakeholders in North Yorkshire*, Agricultural Water Management, Vol 95, Issue 7
- [7] Ashagrie A. G., De Laat P. J. M., De Wit M. J. M., Uhlenbrook M. Tu, S., (2006), *Detecting the influence of land use changes on Floods in the Meuse River Basin. The predictive power of a ninety-year rainfall-runoff relation*. Hydrology and Earth System Sciences Discussions, European Geosciences Union, 3 (2), pp.529-559.
- [8] Bronstert, A., Niehoff, D., and Burger, G., (2002), *Effects of climate and land use change on storm runoff generation: present knowledge and modelling capabilities*, Hydrol. Processes, 16, 509– 529
- [9] Niehoff, D., Fritsch, U., and Bronstert, A., (2002), *Land use impacts on storm-runoff generation: scenarios of land-use change and simulation of hydrological response in a meso-scale catchment in SW-Germany*, J. Hydrol., 267(1–2), 80–93

- [10] O'Connell P.E., Beven K.J, Carney J.N., Celements R.O., Ewen J., Fowler H., Harris G.L., Hollis J., Morris J., O'Donnell G.M., Packman J.C., Parkin A., Quinn, P.F., Rose M.Shepherd S.C., Tellier S., (2005), Review of impacts of rural land use and management on flood generation, Technical Report FD2114/TR, DEFRA UK, London.
- [11] Dwyer, Janet C and Short, Christopher J and Berriet-Solliec, M and Gael-Latoste, F and Pham, H-V and Affleck, Melissa and Courtney, Paul and Déprès, C., (2015), Public Goods and Ecosystem Services from Agriculture and Forestry - a conceptual approach. Project Report. Pegasus - Institute for European Environmental Policy.

SMART AGRICULTURE A SOLUTION FOR ROMANIA

Camelia Slave²⁷⁸
 Mariana Coancă²⁷⁹
 Diana Vască Zamfir²⁸⁰

Abstract: *Former President of the United Nations, Nobel Peace Prize laureate Kofi Annan, has called for environmental protection and intelligent use of agricultural resources.*

It is imperative to find solutions that will help to feed the growing population of the globe. The fact that Terra will be occupied by 10 billion in the next period convinced the planet's strategists to participate in the Agriculture Forum in Brussels where the new proposed solutions for the smart development of agriculture and eco environment were tackled.

Romania is a country predominantly rural, 60% of the country's territory being classified as rural. A large part of the country's population lives in rural areas, 47% of the population living in rural areas since 2008, much higher than the EU average of 15%. Rural areas in Romania occupy approximately 14.7 million hectares of agricultural land and cover more than four millions of farms.

The purpose of the article is to present the current situation of some arable land located in the Romanian Plain, which could contribute to the increase of productivity by implementing intelligent agricultural strategies.

Key words: *agriculture, smart tools, economy, food, production.*

1. INTRODUCTION

Agriculture is the second leading branch of the world economy. It plays a major role in the development of the economy, with agricultural production being the main source of food, the basis of human existence and the raw material base for a number of industrial branches. The need for development and modernization stems from its vital role in meeting the food needs of the people of the world. This human activity has the greatest contribution to the well-being of people. At present, 60% of the Earth's population ensures their existence directly from agriculture. Agriculture has a decisive role in meeting the food needs, being the major branch that provides the raw material for the food industry - 90%, the light industry - 70% and the chemical industry - 20%.

Latest research points out that technological innovations changes by Big Data applications in Smart Farming are driven by pull mechanisms because there is a need for new technology to achieve certain goals (e.g. seeking ways to improve profitability and efficiency, reduce farming costs or obtain better prices for products). On the other hand, push factors drive precision agriculture because the Internet of Things enables people or organizations to achieve higher goals, leading to radical changes in farm management because of access to explicit information and decision-making capabilities (e.g. wireless data transfer technology). [6]

²⁷⁸ University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Mărăști Blvd, Bucharest, Romania

²⁷⁹ Romanian – American University, Bucharest, Blvd Expoziției 1B, Bucharest, Romania

²⁸⁰ University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Mărăști Blvd, Bucharest, Romania

2. AGRICULTURE OF ROMANIA IN A NUTSHELL

At the national level, agriculture is one of the important branches of the Romanian economy. The contribution of agriculture, forestry and fishery to the GDP is roughly 6% of the GDP while in the EU Member States it roughly represents 1.7%.

Gross Domestic Product	2012	2013	2014	2015
Agriculture, forestry, and fishery	27885.8	34402.8	31582	24018.4
Total GDP	596681.5	637456.0	666637.3	498487.4
% of GDP	4.7	5.4	4.7	4.8

Table 1. The share of agriculture, forestry and fishery

Source: 2007-2012 Romania's Statistical Yearbook 2012, 2013, 2014 tab. 11.1 2013: NIS, Press release no. 255 of 9 October 2015 - Final date 2014: NIS, Press release no. 81 of 7 April 2015 - provisional data (2), gross series 2015 the first 3 quarters - INS, Press release no. 306 of 4 Dec 2015 - Provisional Data (1) [11]

A. Quarterly analysis

In 2012, this sector's contribution to the GDP was 3.5%, 3.5%, 9.3% and respectively 4%; in 2013 its contribution was 3.1%, 3.9% 9.3% and 6.9% whilst in 2014 it was 4.9%, 2.9%, 9.6% and 4%; Finally, in 2015 this sector's contribution was 1.9%, 2.4%, 8.9%, 4.5%.

According to the preliminary forecast for autumn 2015, "Projection of the main macroeconomic indicators 2015-2019" - 17 September 2015, compiled by the National Prognosis Commission, table "Structure of GDP per branch", the contribution of agriculture, forestry and fishery to GDP in 2015 is 4.4%.

	2010	2011	2012	2013
Total employed population (thousands)	9240	9138	9263	8549
Population employed in agriculture, forestry and fishery (thousands)	2780	2612	2682	2501
% of employed population	30.08	28.58	28.95	29.25

Table 2. Labour force in agriculture

Source: *Statistical Yearbook of Romania, tab 3.3* [11]

Specification	U.M.	2009	2010	2011	2012	2013
Grain cereals	Kg	730.2	825.5	1034.5	639.3	1045.7
Wheat	Kg	255.4	287.0	354.0	264.1	365.1
Rye	kg	1.6	1.7	1.6	0.9	1.2
Corn	kg	391.5	446.6	581.6	296.8	565.7
Sunflower	kg	53.9	62.4	88.8	69.7	107.2

Table 3. The amount of grain cereals per capita

Source: *Romania's Statistical Yearbook, 2013, 2014 tab. 14.9 2013 provisional data* [11]

B. Comparative Analysis

The production of grain cereals increased by 3.4% over the previous year due to the crop yields per hectare, such as corn (+ 7.2%), barley (+ 6.3%), wheat (3.8%) and oat (+ 1.5%). The oily

plant production increased by 15.1% due to both the growth of the cultivated area (+ 4.7%) and the crop yields per hectare. Production increases were also recorded in: rape (61%) and soybean (+ 35.3%) mainly due to the crop yield in the cultivated area (48.4% respectively 17.6%). The area cultivated with sunflower fell by 7.6%. The production of white beet increased by 31.9%, mainly due to the crop yield per hectare by 19.1% and to the area cultivated by 10.7%. The production of potatoes increased by 7% due to the yield increase per hectare (+ 9.1%), although the cultivated area was smaller (-2%) as compared to the previous year.

In 2016, the crop yield of grain cereals benefitted the economy 3.2 billion Euros. The cereal market also remained in 2016 the largest segment of local agriculture with a share of 21% of the total Romanian agricultural output, respectively 32% of the vegetal segment.

Last year's 3.2 billion earnings from the plant segment were lower by 105 million Euros compared to the 2015 output, respectively 16% below the average output of the last five years. [8]

The minus in the cereal segment was mainly driven by the fall in prices even if the total harvest reached 19.7 million tones, increasing by roughly 1 million tones as opposed to the 2015 output. The cereal segment is almost entirely covered by the farmers' earnings from wheat and corn.

Last year, wheat had a market of 1.1 billion Euros, decreasing by 11.6% as opposed to the 2015 output whilst corn generated business of 1.5 billion Euros, reaching a level almost constantly above the previous output, but 26% lower than the average of the last five years.

C. Historical record of oilseeds

The only market with historical record outputs in 2016 was the market of oilseeds, as the businesses in the sector rose to 1.1 billion Euros, thus reaching a historical record. The cumulative receipts from rapeseed, sunflower and soybean were 156 million Euros higher than those registered in 2015, respectively 18.6% above the average earnings over the past five years.

The growth in seed and oilseed business was supported by historical harvest of rapeseed and the harvest of sunflower which were above the multi-annual average.

D. Smart technology in agriculture

Researchers and innovators have already put efforts into finding solutions for developing smart tools that can be used in agriculture. It is worth mentioning the involvement of young Romanians in the development of smart applications for agriculture. A relevant project which won the prize "Best Business" at Innovation Labs, supports precision farming by monitoring crop status with sensors, drones, and ultimate remote communication solutions. The developers of this project manage to collect and transmit real-time data on air and soil parameters on extended areas, also producing aerial maps of agricultural areas. Thus, their solution helps farmers react quickly to field developments, reducing costs and consumption of pesticides. [12]

3. ENVIRONMENTAL SUPPORT FOR AGRICULTURAL PRODUCTION

The growth and development of plants, ultimately their production, is determined by ensuring the living conditions (ecological support) as close as possible to those of the natural

environment in which they were grown. These factors are called ecological because they are directly related to cultivated plants and act on larger or smaller agricultural territories. [2]

The various ecological conditions, the complexity and the proportionality of the reliefs make Romania a country with a wide diversity of agricultural landscapes, in which numerous plant cultivation systems and methods are applied. The knowledge and differentiation of the ecological conditions on the territory is of major importance in the scientific organization of agricultural production, in its technical and economic foundation at national, zonal and agricultural level. The ecological function of natural factors is essential to establish favorability for the ecosystem in general and for each crop, expressed in production output.

The harvest is the result not only of plant photosynthetic activity, it is also due to the complex, reciprocal action between the plant, soil, nutrients with the climatic, genetic, phyto-sanitary and technological factors. It should be noted that the factors that participate in agricultural production at harvesting, of any kind, are of equal importance at any time or in the phase of the technological process and cannot be replaced with one another. The best harvesting results are obtained when these factors are at an optimum level that varies according to species and variety. Of the total amount of organic substance created by the plant, about 1/3 comes directly into a useful form such as fruit, seeds, roots, fiber, tubers, etc., and 2/3 is presented in the form of by-products: straw, chaff, stems, leaves, roots or other plant organs in the soil, which do not have a direct value for humans but are very useful in animal nutrition and industry. [1] [3]

4. STUDY AREA

The Romanian Plain is one of Romania's largest natural relief units. This plain is also known as the Lower Danube Plain, covering the southern and south-eastern part of Romania. It is a smooth region, covered by a thick layer of loess (10 - 40m). In this area there are numerous cavities, dunes (In Ialomita area), river valleys and a few salty lakes. Another feature is the presence of “mostiste” valleys (Romanian lakes).

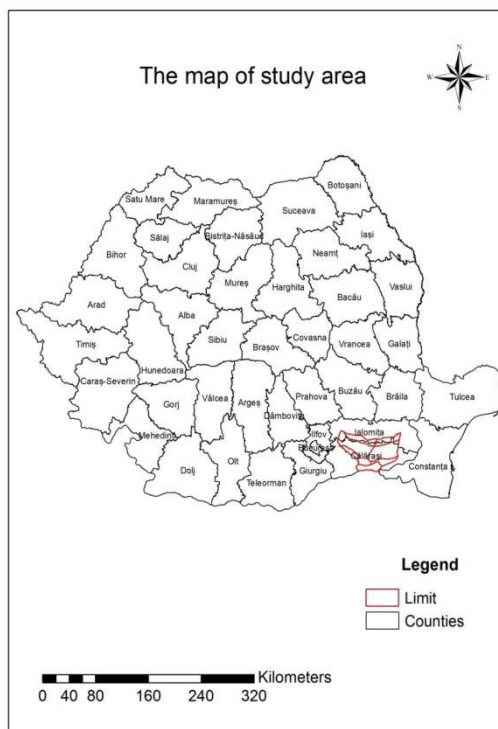


Figure 1 The map of study area

The Romanian Plain is distinguished by high annual average temperatures, due to both the southern position and the low altitudes. The annual average temperatures do not fall below 9.5°C and in the southern extremity reach 11.5°C. The eastern extremity of the plains, under continental influences, is distinguished by high values of average and absolute, daily and annual amplitudes of temperatures. The difference between the warmest month (July 21 - 23°C) and the coldest (January -2 ...- 3°C) is 24-26°C, the highest value in the whole country. Also here it was recorded the highest temperature in Romania, 44.5°C, in the Ion Sion village (on August 10, 1951).

The dryness of the Romanian Plain is not only a consequence of the lack of rainfalls, but also a consequence of the high values of evapo-transpiration, which far exceed the amount of precipitations. The potential evapo-transpiration is estimated 650-900 mm/year, which is why the entire plain suffers from the moisture deficiency and has favored the emergence of steppe vegetation.

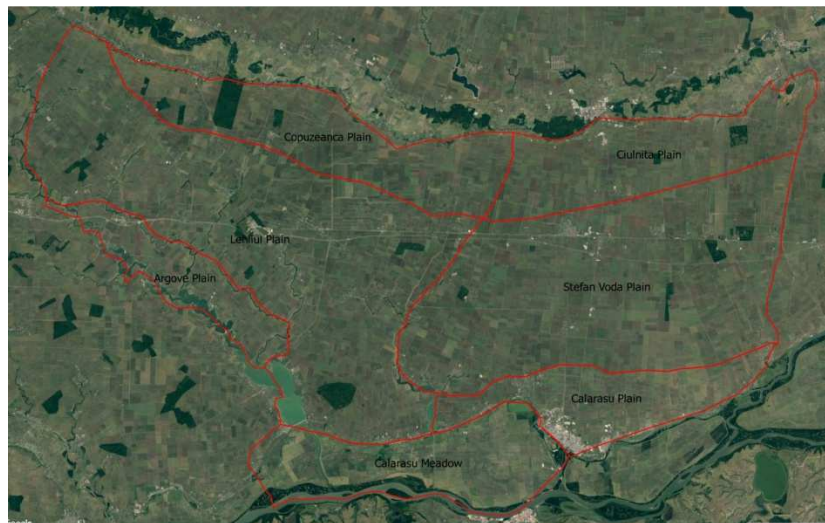


Figure 2 The google map of the study are

The following fields were selected from this study relief unit: The Copuzeanca Plain, The Ciulnița Plain, The Lehliu Plain, The Stefan Vodă Plain, The Argovei Plain and The Calarasi Meadow.

The materials used are the Topographical map of Romania scale 1: 25000, processed by scanning and georeferencing in the stereographic projection system 1970. Geological map of Romania at scale 1: 200,000 presented in digital format and the Soil map of Romania at scale 1: 200.000 .

Another data set used is the Corine Land Cover (CLC 2000). CLC 2000 is the set of reference data for the way the terrain is covered. The funding of this project has been carried out by the European Union with the support of several countries for national coverage.

The classification system comprises 44 distinct classes. Classes are grouped into 3 hierarchical levels. The database underlying this project is composed of LANDSAT ETM + images.

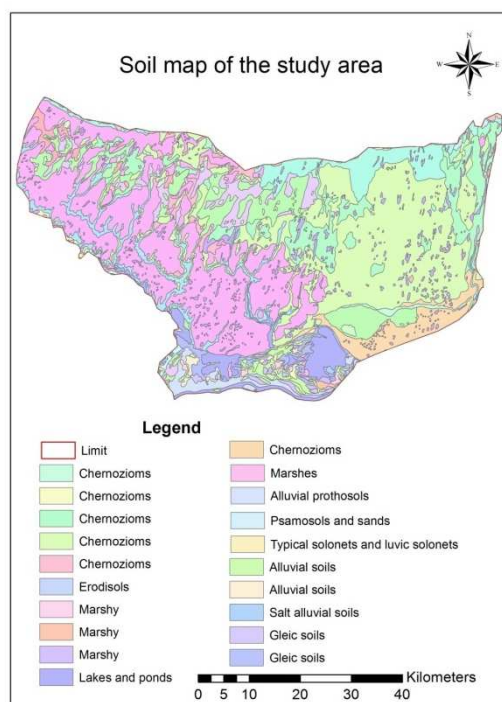


Figure 3 The soil map of the study area

The analysis of the soils map shows that in the study area the largest part of the area is covered by chernozem. Humus content ranges from 2% to 6%, with good hydrophobic properties. Given that soils are fertile, one can successfully cultivate cereals, sunflower, technical plants and leguminous plants. The limiting factor of these soils is humidity. At the border with the Danube River there are gleic and alluvial soils. These soils are affected by the excess groundwater. The physicochemical characteristics are influenced by the parental material texture and the groundwater depth and have a favorable aero-hydric regime. The humus content varies between 2%-3% while the pH is between 6 and 8.5. Overall, the fertility status is good, so they favour the cultivation of different species of great harvest (grain cereals, corn, sunflower, etc.). They are often used in vegetable, hay and fruit trees. In the southern part of the study area there is the Danube's meadow, this area during the communist period was drained so that the land in this area could be used for agriculture.

The CLC Map gives us data on land use, one can easily see that most of this study area is covered by arable land. Considering that the area is part of the Romanian Plain, which in the past was known as the Granary of Europe, intelligent measures are imperative to increase the agricultural productivity in this region.

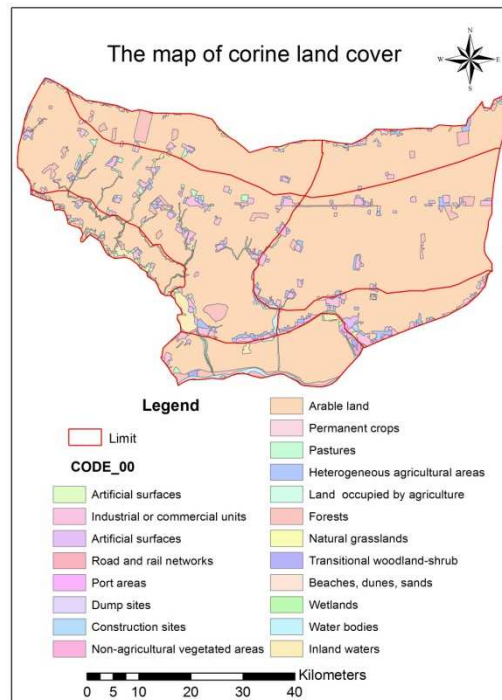


Figure 4 The map of Corine Land Cover

5. CONCLUSIONS

In 2016 the agricultural sector had the best output in the last decade, reaching a profit of 24.5 billion lei, due to the favourable spring weather, investments in the field, consumption recovery and price evolution; in other words, 12 billion lei above the 2010 benchmark, according to an analysis by Dekalb. [7]

Moreover, Romanian farmers have sown this spring an agricultural area of over 5.13 million hectares; more than half, respectively 2.6 million hectares, have been cultivated with corn and 1.054 million hectares have been cultivated with sunflower, according to data from the Ministry of Agriculture and Rural Development. [10]

Undoubtedly, Romania has huge potential in agriculture, being the sixth-largest agricultural area in the European Union and one of the top 10 exporters of wheat and corn worldwide. However, there are barriers to creating a smart agricultural framework in the sense that there is the need to recover delays, eliminate shortcomings and develop the livestock sector and industry food.

For the studied area, the following measures are mandatory:

- Founding associations of farms because as shown in the figure 2 the land in the area is divided into small lots cultivated differently;
- Introduction of irrigation systems;
- Economic incentives to producers;
- Introduction of protection curtains from acacia plantations to reduce the effect of wind erosion in the areas near the Danube where sand dunes are present;
- Introduction of crop rotation to avoid land degradation;

At national level, the following measures are required:

- proper water management can help capture rainfalls leading to water available for crops and using water more efficiently is highly important for increased agricultural production; [4], [5]
- Farmers need to change their soil exploitation techniques to move from extensive agriculture to sustainable and efficient agriculture;
- Increasing investment in new technologies;
- The Romanian agricultural sector should aim to become the largest employer in Romania [9]

REFERENCES

- [1] Bâlțeanu Gh., (1998) Fitotehnie, Editura Ceres, București, pp 103 -116
- [2] Borceanu I., (2006) Tehnici de cultură și protecție a cerealelor și leguminoaselor, Editura de Vest, Timișoara, pp 45 -50
- [3] Cotiga C., (2010) Cultura plantelor furajer, Editura Sintech, pp 87 -90
- [4] Rockstrom, J, Barron, J. (2007) Water productivity in rainfall systems: overview of challenges and analysis of opportunities in water scarcity prone savannahs, *Irrig Sci* 25 (3), pp 299 -311
- [5] Scherr J, Shames S and Friedman R. (2012) From climate-smart agriculture to climate-smart landscapes *Agriculture & Food Security* 1:12
<http://www.agricultureandfoodsecurity.com/content/1/1/12>
- [6] Wolfert S., Ge, L., Verdouw, C., Bogaardt, M.J. (2017) Big Data in Smart Farming – A review. In *Agricultural Systems* 153, pp. 69–80, Elsevier.
- [7] <https://www.stiriagricole.ro/>
- [8] <http://www.ecoruralis.ro/storage/files/Documente/RaportPAC.pdf>
- [9] <http://agriculturadurabila.ro/wp-content/uploads/2016/06/manual.pdf>
- [10] <http://www.madr.ro/docs/agricultura/agricultura-romaniei-2015.pdf>
- [11] <http://www.insse.ro/cms/>
- [12] <http://stirileprotv.ro/ilikeit/smart-things/ilikeit-agricultura-cu-drone-si-senzori-cum-functioneaza-proiectul-premiat-la-innovation-labs.html>

DIFFERENT POST HERBICIDE PROGRAMS FOR CONTROL OF *ECHINOCHLOA CRUS-GALLI* IN DIRECT WET-SEEDED RICE

Zvonko Pacanoski²⁸¹

Summary: *The field trials were conducted at two localities during 2013 and 2014 to evaluate different POST herbicide programs for effective E. crus-galli control in rice production regions in the Republic of Macedonia. Herbicide selectivity and influence on grain yield were evaluated, as well. Herbicides were applied in 3 POST herbicide programs: early-postemergence (EPOST), mid-postemergence (MPOST) and late-postemergence (LPOST). E. crus-galli control differed among POST herbicides, herbicide programs, and DAT. In Kočani locality E. crus-galli control across POST herbicide programs was 95 to 92% at EPOST and MPOST treatments at 14 DAT, and 99 to 98% at 28 DAT, respectively. Significantly, lower efficacy was provided in LPOST treatment (87% and 83%) at both estimation periods. E. crus-galli control across POST herbicide programs in Vinica locality was similar as in Kočani locality. 14 DAT efficacy was ranged between 97 and 93% at EPOST and MPOST treatments, and 28 DAT efficacy was ranged between 99 and 97% at same POST treatments, respectively. Significantly lower efficacy was provided in LPOST treatment (82% and 81%, 14 and 28 DAT, respectively). In both localities all EPOST and MPOST applied herbicides resulted in rice yield which was not statistically different from rice yield in the weed-free control. Because each LPOST herbicide provided lower E. crus-galli control, and caused rice injury, there was significant yield reduction in all plots treated with LPOST herbicides.*

Key words: *Echinochloa crus-galli, rice POST treatments, injury, yield*

INTRODUCTION

E*chinochloa crus-galli* (L.) P. Beauv. (barnyardgrass) occurs with great frequency and distribution in lowland flooded rice system in all rice-growing areas (Dowler, 1997; Andres et al., 2007), including rice production regions in the Republic of Macedonia (Pacanoski and Glatkova, 2009). *E. crus-galli* is reported to be among the three most serious weeds of rice in many countries in Asia, and is a major weed in a wide range of crops throughout the tropical and subtropical world (Holm et al., 1991). This weed is highly competitive with rice due to its adaptation to flooded environments, high seed production, rapid growth and C4-photosynthetic pathway (Marambe and Amarasinghe, 2002). This weed is a very aggressive invader, difficult to control, and causes major losses in rice production (Lopez-Martinez et al., 1999). In particular, season-long competition from *E. crus-galli* has been reported to reduce rice yield by 28 to 65% (Smith, 1988) and by 21 to 40% (Stauber et al., 1991), depending largely on rice cultivar as well as density and spatial distribution of its population. It competes with crops for nutrients, water and light. Some infestations of *E. crus-galli* have been shown to remove 60 to 80% of available nitrogen (N) from soil (Holm et al., 1977; cit. by Ottis and Talbert, 2007). In India, Varghese and Nair (1986) concluded that it competed with transplanted rice for N and K during 11-50 days after planting (DAP) and for P during 21-40 DAP.

²⁸¹ Faculty for Agricultural Sciences and Food, Ss. Cyril and Methodius University, Skopje, R. Macedonia

Several POST herbicides are currently registered in the Republic of Macedonia to control *E. crus-galli*. Cyhalofop and profoxydim are aryloxyphenoxy propionate and cyclohexanedione, respectively, POST herbicides that inhibit acetyl-CoA carboxylase. Cyhalofop has been reported to control barnyardgrass at least 88% when applied early POST (EPOST) as well as late POST (LPOST) at 200 g ai/ha (Ntanos et al., 2000). Vidotto et al., (2007) and Kaloumenos et al., (2013) reported for high level of control (95–100%) of the two *E. crus-galli* accessions with profoxydim applied at 200 g/ha. Profoxydim and cyhalofop-butyl were effective alternatives for the management of *E. crus-galli* resistant biotypes to ALS-inhibiting herbicides, as well (Matzenbacher et al., 2013). Penoxsulam is a triazolopyrimidine sulfonamide herbicide and acts by inhibiting the acetolactate synthase (ALS) enzyme (Lassiter et al., 2004). It is broad-spectrum herbicides registered for weed control in rice. Penoxsulam provides control of *Echinochloa* spp. (Lassiter et al., 2006). Azimsulfuron is sulfonyleurea applicable during post emergence of *E. crus-galli* and rice. Same as penoxulam, this herbicide restrains ALS action on susceptible weeds (Ferrero et al., 2002). Applied at 20 g/ha a.i., with a nonionic surfactant at 0.1% v/v, it gives good control of *E. crus-galli* (Massasso et al., 1996). Azimsulfuron has been reported to control *E. crus-galli* at least 92% when applied at 0.025 and 0.030 g/ha with NIS Trend-90 at 0.2 L/ha (Pacanoski and Glatkova, 2009).

Taking into consideration that only POST herbicides are registered for *E. crus-galli* control in rice crop in the Republic of Macedonia, and that timing of its germination and growth in rice paddy fields is under considerable variations, particularly environmental conditions, consistency of POST weed-control strategies is variable and highly influenced by weed growth stage and environment. Therefore, the objective of this study was to evaluate different POST herbicide programs for effective *E. crus-galli* control and optimal rice yield in rice production regions in the Republic of Macedonia.

MATERIAL AND METHODS

The field trials were conducted during 2013 and 2014 on commercial rice fields in Kočani and Vinica localities in eastern Macedonia. The soil at Kočani locality was a fluvisol sandy loam with 2.8% coarse, 7.7% coarse sand, 63.1% sand, 26.4% silt+clay, 2.66% organic matter and pH of 6.7. The soil at Vinica locality was vertisol with 3.5% coarse, 9.1% coarse sand, 30.0% sand, 60.3% silt+clay, 2.4% organic matter and pH of 7.2 (Filipovski, 2006). The seedbed was prepared by moldboard plowing in the autumn followed by two passes with a field cultivator in the spring. Phosphorus and potassium fertilizers were added before sowing at a rate of 50 and 80 kg/ha as super phosphate (15.5 % P₂O₅) and potassium sulphate (48% K₂O), respectively. Nitrogen fertilizer was added at a rate of 150 kg N/ha as ammonium nitrate (33.5% N) in two equal doses in the tillering stage and in the panicle initiation stage. Standard water management practices were used, so the plots were flooded 2 days before rice sowing. The field trials were carried out with Italian rice varieties “Gloria” and “Opale” which were drill-seeded in a well-prepared seedbed at a seeding rate of 230 and 200 kg/ha, respectively on May 1st, 2013 and May 5th, 2014 in Kočani locality, and May 12th, 2013, and May 15th, 2014, in Vinica locality, respectively.

The experimental design was a randomized complete block with four replications consisting of 3 POST herbicide programs. POST herbicide treatments were applied in early-postemergence (EPOST), mid-postemergence (MPOST) and late-postemergence (LPOST) periods, which were applied on June 10th, 17th and 24th in 2013, and June 12th, 20th and 27th in 2014, respectively in Kočani locality, and on June 15th, 22nd and 29th in 2013, and June 17th, 25th and July 1 in 2014, in Vinica locality respectively. In POST weed control study were included four herbicide

treatments: penoxulam (Rainbow 26.7 g a.i./L, Dow AgroSciences, Indianapolis, Indiana US) at 1.5 L/ha, cyhalofop-buthyl (Clincher duo 200 g a.i./L, Dow AgroSciences, Indianapolis, Indiana US) at 1.5 L/ha azimsulfuron (Gulliver 500 g a.i./L, E.I. du Pont de Nemours and Company, Wilmington, Delaware, US) at 0.04 kg/ha, and profoxidim (Aura 200 g a.i./L, BASF Agro B.V., Arnhem, NL, Switzerland) at 1.0 L/ha. All herbicides were applied with a CO₂-pressurized backpack sprayer calibrated to deliver 300 L/ha aqueous solution at 220 kPa in drained plots, which were reflooded 2 days after treatment (DAT). Untreated and weed-free controls were included in the studies, as well. The control plots were left untreated during the entire experimental period. Weed-free control was maintained by hand weeding. Hand-weeding was initiated at weeds emergence and continued as needed to maintain weed-free plots. Both sites were naturally infested with a high population of *Echinochloa crus-galli*. Weed densities in non treated control plots was 87 and 112 plants/m² in 2013 and 2014, respectively, in Kočani locality, and 69 and 93 plants/m² in 2013 and 2014, respectively, in Vinica locality. When EPOST treatments were applied, rice was at the tillering stage (BBCH 26), and *E. crus-galli* was at the beginning of tillering stage (BBCH 21-23). During MPOST treatments were applied, rice and *E. crus-galli* were at the end of tillering stage (BBCH 29), while at LPOST treatments, rice and *E. crus-galli* were at the stem elongation stage (BBCH 32-34).

Rice injury and percent weed control were visually evaluated based on a 0% - 100% rating scale, where 0 is no injury to rice plants or no weed control, and 100 is complete death of rice plants or complete control of weeds (FRANS et al., 1986). Rice injury was estimated 28 days after treatments (DAT), while *E. crus-galli* control efficacy was estimated 14 and 28 DAT from 1m² area within each plot at both localities during two-year experimental period. Yield was determined after harvest based on weights of grain containing 13% moisture.

The data were tested for homogeneity of variance and normality of distribution (Ramsey and Schafer, 1997) and were log-transformed as needed to obtain roughly equal variances and better symmetry before ANOVA were performed. Data were transformed back to their original scale for presentation. Means were separated by using LSD test at 5% of probability.

RESULTS AND DISCUSSION

***Echinochloa crus-galli* control.** *Kočani locality.* *E. crus-galli* control differed among POST herbicides, herbicide programs, and DAT. All EPOST applied herbicides controlled *E. crus-galli* 89 to 92% 14 DAT (Table 1). Because of prolonged affecting of all investigated herbicides (ALS and ACCase inhibitors) (Whitcomb, 1999; Böger et al., 2002), control of *E. crus-galli* was significantly improved 28 days after EPOST treatment. Penoxulam and profoxidim provided 100% control, while cyhalofop-butyl and azimsulfuron provided identical 98% control of *E. crus-galli* (Table 2). Efficacy of herbicides in control of *E. crus-galli* 14 days after MPOST treatment was insignificantly lower than the same period during EPOST treatment. All herbicides provided control of *E. crus-galli* between 85 and 91% (Table 1). Significant increasing (8-11%) in control of *E. crus-galli* was recorded during second estimation, 28 days after MPOST treatment. Penoxulam showed excellent (99%) control of *E. crus-galli*; similar, other herbicides controlled *E. crus-galli* between 96 and 97% (Table 2). During LPOST treatment, efficacy of herbicides in control of *E. crus-galli* was significantly lower in compare to EPOST and MPOST treatments, respectively probably due to advanced weed growth stage (stem elongation stage - BBCH 32-34). 14 DAT profoxidim and cyhalofop-buthyl provided efficacy of 83 and 85%, respectively, while azimsulfuron and penoxulam reduced the amount of *E. crus-galli* in the rice crop by 79 and 80% (Table 1). Further decreasing in *E. crus-galli* control was noted 28 DAT. All herbicides controlled *E. crus-galli* between 75 and 81% (Table

2). *E. crus-galli* control averaged across POST herbicide programs was 95 to 92% at EPOST and MPOST treatments at 14 DAT, and 99 to 98% at 28 DAT, respectively. Significantly lower efficacy was provided in LPOST treatment (87% and 83%) at both estimation periods (Table 3).

Vinica locality. Herbicides efficacy in control of *E. crus-galli* in Vinica locality was similar as in the previous locality. 14 days after EPOST treatment investigated herbicides controlled *E. crus-galli* between 87 and 91% (Table 1). The continued affecting of herbicides increased their efficacy in *E. crus-galli* control for 9 to 11% during the second estimation (28 day after EPOST treatment). Cyhalofop-buthyl and profoxidim, as well as penoxsulam and azimsulfuron provided identical *E. crus-galli* control, 100 and 98%, respectively (Table 2). At MPOST treatment, efficacy of herbicides in control of *E. crus-galli* 14 DAT was negligible lower than the same period during EPOST treatment. Penoxulam, profoxidim and cyhalofop-buthyl provided control of *E. crus-galli* between 88 and 90%, while azimsulfuron provided 82% control of the same weed (Table 1). Considerable improving of efficacy was noted during the second estimation, 28 days after MPOST treatment. All herbicides provided control of *E. crus-galli* in the rice crop more than 95% (Table 2). During LPOST treatment, efficacy of herbicides in control of *E. crus-galli* 14 days after LPOST treatment was significantly lower than the same period during EPOST and MPOST treatments. Control of this weed in the rice crop was ranged between 80 and 85% (Table 1). Because of regeneration (recovered) of some *E. crus-galli* plants, decreasing of herbicides efficacy was noted 28 days after LPOST application. Profoxidim and cyhalofop-buthyl controlled *E. crus-galli* 81 and 82%, respectively while azimsulfuron and penoxulam provided 76 and 78% control of this weed (Table 2). *E. crus-galli* control averaged across POST herbicide programs was similar as in Kočani locality. 14 DAT efficacy was ranged between 97 and 93% at EPOST and MPOST treatments, and 28 DAT efficacy was ranged between 99 and 97% at same POST treatments, respectively. Significantly lower efficacy was provided in LPOST treatment (82% and 81%) at both estimation periods (Table 3).

Similar results were reported by other authors. Ntanos et al., (2000) reported 85 to 95% *E. crus-galli* control in drained plots 30 DAT with cyhalofop-butyl applied EPOST at 150 g ai/ha. Barnyardgrass control with cyhalofop-butyl applied LPOST at same rate was 75%. Barnyardgrass control with penoxsulam applied alone early postemergence (EPOST) and mid-postemergence (MPOST) was greater than 99% (Ottis et al., 2003). Two of the resistant barnyardgrass biotypes in Greece were effectively controlled by azimsulfuron (0,02 kg ai/ha) applied at two-to three-leaf stage, but all biotypes were effectively controlled with addition of propanil (3.5 kg/ha) at the three-to five-leaf stage. (Vasilakoglu et al., 2000). On the contrary, Vidotto et al., (2007) found that the fresh weight reduction of all *Echinochloa* population in Italian rice field sprayed with azimsulfuron averaged 55.1%, 70.9% and 76.9% at 0.5 x, 1 x, and 2 x field rate, respectively. But, linear contrast pointed out that *E. crus-galli* was significantly more sensitive to azimsulfuron than *Echinochloa erecta* and *Echinochloa phyllopogon*. Excellent control of *E. crus-galli* with penoxulam applied at three-to four leaf growth stage has been reported by Ottis et al., (2003). Barnyardgrass control with penoxsulam has been reported to be at least 99% at 21 days after application applied alone and following a PRE application of clomazone (Ottis et al., 2004). Penoxulam applied in rates of 20 to 40 g ai/ha provided 94 to 100% control of *Echinochloa oryzoides* and *Echinochloa phyllopogon* at the three-to four-leaf stage. However, mixtures of penoxulam at 20 or 30 g/ha with bentazon, azimsulfuron or MCPA resulted in reduced control of *Echinochloa phyllopogon* compared with a single application of penoxulam (Damalas et al., 2006).

Table 1. *E. crus-galli* control 14 days after EPOST, MPOST and LPOST herbicide treatments, respectively in flooded rice in Kočani and Vinica localities (average for both years)^a

Treatment	Rate (L;kg/ha)	Kočani locality			Vinica locality		
		EPOST ^b	MPOST ^c	LPOST ^d	EPOST	MPOST	LPOST
% ^e							
Non-treated control	-	0	0	0	0	0	0
penoxulam	1.5	91 ^a	90 ^{ab}	80 ^{ab}	90 ^a	88 ^a	81 ^a
cyhalofop-buthyl	1.5	91 ^a	90 ^{ab}	83 ^{ab}	91 ^a	90 ^a	84 ^a
azimsulfuron	0.04	89 ^a	85 ^b	79 ^b	87 ^a	82 ^b	80 ^a
profoxidim	1.0	92 ^a	91 ^a	85 ^a	91 ^a	89 ^a	85 ^a
LSD (0.05)		4.02	5.25	5.24	4.40	5.50	5.54

^a Abbreviations: EPOST-early-postemergence; MPOST-mid-postemergence; LPOST-late-postemergence

^b EPOST treatments were applied at rice BBCH 26, *E. crus-galli* BBCH 21-23

^c MPOST treatments were applied at rice BBCH 29, *E. crus-galli* BBCH 29.

^d LPOST treatments were applied at rice BBCH 32-34, *E. crus-galli* BBCH 32-34.

^e Means followed by the same letter within a column are not significantly different according to Fisher's Protected LSD at P<0.05

Table 2. *E. crus-galli* control 28 days after EPOST, MPOST and LPOST herbicide treatments, respectively in flooded rice in Kočani and Vinica localities (average for both years)^a

Treatment	Rate (L;kg/ha)	Kočani locality			Vinica locality		
		EPOST ^b	MPOST ^c	LPOST ^d	EPOST	MPOST	LPOST
% ^e							
Non-treated control	-	0	0	0	0	0	0
penoxulam	1.5	100 ^a	99 ^a	78 ^a	98 ^a	98 ^a	78 ^a
cyhalofop-buthyl	1.5	98 ^a	97 ^{ab}	80 ^a	100 ^a	100 ^a	82 ^a
azimsulfuron	0.04	98 ^a	96 ^b	75 ^a	98 ^a	95 ^b	76 ^a
profoxidim	1.0	100 ^a	97 ^{ab}	81 ^a	100 ^a	98 ^a	81 ^a
LSD (0.05)		2.06	2.49	6.59	2.01	2.86	7.11

^a Abbreviations: EPOST-early-postemergence; MPOST-mid-postemergence; LPOST-late-postemergence

^b EPOST treatments were applied at rice BBCH 26, *E. crus-galli* BBCH 21-23

^c MPOST treatments were applied at rice BBCH 29, *E. crus-galli* BBCH 29.

^d LPOST treatments were applied at rice BBCH 32-34, *E. crus-galli* BBCH 32-34.

^e Means followed by the same letter within a column are not significantly different according to Fisher's Protected LSD at P<0.05

Table 3. Control of *E. crus-galli* by different POST herbicide treatments at different DAT in flooded rice in Kočani and Vinica localities in 2013 and 2014, averaged over herbicide program.^{a-c}

POST Treatments	<i>E. crus-galli</i> control			
	Kočani locality		Vinica locality	
	%			
	14 DAT	28 DAT	14 DAT	28 DAT
EPOST	95 ^a	99 ^a	97 ^a	99 ^a
MPOST	92 ^a	98 ^a	93 ^a	97 ^a
LPOST	87 ^b	83 ^b	82 ^b	81 ^b
LSD (0.05)	4.16	5.67	5.05	6.14

^a Herbicide treatments included penoxulam (Rainbow 26.7 g a.i./L, Dow AgroSciences, Indianapolis, Indiana US) at 1.5 L/ha, cyhalofop-buthyl (Clincher duo 200 g a.i./L, Dow AgroSciences, Indianapolis, Indiana US) at 1.5 L/ha azimsulfuron (Gulliver 500 g a.i./L, E.I. du Pont de Nemours and Company, Wilmington, Delaware, US) at 0.04 kg/ha, and profloroxim (Aura 200 g a.i./L, BASF Agro B.V., Arnhem, NL, Switzerland) at 1.0 L/ha applied EPOST, MPOST and LPOST

^b Means followed by the same letter within a column are not significantly different according to Fisher's Protected LSD at $P < 0.05$

^c Abbreviations: EPOST-early-postemergence; MPOST-mid-postemergence; LPOST-late-postemergence.

GRAIN RICE YIELD

E. crus-galli competition caused large reductions in the rice yield. Hill et al., (1985) cit. by Moon et al., (2010) reported that *E. crus-galli* cause more than 50% of rice yield with dense infestation without proper control. In Greece, season-long *E. crus-galli* competition at densities of 10 plants/ m² reduced yield by 30% (Ntanos et al., 1992). In Korea, according Kwon et al., (2007), the yield of rice was reduced by 51-60%. with densities of 96 *E. crus-galli* plants/m². In China, densities of only 25 plants/m² reduced rice yield by 50% (Chin, 2001), while VanDevender et al., (1997) reported that 20 *E. crus-galli* plants/m² can reduce the rice yield by 80%. Comparison of untreated and weed-free control indicated that *E. crus-galli* reduced average rice yield by 42% and 40% in Kočani and Vinica locality, respectively. Rice yields in all POST herbicide treatments, except LPOST, were nearly twice greater than the nontreated control in both localities (Table 4). Herbicide treatments for control of *E. crus-galli* doubled rice yields in Italian experiments (Tabacchi and Romani, 2002), while in experiments in Greece, control of *E. crus-galli* led to a four-fold increase in rice yields (Ntanos, et al., 2000). Chin et al., (2000) have reported a significant increase in rice yield with application of herbicides in compare with untreated controls, as well.

In general, rice yields followed the variations in *E. crus-galli* control with yields increasing as its control with the various POST treatments increased. In both localities all EPOST and MPOST applied herbicides resulted in rice yield which was not statistically different from rice yield in the weed-free control (Table 4). Opposite, rice yield at LPOST treatments was statistically lower compare with the rice yield in the weed-free control. Because each LPOST herbicide provided lower *E. crus-galli* control, and caused rice injury (Table 5), there was significant yield reduction in all plots treated with LPOST herbicides (Table 4). Ntanos et al. (2000) reported similar results about greater rice yields when cyhalofop-butyl at 0.2 kg/ha was applied EPOST than when it was applied LPOST. Talbert and Burgos (2007) found that penoxsulam did not injure rice, and improved rice yields compared with standard propanil-based programs. Rice treated with penoxsulam (POST) yielded 3110 and 2730 kg/ha⁻¹, respectively with and without the addition of clomazone PRE, in compares with 1140 kg/ha⁻¹ in nontreated plots (Griffin, 2006).

Table 4. Rice grain yield as influenced by EPOST, MPOST and LPOST applied herbicides in flooded rice in Kočani and Vinica localities (average for both years)^{a-c}

Treatment	Rate (L;kg/ha)	Kočani locality			Vinica locality		
		EPOST	MPOST	LPOST	EPOST	MPOST	LPOST
kg/ha							
Non-treated control		3710 ^b	3710 ^b	3710 ^d	3950 ^b	3950 ^b	3950 ^c
Weed-free control	-	6530 ^a	6530 ^a	6530 ^a	6640 ^a	6640 ^a	6640 ^a
penoxulam	1.5	6580 ^a	6510 ^a	6130 ^c	6620 ^a	6590 ^a	6280 ^b

cyhalofop-buthyl	1.5	6520 ^a	6480 ^a	6200 ^{bc}	6600 ^a	6550 ^a	6340 ^b
azimsulfuron	0.04	6470 ^a	6420 ^a	6060 ^c	6680 ^a	6570 ^a	6350 ^b
profoxidim	1.0	6550 ^a	6490 ^a	6280 ^b	6690 ^a	6630 ^a	6330 ^b
LSD (0.05)		118.67	127.00	144.97	153.74	138.82	130.40

^a Abbreviations: EPOST-early-postemergence; MPOST-mid-postemergence; LPOST-late-postemergence

^b Herbicide treatments included penoxulam (Rainbow 26.7 g a.i./L, Dow AgroSciences, Indianapolis, Indiana US) at 1.5 L/ha, cyhalofop-buthyl (Clincher duo 200 g a.i./L, Dow AgroSciences, Indianapolis, Indiana US) at 1.5 L/ha azimsulfuron (Gulliver 500 g a.i./L, E.I. du Pont de Nemours and Company, Wilmington, Delaware, US) at 0.04 kg/ha, and profoxidim (Aura 200 g a.i./L, BASF Agro B.V., Arnhem, NL, Switzerland) at 1.0 L/ha applied EPOST, MPOST and LPOST

^c Means followed by the same letter within a column are not significantly different according to Fisher's Protected LSD at P<0.05

Table 5. Rice plant injury as influenced by EPOST, MPOST and LPOST applied herbicides in flooded rice in Kočani locality in 2013 and 2014, averaged across years

Treatment	Rate (L;kg/ha)	Kočani locality			Vinica locality		
		EPOST	MPOST	LPOST	EPOST	MPOST	LPOST
%							
Non-treated control	-	-	-	-	-	-	-
penoxulam	1.5	0	0	7	0	0	8
cyhalofop-buthyl	1.5	0	0	12	0	0	10
azimsulfuron	0.04	0	0	9	0	0	11
profoxidim	1.0	0	0	18	0	0	13

REFERENCES

- Mougin, C., Cabanne, F., Canivenc, M., Scalla R.:** Hydroxylation and N-demethylation of chlortoluron by wheat microsomal enzymes. *Plant Science*, 66, 195-203, 1990.
- Andres, A., Concenço, G., Melo, P.T.B.S., Schmidt, M. Resende, R.G.:** Detection of *Echinochloa* sp. Resistance to Quinclorac in Rice Fields in Southern Brazil. *Planta Daninha*, Viçosa-MG, 25, 221-226, 2007.
- Böger, P., Wakabayashi, K., Hirai K.:** Herbicide Classes in development: Mode of action, targets, genetic engineering, chemistry. Springer-Verlag Berlin Heidelberg, 2002.
- Chin, D.V.:** Biology and management of barnyardgrass, red sprangletop and weedy rice. *Weed Biology and Management*, 1, 37-41, 2001.
- Chin, D.V., Hach, C.V., Thanh, N.C., Tai, N.T.:** Weedy rice situation in Vietnam, In: FAO Report of global workshop on red rice control, Information division, Food and Agricultural Organization of UN, Rome, 67-74, 2000
- Damalas, C.A., Dhima, K.V., Eleftherohorinos, I.G.:** Control of early watergrass (*Echinochloa oryzoides*) and late watergrass (*Echinochloa phyllopogon*) with cyhalofop, clefoxidim, and penoxulam applied alone and in mixture with broadleaf herbicides. *Weed Technology*, 20, 992-998, 2006.
- Dowler, C.C.:** Weed survey-southern states. *Proc. South. Weed Sci. Soc.*, 50, 237, 1997.
- Ferrero, A., Tabacchi, M., Vidotto, F.:** Italian rice-field weeds and their control. *Agris records*. <http://agris.fao.org/aos/records/QR2003000161>, 2002.
- Filipovski, G.:** Soil classification of the Republic of Macedonia. *MASA*, 313-323, 2006.
- Frans, R.E., Talbert, R., Marx, D., Crowley H.:** Experimental design and techniques for measuring and analyzing plant responses to weed control practices. In N. D. Camper ed.

- Research methods in weed science. 3rd ed. Champaign, IL: Southern Weed Science Society, pp. 37-38, 1986.
- Griffin, R.M.:** *Echinochloa polystachya* management in Louisiana rice. A dissertation submitted to the graduate faculty of the Louisiana State University, pp 84, 2006.
- Holm, L.G., Pancho, J.V., Herberger, J.P., Plucknett, D.L.:** A geographic atlas of world weeds. Malabar, Florida, USA: Krieger Publishing Company. 1991
- Holm, L., Doll, J., Holm, E., Pancho, J. and Herberger, J.:** World weeds: Natural histories and distribution. Wiley: New York, pp. 722-739, 1997.
- Jiang, S.H., Zhou, H., Lin, D.Z., Dong, Y.J., Ye, S.H. Zhang, X.M.:** Identification and gene mapping of a thermo-sensitive leaf-color mutant at seedling stage in rice. Chin J.Rice Sci., 27, 359-364, 2013.
- Kaloumenos, N.S., Chatzilazaridou, S.L., Mylona, P.V., Polidoros, A.N., Eleftherohorinos, I.G.:** Target-site mutation associated with cross-resistance to ALS-inhibiting herbicides in late watergrass (*Echinochloa oryzicola* Vasing.). Pest Manag Sci., 69, 865-868, 2013.
- Lassiter, R.B., Langston, V.B., Richburg, J.S., Mann, R.K., Simpson, D.M., Wright T.R.:** Penoxsulam: a new herbicide for rice in the southern U.S. Proc. South. Weed Sci. Soc. 57, 69, 2004.
- Lassiter, R.B., Haygood, R.A., Mann, R.K., Richburg, J.S., Walton L.C.:** Penoxsulam for postflood weed control in southern U.S. rice. Proc. South. Weed Sci. Soc. 59, 13, 2006.
- Lopez-Martinez, N., Salva, A.P., Finch, R.P., Marshal, I G., De Prado, R.:** Molecular markers indicate intraspecific variation in the control of *Echinochloa* spp. with quinclorac. Weed Sci., 47, 310-315, 1999.
- Kwon, O.D., Cho, S.H., Moon, B.C., Kook, Y.I.:** Effect of densities of *Echinochloa crus-galli* and *Cyperus difformis* in transplanting rice cultivation on rice yield and rice quality, and economic threshold levels of the weeds. Korean Journal of Weed Science, 27, 102-11, 2007.
- Marambe, B. and Amarasinghe, L.:** Propanil-resistant barnyardgrass (*Echinochloa crus-galli* (L.) Beauv.) in Sri Lanka: Seedling growth under different temperatures and control. Weed Biol. Manag., 2, 194-199, 2002.
- Matzenbacher, F.O., Kalsing, A., Menezes, V.G., Barcelos, J.A.N., Merotto, J.A.:** Rapid diagnosis of resistance to imidazolinone herbicides in barnyardgrass (*Echinochloa crus-galli*) and control of resistant biotypes with alternative herbicides. Planta Daninha, 31, 645-656, 2013.
- Massasso, W., Salomone, M.C., Trombini, A.:** Azimsulfuron (DPX A8947) nuova sulfonilurea per la lotta contro *Echinochloa* spp. ed altre infestanti non graminacee nelle risaie italiane. In: Atti Giornate Fitopatologiche.1, 279-286, 1996.
- Moon, B. C. Cho, S.H. Kwon, O.D. Lee, S.G. Lee, B.W. Kim D. S.:** Modelling rice competition with *Echinochloa crus-galli* and *Eleocharis kuroguwai* in transplanted rice cultivation. Journal of Crop Science and Biotechnology, 13, 121-126, 2010.
- Ntanos, D.A., Koutroubas, S., Mavrotas, D.C.:** Barnyardgrass (*Echinochloa crus-galli*) control in water-seeded rice (*Oryza sativa*) with cyhalofop-butyl. Weed Technology, 14, 383-388, 2000.
- Ottis, B.V., Talbert, R.E., Malik, M.S., Ellis, T.A.:** Rice weed control with penoxulam (Grasp), AAES Res. Ser. 517, 144-150, 2003.
- Ottis, B. V., Lassiter, R. B., Malik, M. S., Talbert, R.E.:** Penoxsulam (XDE-638) for rice weed control. Proc. South. Weed Sci. Soc., 57, 304, 2004.
- Ottis B.V. and Talbert R.E.:** Barnyardgrass (*Echinochloa crus-galli*) control and rice density effects on rice yield components. Weed Technology, 21:110-118, 2007.

- Pacanoski Z. and Glatkova G.:** The use of herbicides for weed control in direct wet-seeded rice (*Oryza sativa* L.) in rice production regions in the Republic of Macedonia. *Plant Protect. Sci.*, 45, 113-118, 2009.
- Ramsey, F.L. and Schafer D.W.:** *The statistical sleuth: A course in methods of data analysis.* Belmont, CA: Duxbury, pp. 91-97. 1997.
- Smith, R.J.Jr.:** Weed thresholds in southern US rice, (*Oryza sativa*). *Weed Technology.*, 2, 232-241, 1988.
- Stauber, L.G., Smith, R.J. Jr., Talbert, R.E.:** Density and spatial interference of barnyardgrass (*Echinochloa crus-galli*) with rice (*Oryza sativa*). *Weed Sci.*, 39, 163-168, 1991.
- Tabacchi, M., and Romani, M.:** *Echinochloa* spp. control with new herbicides in water and dry-seeded rice in Italy. Proceedings of the Second Temperate Rice Conference, 13-17 June 1999, Sacramento, California, USA. Los Banos (Philippines): International Rice Research Institute, 2002.
- Talbert, R.E. and Burgos, N.R.:** History and management of herbicide-resistant barnyardgrass (*Echinochloa Crus-galli*) in Arkansas rice, *Weed Technology*, 21, 324-331, 2007.
- VanDevender, K.W., Costello, T.A. and Smith, R.J.Jr.:** Model of rice (*Oryza sativa*) yield reduction as a function of weed interference. *Weed Sci.*, 45, 218-224, 1997.
- Varghese, A. and Nair, K.P.M.:** Competition for nutrients by rice and weeds. *Agricultural Research Journal of Kerala*, 24, 38-42, 1986.
- Vasilakoglu, I.B., Eleftherohorinos, I.G., Dhima, K.V.:** Propanil-resistant barnyardgrass (*Echonochoa crus-galli* L.) biotypes found in Greece, *Weed Technology*, 14, 524-529, 2000.
- Vidotto, F., Tesio, F., Tabacchi, M., Ferrero, A.:** Herbicide sensitivity of *Echinochloa* spp. accessions in Italian rice fields, *Crop Protection*, 26, 285-29, 2007.
- Whitcomb, CE.:** An introduction to ALS-inhibiting herbicides. *Toxicology and industrial health.* 15, 231-239, 1999.

HEAVY METAL POLLUTION IN THE ELBASAN CITY, BASED ON THEIR CONTENT IN PM10

Lirim Bekteshi²⁸²

Pirro Karamelo²⁸³

Abstract: Contamination from heavy metals today is a global problem. Knowing their impact on the environment and human health the study of heavy metal pollution. Today has taken special importance. Large urban areas today are considered the most polluted. In this study, heavy metal pollution in the city of Elbasan was assessed based on their content in PM10. Heavy metals, released from human activity, spread in the air by joining the dust particles, so the assessment of their content in the dust particles provides information on the level of pollution in different areas of the city. For the sampling of PM10, a vacuum pump with 3 l/min was used. The pump is equipped with an impactor, for separating particles smaller than 10 µm. Membrane filters were used for sampling, which are recommended to be used in determining trace elements. The sampling was performed in three different areas of the city. In addition to these three stations, samples were also taken at a station located in Gjinar, away from town, traffic and other anthropogenic sources of pollution. The PM10 samples were analyzed for copper, zinc, lead, cadmium, chromium, nickel and iron. Determination of the metal content in PM10 samples was carried out using FAAS technique, with air-acetylene flame (VARIAN Spect.AA-20). By comparing the data, it can be concluded that concentrations of heavy metals in the air of the city of Elbasan, are generally lower than the concentrations of some urban areas of Europe and USA. By comparing the data, it can be concluded that concentrations of heavy metals in the Elbasan city, are generally lower than the concentrations of some urban areas in Europe and the USA.

Keywords: pollutant, PM10, traffic. trace element, FAAS.

INTRODUCTION

Today the pollution of the natural environment by heavy metals is a worldwide problem, especially in large urban areas. Heavy metals, realized from anthropogenic and natural activity, being attached to dust particles in the air, affect on human health and the environment. Regarding trace metals (Pd, Cd, Zn, etc), anthropogenic sources play a more significant role than natural sources. (Silvia et al. 2004; Katja et al. 1998; Particulate matter (PM) in the ambient atmosphere of size less than 10 µm or 2.5 µm is known to have significant effects on the earth's, cloud formation, visibility impairment (Pope et al 1994). The airborne particles are involved in complex atmospheric mechanisms that in most cases result in undesirable effects (Querol et al, 2004; Turšič et al, 2008), especially on human health. The health effects of toxic metals associated with PM10 and street dust in the air, on human, is better appreciated if one consider the fact that an active person typically inhales 10,000 to 20,000 liters of air daily. (Sezgin, N et al 2006).

²⁸² University of Elbasan, Faculty of Natural Sciences, Department of Chemistry, Elbasan Albania

²⁸³ University of Elbasan, Faculty of Natural Sciences, Department of Chemistry, Elbasan Albania

In urban areas, there are a number of sources generating consistent particulate matter (PM) quantities, such as urban traffic, industrial processes, fossil fuel combustion and waste incineration (Malina and Fischer, 2012; Stefan et al. 2013). Among the many inorganic pollutants originating from anthropogenic activities, heavy metals are of a major concern due to their toxic potential.

Since these metals are stable in the environment, they are bio-magnified in living organisms. Most of them have toxic effects on living organisms, while some of these elements are essential to humans, but at high levels, they can also pose a toxicological risk (Lopez, et al 2005).

Atmospheric metals concentration shows spatial variation since they are dependent of the distances to the sources and of the relative importance of local sources. Seasonal variation has been observed for atmospheric metals concentration in temperate or cold climates, but their levels also depends by meteorological variables such as wind speed and direction. Short-term differences of atmospheric metal concentration have been observed in day-to-day or even hour-to-hour basis (Figen et al. 2000; Munir and Shaheen2008).

European Commission (EC) has included PM10 monitoring and limit values in the Air Quality Directive in 1999. The Directive establishes an annual limit for average value of $40 \mu\text{g}/\text{m}^3$, and a daily limit value of $50 \mu\text{g}/\text{m}^3$.

The main aim of this research is to determine the levels of heavy metals including Pb, Fe, Cd, Cu, Ni, Mn, and Zn in air samples collected from three different sites in Elbasan, and then comparing the levels of heavy metals in the three stations, we deduce causes for the presence of the heavy metals in air in the area of study.

To make a comparison, for contamination by heavy metals with PM10, besides three stations in the city, samples were taken and at a station in an area away from the city where the impact of contaminants is small. Air samples were collected from the four different stations (three in urban area and one in rural) at the same time twice a week, at a constant flow rate for 24 h. Air samples were collected over a 3-year period of time from September 2010 to September 2013.

The doubling of the population of the city within 5 years is related to the increase in the activity of the construction industry. In Elbasan also operate large factories of steel processing, chrome, cement, etc, which are also the main sources of heavy metal pollution of the city air.

The increase in the number of vehicles (about 30,000, 25% of which buses and vehicles of high tonnage and over time use over 15 years), the use of non-quality fuels (70% of vehicles use diesel) and damaged roads, Lead to high levels of PM10 and heavy metals in the air.

MATERIAL AND METHODS

Sampling sites

The city of Elbasan is located in central Albania and is one of the largest cities, with a population of 130 000 inhabitants. Near the city, operate various industrial operators, such as those of steel production and processing, ferrochrome and cement production, oil processing, etc.

The main source of pollution from heavy metals is industrial activity and pollution from road traffic. It should be noted that in Elbasan today circulate 20,000 cars and about 10 000 trucks and busses, most of which use diesel as fuel.

Sampling was conducted at three stations in the city and at a station away from the impact of traffic and industrial activity, in Gjinari 25 km from Elbasan (The measured levels at this station are considered as background levels). The study was conducted in a 3-year period. Each month are performed 2-4 three-day measurements, at intervals of 7-10 days from each other. In the selection of sampling stations it has been taken into account that they are representative of the surrounding area. The sampler is placed at a height of 1.5 to 2m from the surface of the ground, the altitude preferred for assessing human exposure to urban areas against this contamination [WHO, 2005].

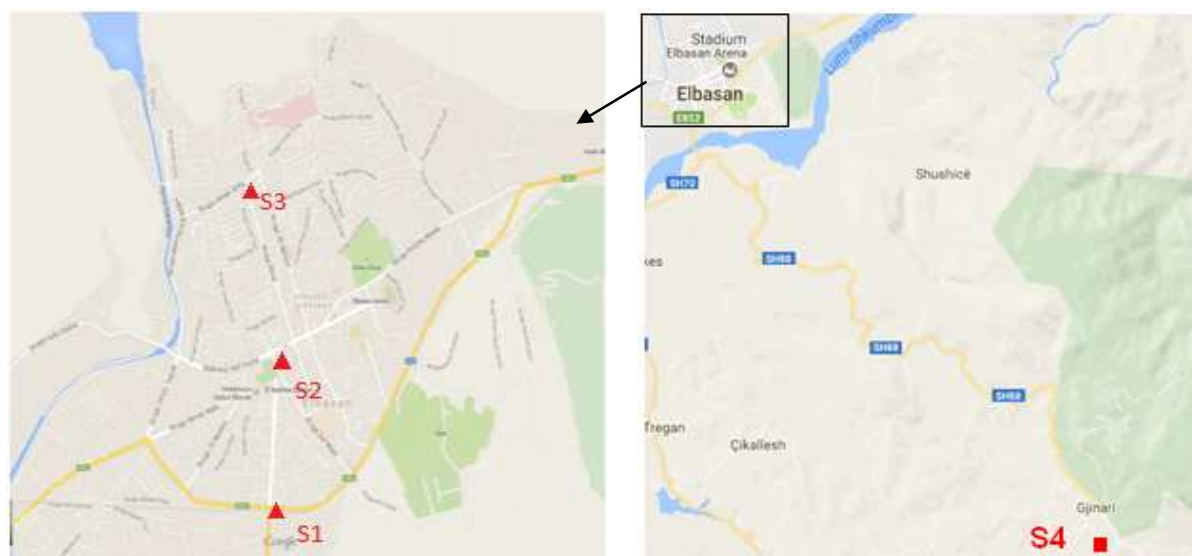


Figure 1. Sampling stations in the study area

Sample digestion

The Whatman membrane filters, with 37mm diameter and pore size of $1\mu\text{m}$, were used for the sample collection of PM₁₀. In selecting the type of filter, it was taken into account the fact that membrane filters are advisable in cases where, besides the determination of the crushed matter, the analysis of the trace element content will also be performed as they provide low levels of interference.

For the treatment of PM₁₀ particulate collected by filters, the method of acid treatment with royal water was chosen. Thus, the filter is inserted in half pressure Teflon tubes, where are added 5mL royal water. Then the Teflon tubes were closed and were left at room temperature for 24 h. After this samples were evaporated to dry at 100 °C. After adding 2mL of nitric acid HNO₃ 2M, the sample is left at room temperature for about 1 hour to realize full digestion. The obtained solubility were transferred to 100 ml balloons. To avoid losses, before removing the filter, it is carefully rinsed and the washing waters are carefully added to the sample balloon. Samples were then diluted with de-ionized water to a total volume of 100 mL.

The Flame Atomic Absorption Spectrometry (FAAS) used by us has a wide use and is the most widespread method for analyzing of trace metals in solid particles contained in the air.

RESULTS AND DISCUSSION

Analysed elements are Cu, Zn, Pb, Cd, Cr, Ni, Fe. The average concentration of metals in the content of PM10 samples taken during 2010-2011 in the city of Elbasan is presented in Table 1.

Element	Mean (ng/m ³)	Years			Station			Season	
		2010	2011	2012	S1	S2	S3	Summer	Winter
Cd	3.1	3.1	3.2	2.9	5.8	3.1	2.3	3.12	3.29
Cr	38.3	36.4	39.1	39.5	42.2	45.3	29.4	31.2	48.6
Cu	32.3	33.2	30.1	32.7	44.5	35.1	24.1	22.9	39.8
Fe	7614	6950	8203	7653	9604	9320	6800	6740	8850
Ni	89	86.3	92.2	88.7	98.4	90.1	78.2	78.2	91.0
Pb	171.5	185.2	148.4	176.2	214.2	194.3	87.2	134.2	195.0
Zn	104.2	102.4	105.3	104.1	112.5	108.5	74.0	82.4	126.3

Table 1 The concentration of metals in the PM10 samples.

From the examination of the average values presented in the table, it is noticed that concentrations of metals in the air of the city of Elbasan are generally low. From their comparison with literature it turns out that the content of Cd, Pb and Cu in the air of Elbasan is comparable with the levels that are characteristic for urban areas, while for Ni and Cr values are slightly higher than the characteristic concentrations of these areas and they are almost as those of industrial zones. Table 2.

Element	Cd (ng/m ³)	Cr (ng/m ³)	Cu (ng/m ³)	Pb (ng/m ³)	Ni (ng/m ³)
Rural area	1-5	0-3	5-50	0.1-0.3	0.1-0.7
Urban area	5-15	4-40	30-200	0.5-1	3-100
Industrial area	15-20	5-200	-	1.5-10	8-200
Urban area Europe	0.4-260	3.7-277	13-2760	10-9000	0.3-140
Urban area USA	0.2-700	2.2-124	3-5140	30-9627	1-138

Table 2. Permissible values of metal concentrations in urban and rural urban areas according to WHO, as well as values in urban areas in Europe and USA.

Despite the relatively low content of heavy metal content in PM10 samples obtained in the city of Elbasan, they are much higher (about 10 times) than the concentrations measured for these metals at the Gjinar station, considered as background. Table 3.

Element	Cd	Cr	Cu	Fe	Ni	Pb	Zn
Mean concent ng/m ³	-	-	3.2	456	-	12.0	16.0

Table 3. Average metal concentrations (ng / m³) in PM10 samples in Gjinar station.

The Gjinar area, where a series of sampling is conducted, can be considered as a clean area without significant sources of anthropogenic contamination.

Although the concentrations of metals measured in the period 2010-2013 do not show any change from year to year, it seems that they change according to the winter - summer seasons. This is also apparent from the graphical presentation of average metal concentrations by

seasons. For all metals, it is clear that the concentrations in the winter season are higher than those measured in the summer season.

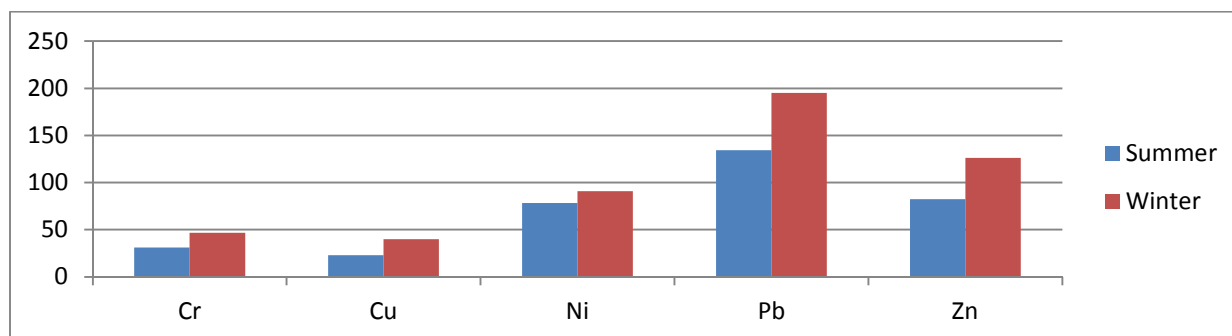


Figure 2. Graphic presentation of heavy metal content in PM10 by season.

The heavy metals in the urban environment are largely due to anthropogenic activity while the impact of soil dust, the composition of which is the same in all three study stations, is small. Soil dust has heavy metal content as a result of deposits that have occurred for many years. Metals are discharged from combustion of fuels into vehicles or industrial activities in the ultrafine particles and are associated with soil particles. In high traffic stations like S1 and S2 stations, high content of heavy metals is seen. High content of heavy metals at high traffic stations is related to poor fuel burning in old cars, consumption of vehicle parts, tires and road dust. In the same conclusion, it was also achieved during the study, using the mosses as bio-monitor in 2013. (Bekteshi et al 2013). Mosses in these three stations were exhibited for a period of 6 months, and then the metal content was analyzed.

Lirim Bekteshi

2013 Dr., University of Tirana, Albania.

2007 -2010 Senior Advanced Student, Tirana.

University. Field of study: Anal. Chem.

1983-1988 Tirana University - Graduated "Chemist".

1979-1983 Technic High School, Elbasan, Chemical Technology Branch.

Nov. 2013 - running: University of Elbasan, University teacher, Lecturer of Analysis of Materials and Crystallography.

July 1988-November 2013 Chemist, Chemical Laboratory Elbasan.

Published Research paper – 18.

Participation on scientific conference – 12 Conferences



Correlation of the elements

Linear correlation analysis provides information on the heavy metal sources contained in PM10 particles.

Fe, Ni and Cr represent high correlation between them ($Fe/Ni R^2=0.88$, $Fe/Cu R^2=0.81$, $Ni/Cu R^2=0.89$, $Ni/Cr R^2=0.91$) and this is related to industrial activity (steel melting plants and chromium iron).

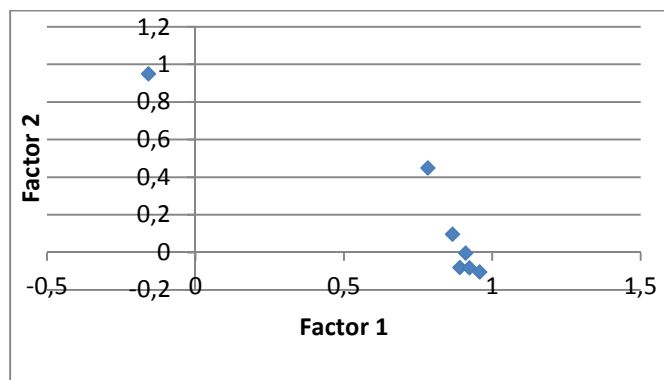
Zn, Fe, Ni, Cu, Pb have a relatively high correlation, which is related to their origin from the consumption of motor vehicle parts or fuel combustion.

The average correlation of Pb and Cd shows their different origin. Pb is related to traffic and industrial activity (use of fossil fuels as a source of energy) while Cd is related to urban waste burning in the vicinity of the city.

	Cu	Zn	Pb	Cr	Ni	Cd	Fe
Cu	1.000 0.000						
Zn	0.715 0.006	1.000 0.000					
Pb	0.614 0.002	0.760 0.002	1.000 0.000				
Cr	0.675 0.000	0.592 0.005	0.642 0.007	1.000 0.000			
Ni	0.895 0.666	0.741 0.001	0.642 0.006	0.915 0.000	1.000 0.000		
Cd	-0.187 0.000	-0.010 0.703	0.124 0.684	-0.242 0.455	-0.219 0.455	1.000 0.000	
Fe	0.814 0.000	0.717 0.001	0.591 0.015	0.719 0.001	0.884 0.000	-0.185 0.489	1.000 0.000

Table 4. Results of the correlation analysis

For a better interpretation of the factors influencing the association and distribution of the elements in moss samples, FA with Varimax Rotation was used.



Element	Factor 1	Factor 2
Cu	0.91024	-0.00307
Zn	0.86578	0.09871
Pb	0.78241	0.45012
Cr	0.89047	-0.07912
Ni	0.95804	-0.10242
Cd	-0.15874	0.95214
Fe	0.92354	-0.08145
Variance	4.63	2.74

Figure 3. Loading plot of elements (FA Varimax Rotation)

The results of the statistical analyses of the data showed that the heavy metals in PM10 samples from monitoring stations in Elbasan probably originate from two different anthropogenic sources: (1) traffic emission (Cu, Cr, Pb, Zn, Ni and Fe) which related with factor 1 and express 46.3% of variance, and (2) industrial emissions and burning of urban near the city (Pb Cd) related with factor 2 and express 27.4 % of variance.

CONCLUSIONS

From the above study, we conclude that the city of Elbasan is moderately polluted from heavy metals. The main source of pollution in the city is vehicle traffic as well as industrial activity or other sources of pollution such as burning urban waste or use of fossil fuels for heating. The use of statistical methods shows the impact of different sources on the total pollution of the city.

REFERENCES

- Bekteshi, L., Lazo, P., Qarri, F. (2014) Monitoring heavy metal pollution in Elbasan using passive and active moss. *Albanian j. agric. sci. (Special edition)* 13; 225-229.
- Figen, V., Yasushi, N., Shigeru, T. (2000). The concentration trend and seasonal variation of metals in the atmosphere in 16 Japanese cities shown by the results of National Air Surveillance Network (NASN) from 1974 to 1996. *Atmospheric Environment*, 34, 2755–2770. doi:10.1016/S1352-2310(99)00353-2.
- Katja, V. V., Claude, B., Christophe, F., Tania, B., Carlo, B., Sergey, R. (1998). Seasonal variations of heavy metals in the 1960s Alpine ice: Sources versus meteorological factors. *Earth and Planetary Science Letters*, 164, 521–533. doi:10.1016/S0012-821X(98)00243-X
- Lopez, J.M., Callen, M.S., Murillo, R., Garcia, T., Navarro, M.V., de la Cruz, M.T. and Mastral, A.M. (2005) Levels of Selected Metals in Ambient Air PM10 in an Urban Site of Zaragoza, Spain. *Environmental Research*, 99, 58-67.
- Malina, C., Fischer, F. (2012). The impact of low emission zone on PM10 levels in urban area in Germany. On line at: <http://www.econstor.eu/dspace/bitstream/10419/62130/1/722149417.pdf>
- Munir, H. S., & Shaheen, N. (2008). Annual and seasonal variations of trace metals in atmospheric suspended particulate matter in Islamabad. *Pakistan Water Air Soil Pollut*, 190, 13–25. doi:10.1007/s11270-007-9575-x
- Pope Iii, C. A., Dockery, D. W., Spengler, J. D., and Raizenne, M. E. (1991). Respiratory Health and PM10 Pollution: A Daily Time Series Analysis. *Am. Rev. Respir. Dis.*, 144:668–674.
- Querol X., Alastuey A., Ruiz C.R., Artiñano B., Hansson H.C., Harrison R.M., Buringh E., ten Brink H.M., Lutz M., Bruckmann P., Straeh P., Schneider J., (2004), Speciation and origin of PM10 and PM2.5 in selected European cities, *Atmospheric Environment*, 38, 6547–6555.
- Sezgin, N., Ozean, H.K., Demir, G., Nemlioglu, S. and Bayet, C. (2006) Determination of Heavy Metals in Street Dust in Istanbul Highway. *Environmental International*, 29, 797-985.
- Silvia, M. S., Annibal, D. P. N. A. D., Pereira, N., Emmanoel, V. S. F., & Martha, T. A. (2004). Shortterm and spatial variation of selected metals in the atmosphere of Niteroi City, Brazil. *Microchemical Journal*, 78, 85–90. doi:10.1016/j.microc.2004.03.015
- Ştefan S., Radu C., Belegante L., (2013), Analysis of air quality in two sites with different local conditions, *Environmental Engineering and Management Journal*, 12, 371-379.
- Tursic, J., Radic, H., Kovacevic, M., and Veber, M. (2008). Determination of Selected Trace Elementies in Airborne Aerosol Particles Using Different Sample Preparation. *Arch. Ind. Hyg. Toxicol.* 59: 111–116.
- WHO Air quality guidelines for particulate matter, ozone, nitrogen dioxide and sulfur dioxide Global update 2005

EXPERIMENTAL MODEL FOR VALIDATION OF ANTI-FOG TECHNOLOGIES

Miclea Razvan-Catalin²⁸⁴

Silea Ioan²⁸⁵

Dughir Ciprian²⁸⁶

Abstract: *The results from our work intended to increase traffic safety in case of fog on highways, airports, railways and sea ports, applicable also for autonomous vehicles. (e.g. the autonomous car developed by Google did not pass the tests under bad weather in 2014). Our final goal is to develop an intelligent system able to estimate the visibility distance in foggy conditions. The first step in our plan is to build an experimental system, presented in this paper, with which we will be able to test and validate most of the approaches from the state of the art, regarding bad visibility issue caused by fog in order to determine all the advantages and drawbacks of those methods.*

Key words: *experimental system; visibility in fog condition; validation of the new method in visibility distance estimation; proof of concept*

I. INTRODUCTION

Bad weather conditions (fog, rain, glaze, snow) associated with speed is the main factor of critical accidents. The goal of our work is the development and testing of an experimental model, able to validate the intelligent systems for estimation the visibility distance in fog conditions. The transmission of that information on radio channels, desired for public transport, allows speed adaptation in bad weather conditions which means decreasing the risk of accidents.

Our actions have three objectives. The first one, is to use the results got in the previous researches – already presented in a few scientific papers – and to realize a demonstrator, in the laboratory, in order to perform the tests. Second objective is to test and validate a proper method for estimating the visibility distance in fog conditions. Considering many approaches from the state of the art, it has to be decided which is the proper one. The validation of the measurement results is done by comparing them with human visual acuity, which is tested using a chart with optotypes in the same environmental (fog) conditions. In this way it is realized the link between the visual acuity determined by the ophthalmologists with the eye chart and the estimated visibility distance. The third objective is the transfer of knowledge in the latest technologies and the dissemination of the results. The synthesis of the conclusions obtained after the experiments lead us to the final structure configuration of the intelligent visibility estimation system.

²⁸⁴ Phd Student, Automation and Applied Informatics Department, Politehnica University Timisoara, Timisoara, Romania

²⁸⁵ Automation and Applied Informatics Department, Politehnica University Timisoara, Timisoara, Romania²⁸⁵

²⁸⁶ Communication Department Politehnica University Timisoara, Timisoara, Romania

II. PREVIOUS WORK. STATE OF THE ART

Known systems, having the same purpose (visibility distance estimation), can be divided into two main categories: static systems, suitable to be installed in airports [1], [2] or on highway [3] and dynamic systems [4] which can be installed inside the vehicle. We will focus on approaches in the automotive field, presenting first the static systems.

In [5], from the image supplied by a traffic surveillance camera, the roadway is extracted, then a known estimation method of the visibility distance is applied, patented in 2002, based on Koschmieder's laws. The method needs very expensive equipment, able to process large amounts of data in real time. In [6], the fog is classified by analyzing the grey level from the image, producing a histogram based on which the visibility estimation is performed. A similar method, presented by the authors of this paper in [7], estimates the length of the laser beam.

Dynamic approaches are also based on the video camera mounted on the vehicle. In [8], the visibility distance is estimated based on the difference in contrast between the road markings and the road. If the road is covered with snow or even a layer of water, this method is no longer valid. Other approaches either measure the length of the intersection of the sky and earth, which increases when the fog is denser [9], or are based on the reduction of the contrast and clarity of images [10]. The disadvantage of these methods is that they offer acceptable results only during daytime.

An interesting approach [11], unfortunately valid only for low levels of fog, filters the captured images, and the result is displayed on the display located on the car's dashboard. In case of dynamic methods, problems can appear when the road bends, when there are hills, or bridges, obstacles that may have a negative influence on the measurements.

III. EXPERIMENTAL MODEL: SCOPE AND STRUCTURE

The aim of our efforts is to develop and test an experimental model for validation intelligent systems that enable automatic estimation of the average visibility distance in case of fog.

The methods by which we estimate the visibility distance in foggy conditions, which will be tested on the model, are classified as follows: a) based on the measurement of optical power (PO) of a source's radiation (laser and LED sources) and b) based on image processing (IM). The first category includes: PO₁ - beam emitted by the source, dispersed upon crossing the fog, is directed to a receiver that measures its optical power at the destination; PO₂ - back-scattering method, which consists in the fact that when the light beam encounters the fog / rain particle,

Razvan MICLEA, born in Romania on August 25, 1990, received Bachelor of Engineering in Electronic and Telecommunication in July 2013 and Master degree in Communication Networks in July 2015 – both from Politehnica University Timisoara. Starting with September 2015 Ph. D. student in Automation and Computer Science Faculty, having as main research thema the impact of bad weather on visibility. Research areas are related to intelligent sensors, access and security systems and data communication.



it will be reflected, and the measurement of the reverse optical flow will be possible. The second category includes: IM_1 - the length measurement of the beam source until it disperses completely in the fog; IM_2 - the source's halo (dispersion) upon passing through the fog; IM_3 - detection of optotypes' characters placed in the fog (by OCR); IM_4 - analysis of the visibility of road markings on the road.

The validation of the results (naming the effective method) is made by comparison with the human acuity / visual recognition determined with the optotype under the same fog conditions, based on experiments carried out with the model. The experimental model proposed to be developed and tested, shown in Fig. 1, includes a device that generates fog (from an amount of liquid permanently measured using a Berzelius cup and a jeweler's scale) in a chamber with transparent walls, of known size and volume. Inside the chamber there are data loggers that measure temperature, a video camera, and outside it, there are two more video cameras filming the phenomena taking place within the chamber. On one of the inner walls of the chamber there is the optical radiation source that emits towards the opposite wall a beam with the desired wavelength and constant intensity / radiation power. The laser beam reaches the opposite wall on a device (Fig. 2) which measures its optical power.

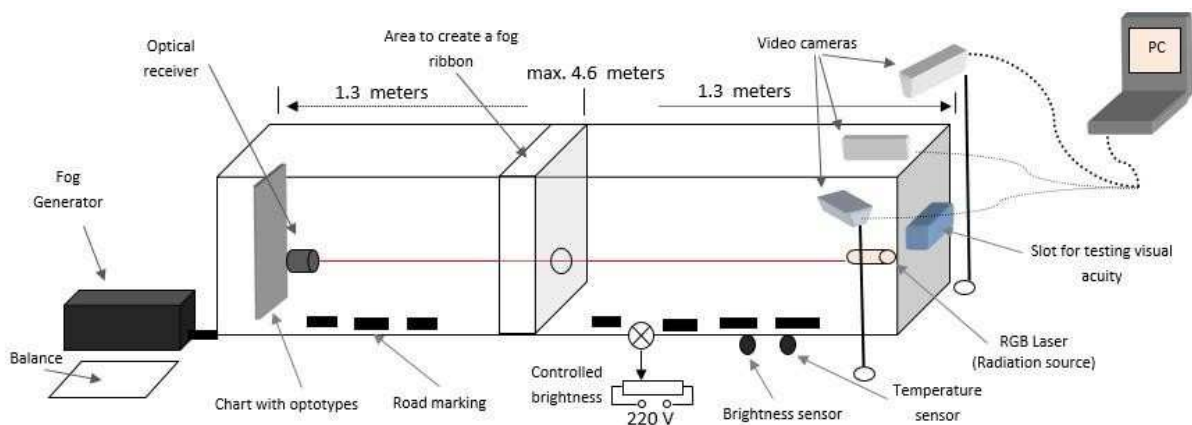


Fig.1 Model - overall scheme

Also on the opposite wall there is an optotype (Fig. 3) which is filmed by the video camera from the inside and may be viewed (by a person) through a slot next to the radiation source. The clarity of the optotype image, filmed by the video camera from inside the chamber, the beam length visible from the outside (also filmed) and measured optical power are affected by fog. We thus have the validation conditions of the methods mentioned above and the estimation conditions of the visibility distance.



Fig. 2 Newport Power Meter Model 1918-c



Fig. 3 Eye chart used for human validation

IV. USING EXPERIMENTAL MODEL

In the experimental model, as a start point, there are basic principles observed and interpreted theoretically and through small experiments (formulation of the technological) and which require validation on a demonstrator. Dispersion (by absorption, reflection) of the optical radiation by the fog particles results in the loss of optical power, the creation of a halo from a concentrated light spot, shortening of the distance in which the radiation beam is visible. Images during fog conditions are blurred (noisy), with low contrast and confusing objects' outlines. For all these there are differences, more or less significant, corresponding to the lighting of the day or night. After the implementation of the project, with the demonstration equipment with an established structure, a hardware structure and an appropriate method can be verified and validated in a laboratory (experimentally demonstrating the concept regarding the critical functionalities). This will result, in the end, in an intelligent static equipment for the estimation of the visibility distance during fog, with a reasonable performance/cost ratio. Later, the development of a similar mobile system can be researched - one that can be set on motor vehicles.

The work's objectives, in conjunction with its purpose (intelligent system for the assessment of the average visibility distance in case of fog) are mentioned in chapter I. The validation of the measurements results is made by comparison with the human acuity / visual recognition determined with the optotypes under the same fog conditions. Thus, a "parallel" between the visual acuity established by ophthalmologists with the help of the eye chart and the visibility distance can be drawn. The strict synthesis of the conclusions resulting from the experiments carried out, leads to the setting up of the final structure of the intelligent system for the evaluation of the visibility distance in case of fog. With the proposed demonstrator, the solutions found during the research can be compared simultaneously and the appropriate one (in terms of performance and implementation costs) can be validated. The new method proposed by our team is (PO_1) - measuring the optical power of the laser radiation that travels a certain distance in the fog environment (or is reflected by the fog particles) can be a viable variant for assessing the visibility distance. Based on these information we can calculate the impact of the fog density (g/m^3) on the laser beam.

Ioan SILEA, born in Romania on November 6, 1957, received Bachelor of Engineering in Automatic Control in July 1983- from Politehnic Institut „Traian Vuia” Timisoara, Ph. D. in the field of Automatics in 2001- to University of „Politehnica” Timisoara and in 2000, Bachelor of Science in Law - from University of West, Timisoara. Since 1990 became assistant at the Faculty of Automation and Computers Timisoara, where is currently professor. From 2005 to 2015 holds the position of Head of the Department of Automation and Applied Informatics. Research areas are related to distributed systems, control systems, intelligent sensors and data communication



V. THE EXPERIMENTAL RESULTS

In order to test the influence of fog on visibility we created two experimental models:

- Low range experimental model, 100x30x60 (fig. 8)
- Long range experimental model, 300x48x47, (fig. 7), which respects the requirements to measure the visual acuity established by the ophthalmologists.

The first experimental model was previously used in paper [7], where it was presented a system suitable to be installed on highways or express roads, in fog-prone areas, and the measurements are displayed on the displays located on these roads or are sent by radio waves on the specifically allocated bands.

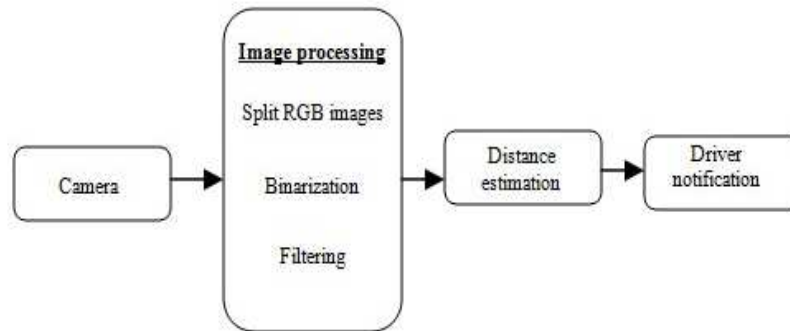


Fig. 4 – System architecture

Theoretically, we have assumed that the system consists of a laser and a video camera, installed on a pole located near the highway. The laser will emit a ray, and if the beam meets the second pole (located at a distance of max. 300-500 m) it means that visibility is good, otherwise using the video camera the trace of the laser beam is recorded. From the length of the trace, we have estimated a visibility distance (by image processing, analysing the image pixel by pixel) (Fig. 4).

The setup consists of a transparent chamber in which fog was created (from moderate fog up to a very dense fog) using a fog generator. In addition, we have used a laser with a wavelength of 650nm, a video camera and a Raspberry Pi module equipped with display and connected to a laptop for image processing, namely display of the result.

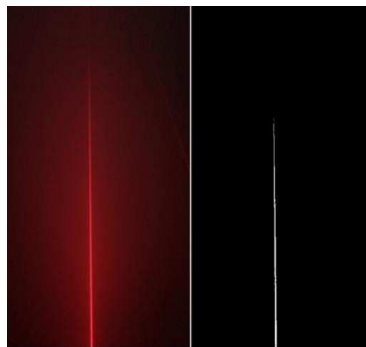


Fig. 5 – Image processing

In the laboratory setup we have considered the distance between the two poles as being 500 metres, so for a medium level of fog (Fig. 5), the laser beam is dissipated in the fog and the system returned a visibility distance of 364.8 meters and a maximum recommended speed of 103 km/h.

In paper [12] we used the same experimental model. Here we tried a comparison between the decrease in intensity of a light source and decrease in visibility in case of fog. Thus, as light sources we have used led lights and lasers, which are the latest novelties promoted in the car headlight industry.

The purpose of these measures was to find a relationship between the electrical power of the light source power and their optical power: in a first phase, in an environment without fog, varying only the power input we have monitored the optical power output, then for various levels of fog, while maintaining the power input constant, we have monitored the optical power.

We have used a grid; the monitoring was done on both axes (Y- visibility distance and X - blindness of the other traffic participants) and for the laser we have used a device capable of measuring the optical power on different wavelengths (Newport Power Meter Model 1918-c).



Fig. 6 – Visual acuity

The next stage was looking for a connection between these automated systems and the human visual system. In order to be closer to medical techniques we have used an optotype table resized for a distance of one meter, the maximum size allowed by the setup.

Fig. 6 shows the results in different fog conditions, the determination of the optotypes being made by means of an OCR algorithm. Thus in the first screenshot, in conditions without fog, the determined visibility was normal, and in the last screenshot, with dense fog, the visibility is affected, the last rows from the eye chart are not visible anymore.

Ciprian DUGHIR was born in Timisoara, Romania on February 2, 1977. He graduated from the Electronics and Telecommunications Faculty, Politehnica University of Timisoara. Starting with the year 2000 has joined the faculty of Electronics and Telecommunications. His special fields of interest included electronics, high level C++ programming and photography.



To reach the second objective (O₂), to test and validate in the laboratory a proper method for estimating the average visibility we build a demonstrator based on the model presented in figure 1:



Fig. 7 – Demonstrator overview a). laser side b). optical receiver side

With this demonstrator we are able to find the link between optical power decrease and the visual acuity decrease in foggy conditions. The length of the demonstrator is 3 meters, the same distance used by the ophthalmologists when they measure the visual acuity using the eye charts.

Further, the research team proceeded with the analysis of fog levels generation by monitoring the amount of liquid used per setup volume, in two different setups: the long range setup presented in figure 8, where the laser beam crosses 3 meters of fog up to the optical receiver and the low range setup presented in figure 9, where we created only a cloud of 30 cm of fog, but the camera was at the same distance of 3 meters up to the eye chart. With this comparison we wanted to present the influence of the fog density but also the fog thickness to the optical power and visual acuity. The results obtained using an OCR algorithm were compared with the ones obtained on a survey of 7 people.

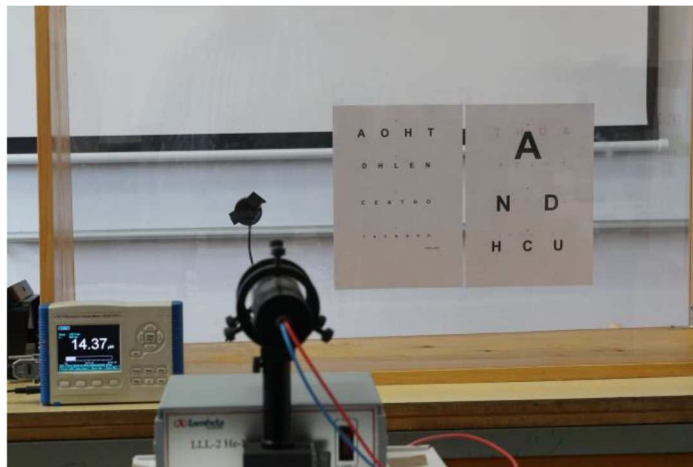


Fig. 8 – Setup for generating cloud of fog

In both setups we generated different levels of fog, starting from 0.5g of liquid (low fog) until 5g of liquid (dense fog) with a step of 0.5g and the experiments were monitored all this time with a camera which recorded the output optical power after passing through the fog (from the optical power measurement) and the visibility of the optotypes in fog conditions (Fig 9 and Fig 10).



Fig. 9 – Measurements through 3m of fog a). low fog b). dense fog

After these experiments we concluded that both the fog density and the fog thickness shall be considered. For a high fog density (25) but with a fog thickness of only 30cm we had the same results like for a lower fog density (8) with a higher fog thickness of 3 meters. And this happens because the laser beam crosses the same number of fog particles during his way to the optical receiver. Related to the visual acuity, the results were linked with the ones got for optical power measurement.



Fig. 10 – Measurements through 30 cm of fog a). dense fog b). low fog

VI. CONCLUSIONS

In this paper is proposed a system which allows the evaluation of different distance estimation methods in adverse weather conditions (fog, smoke etc). The proposed demonstrator is based on different experiments and methods applied by the authors, whose results were presented at different scientific sessions.

It is described a new system which allows comparative evaluation of different visibility distance estimation techniques in foggy environment. There are considered many methods with the goal to decide which is the most suitable.

The validation of the measurement results is done by comparing them with the human visual acuity, determined with the optotype in the same fog conditions. In this way is realized the link between the visual acuity determined by the ophthalmologists – with an optotype – and the medium estimated visibility distance.

The measurement of the optical power radiation dissipated in such blurry environments, is a method which proved to be suitable for visibility distance estimation. The conclusions after testing and validating the other methods from the state of the art using our experimental model will lead us to the final structure of a distance evaluation intelligent system in fog visibility conditions. At the synthesis of the prototype, we will have systems similar to those described in the papers [13] and [14]

The results got after these experiments open our way in realizing a chain between the fog density, the optical power dispersion (per a defined distance in different fog levels) and the visual acuity. Having a link between these data we will be able to build an intelligent system relevant for human being.

REFERENCES

- [1] Brazda, V., Fiser, O., “Estimation of drop size distribution based on meteorological measurement”, *Microwate Technique (COMITE)*, 2015;
- [2] Ovsenik, L., Turan, J., Misencik, P., Bito, J., Csurgai-Horvath, L., “Fog Density Measuring System”, *13th Int. Carpathian Control Conference (ICCC)*, 2012;
- [3] Busch, C., and Debes, E., “Wavelet Transform for Analysing Fog Visibility,” *IEEE Intelligent Systems*, vol 13(6), 1998, pp 66-71;
- [4] Negru, M., Nedeveschi, S., “Image Based Fog Detection and Visibility Estimation for Driving Assistance Systems ”, *Int. Conf. on Intelligent Computer Communication and Processing*, 2013;

- [5] Aubert, D., Boucher, V., Bremond, R., Cord, A., Dumont, E., Foucher, P., Fournella, F., Greffier, F., Gruyer, D., Hautiere, N., Muzet, V., Nicolle, P., Tarel, J.P., "Digital Imaging for Assessing and Improving Highway Visibility", Transport Research Area, Paris, 2014;
- [6] Li, C., Lu, X., Tong, C., Zeng, W., "A Fog Level Detection Method Based on Grayscale Features", 7th Int. Symposium Computational Intelligence and Design (ISCID), 2014;
- [7] Miclea, R., Silea, I., "Visibility Detection in Foggy Environment", 20th Int. Conf. on Control Systems and Computer Science, Bucharest, 2015, pp. 959-964;
- [8] Pomerleau, D.A., "Visibility Estimation from a Moving Vehicle Using the PALPH Vision System," IEEE Conf. on Intelligent Transportation Systems, 1997;
- [9] Hautiere, N., Tarel, J.P., Lavenant, J., Aubert D., "Automatic Fog Detection and Estimation of Visibility Distance through use of an Onboard Camera", Machine Vision and Applications, vol. 17, 2006;
- [10] Pavlic, M., Belzner, H., Rigoll G., Ilic, S., "Image based fog detection in vehicles", Vehicles Symposium (IV), 2012;
- [11] Tarel, J.P., Hautiere, N., Caraffa, L., Cord, A., Halmaoui, H., Gruyer, D., "Vision Enhancement in Homogeneous and Heterogeneous Fog", IEEE Intelligent Transportation Systems Magazine 4, 2012;
- [12] Silea, I., Miclea, R., Alexa F., "System for Visibility Distance Estimation in Fog Conditions based on Light Sources and Visual Acuity", Int. Conf. on Automation, Quality and Testing, Robotics, ClujNapoca, 2016;
- [13] Nanu Sorin; Coicheci Sergiu; Crecan, Rares; Danci, Paul; Ile, Virgil; "*Hardware and software platform for monitoring and controlling internet applications*", Patent Number: RO129807-A2, Patent Assignee: UNIV TIMISOARA POLITEHNICA, Accession Number: DIIDW:2014S44609
- [14] Nanu Sorin, Lie Ioan, Belgiu George, Musuroi Sorin, "*High Speed Digital Controller implemented with FPGA*", Buletinul Stiintific al UPT, seria Electronica si Telecomunicatii, Categ.CNCSIS -B, Vol.55(69), 2010, pag.17-22

GREEN IT AS AN IMPORTANT TOOL FOR SUSTAINABILITY

Yasin Galip Gencer²⁸⁷

Ulas Akkucuk²⁸⁸

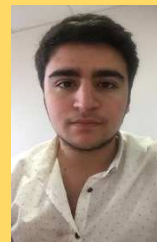
Semih Gencer²⁸⁹

Abstract: *Information technology (IT) refers to the use of any computers, storage, networking and other physical devices, infrastructure and processes to create, process, store, secure and exchange all forms of electronic data. The increasing demand for information systems in all areas like personal and business life made it to be a part of our everyday lives. With growing concerns for sustainability, it became evident that IT should not increase environmental problems. “Green IT” term first appeared in the U.S. in 1992 with the “Energy Star” application. This concept covers topics such as: Production of computer parts with minimal damage to the environment when they are produced, producing all kinds of devices used in IT such as computers, devices used in data centers etc. most efficiently in the terms of energy usage, using reusable and harmless to environment materials, making data centers more efficient by using technologies like cloud computing. Green IT is an important concept for both environmental and IT sector sustainability. It is important for IT sector’s future because consciousness towards environment is highly important in all areas. The main features of Green IT are described as: (a) Effective implementation: optimizing the capacitance while using information systems. In other words, it is an important feature of Green Information Technologies that we do not use products with features and capacities that we will not use, (b) Eco-friendly Technologies: Describes the minimization of harmful effects of any equipment used in information technology throughout the entire life cycle.*

Yasin Galip Gencer is currently an assistant professor at Yalova University. He has worked on a thesis with his advisor Dr. Ulas Akkucuk, in the Operations Management & Information Systems – PhD program in Boğaziçi University since 2012. Before joining this PhD program, he graduated from the Management Department and also has an MBA degree from Bogazici University. He is currently an assistant professor in Yalova University in the Department of International Trade and Finance as well. Furthermore, he also has a Leadership Communication certificate from Harvard Business School and has engaged in many business ventures in a family run company specializing in automotive and household appliance sales. Besides extensive business experience, he has also studied in Universiteit de Maastricht within the scope of an Erasmus exchange program. He has participated in a number of international conferences and published in proceedings volumes. His research interests are in forecasting automotive demand, determination of productivity and quality in the automotive sales and service sector.



Semih Gencer was born in Turkey in 1996. He is currently studying at Management and Information Systems in Boğaziçi University. Semih Gencer has worked as an IT Intern in TCM a solution partner of Microsoft. He is currently working for Microsoft Turkey in the Product field experiment department. Created 3 software projects for 3 different departments since March 2017.



²⁸⁷ Yalova University, Yalova, Turkey

²⁸⁸ Bogazici University, Department of Management, Bebek, Istanbul, Turkey

²⁸⁹ Bogazici University, MIS Department, SAD, Sariyer, Istanbul, Turkey

The usage of easily recyclable and non-harmful materials can be an example to this, (c) Technologies with Smart Energy Use: This concept refers to the intelligent management of energy consumption whilst performing the functions of the software and hardware to be used. This feature should be considered when designing or producing information systems. It is now seen that worldwide CO₂ emissions from information technologies are responsible for 2% of total carbon dioxide emissions. However, with the increasing and widespread use of information technology, this figure is predicted to increase in the coming years. Even if it won't increase, IT can be used in reduction purposes in the future. This paper will outline the most recent developments on Green IT and the main challenges that lie ahead for its implementation. Examples will be provided from global IT giants and emerging countries like Turkey.

Key words: Information technology, green, sustainability

Ulas Akkucuk is an Associate Professor of Quantitative Methods at Bogazici University Department of Management, Istanbul-Turkey. Dr. Akkucuk has a BS in Industrial Engineering from Bilkent University (1997), an MBA from Bogazici University (2000) and a PhD in Management Science and Information Systems from Rutgers University (2004). He has taught Statistics, CRM & Data Mining, and Global Aspects of Management courses, among others, at both graduate and undergraduate levels. He is associate editor and editorial board member of International Journal of Research in Business and Social Science (IJRBS) and has been an ad hoc reviewer for journals such as Journal of Multivariate Analysis, Bogazici Journal and International Journal of Business Economics and Management. He has edited two books titled "Developing Sustainable Value in Marketing Finance and Economics" and "Handbook of Research on Waste Management Techniques for Sustainability" which were published by IGI Global in 2014 and 2015 respectively.



VALUE CO-DESTRUCTION AND DEVIANT BEHAVIOR DURING MULTIPLE ACTORS' ONLINE INTERACTIONS: THE CASE OF JETSTAR AIRWAYS

Moreno Frau²⁹⁰
Francesca Cabiddu²⁹¹
Fabio Muscas²⁹²

Abstract: *In contrast to the majority of research on service dominant logic (S-D logic) (Vargo & Lusch, 2004, 2008), recent studies have noted that the relationships among actors sometimes leads to value co-destruction (VCD) (Plé & Cáceres, 2010) rather than value co-creation (VCC). Nevertheless, VCD has been addressed by only a limited number of studies (Echeverri & Skålén, 2011; Kashif & Zarkada, 2015). While previous studies provided valuable insights into the processes underpinning VCD, few studies have considered how VCD involves the interaction among multiple actors (Prior & Marcos-Cuevas, 2016).*

The current research on VCD has focused on the dyadic interactional process overlooking the wider network of interactions among multiple actors within the service ecosystems (Vafeas, Hughes, & Hilton, 2016). Therefore, the dyadic vision of the interactional process limits our comprehension of VCD because we are facing a more connected economy in which value formation is influenced by several actors who could have different or conflicting interests. Another gap in the VCD research is the limited number of studies focused on the online context (Quach & Thaichon, 2017).

A specific VCD in an online environment is particularly important because the Internet confers new opportunities for deviance, such as the development of virusware, cyber terrorism, computer hacking, and online harassment (Joinson, 2005).

The tourism industry is not immune to these deviant behaviors, on the contrary, it could be a fruitful setting where deviant behaviors, such as misleading or fake online reviews, fake online profiles, provision of false online information, and so on, can be observed (Munzel, 2016; Sigala, 2015). Although increasing attention is directed to misleading and fake reviews in online websites like TripAdvisor or Yelp (Liu, Pennington-Gray, Donohoe, & Omodior, 2015;

Moreno Frau completed his Ph.D. in Business and Economics from the University of Cagliari (Italy) with honors and the additional label of Doctor *Europeaus* accomplished thanks to a period of research spent at the BI Norwegian Business School.



His research interests focus on marketing strategy approaches, value co-creation and co-destruction, and interaction and integration of resources processes between the service providers and its customers.

Francesca Cabiddu is Associate Professor at University of Cagliari (Italy). Her research expertise is in marketing and the use of IT to support customer service and engagement in the services sector. Her research has appeared in *Annals of tourism Research, Business Horizon, The service industries journal, Industrial marketing management* as well as other academic and applied journals



²⁹⁰ University of Cagliari, Via Sant'Ignazio da Laconi, 74, 09123, Cagliari, Italy

²⁹¹ University of Cagliari, Via Sant'Ignazio da Laconi, 74, 09123, Cagliari, Italy

²⁹² University of Cagliari, Via Sant'Ignazio da Laconi, 74, 09123, Cagliari, Italy

Luca & Zervas, 2016), the attention on fake profiles and the provision of false information in social media, such as Facebook and Twitter, is missing.

All in all, there is an imperative need to develop an understanding of VCD from a multi-actor point of view in the online service setting. Therefore, the purpose of this paper is to shed light on the phenomenon of VCD and deviant behaviors during multiple actors' online interactions in the tourism sector. To do so, we seek to answer two critical research questions: 1) What are the typologies of online deviant behavior in tourism that lead to VCD? 2) How do multiple actors' interactions influence online VCD?

Given to the exploratory nature of our research, we use a qualitative approach and a retrospective single case study method (Eisenhardt, 1989; Yin, 1994) represented by JetStar Airways and its online community. The retrospective research design allows us to show the evolution of the problematic interactional process over a past period and to better highlight the deviant behaviors.

This study makes the following two contributions: 1) extends VCC by considering the potentially negative consequences of deviant behaviors in an online context and 2) identifies five deviant behaviors related to online interactions among multiple actors: performing illegal actions, supporting illegal actions, making insults, lacking in transparency, and providing false information.

Fabio Muscas is graduated in International Management at the University of Cagliari in April 2017, in the past 3 years he has gathered international experience studying in Spain and working in Australia and Poland in the service sector with focus in marketing. Currently, he is employed as Marketing and Content Manager in Hamburg, Germany.



REFERENCES

- Dootson, P., Johnston, K. A., Beatson, A., & Lings, I. (2016). Where do consumers draw the line? Factors informing perceptions and justifications of deviant consumer behaviour. *Journal of Marketing Management*, 32(7–8), 750–776.
- Echeverri, P., & Skålén, P. (2011). Co-creation and co-destruction: A practice-theory based study of interactive value formation. *Marketing Theory*, 11(3), 351–373.
- Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of Management Review*, 14(4), 532–550.
- Kashif, M., & Zarkada, A. (2015). Value co-destruction between customers and frontline employees: A social system perspective. *International Journal of Bank Marketing*, 33(6), 672–691.
- Liu, B., Pennington-Gray, L., Donohoe, H., & Omodior, O. (2015). New York City bed bug crisis as framed by tourists on TripAdvisor. *Tourism Analysis*, 20(2), 243–250.
- Luca, M., & Zervas, G. (2016). Fake it till you make it: Reputation, competition, and Yelp review fraud. *Management Science*, 62(12), 3412–3427.
- Munzel, A. (2016). Assisting consumers in detecting fake reviews: The role of identity information disclosure and consensus. *Journal of Retailing and Consumer Services*, 32, 96–108.
- Plé, L., & Cáceres, R. C. (2010). Not always co-creation: introducing interactional co-destruction of value in service-dominant logic. *Journal of Services Marketing*, 24(6), 430–437.

- Robertson, N., Polonsky, M., & McQuilken, L. (2014). Are my symptoms serious Dr Google? A resource-based typology of value co-destruction in online self-diagnosis. *Australasian Marketing Journal (AMJ)*, 22(3), 246–256.
- Vafeas, M., Hughes, T., & Hilton, T. (2016). Antecedents to value diminution A dyadic perspective. *Marketing Theory*, 16(4), 469–491.
- Vargo, S. L., & Lusch, R. F. (2004). Evolving to a new dominant logic for marketing. *Journal of Marketing*, 68(1), 1–17.
- Vargo, S. L., & Lusch, R. F. (2008). Service-dominant logic: continuing the evolution. *Journal of the Academy of Marketing Science*, 36(1), 1–10.
- Vartiainen, T., & Tuunanen, T. (2016). Value co-creation and co-destruction in an is artifact: Contradictions of geocaching. In *System Sciences (HICSS), 2016 49th Hawaii International Conference on* (pp. 1266–1275). IEEE.
- Worthington, S., & Durkin, M. (2012). Co-destruction of value in context: Cases from retail banking. *The Marketing Review*, 12(3), 291–307.
- Yin, R. (1994). *Case study research: Design and methods*. Beverly Hills, CA: Sage publishing.

RURAL TOURIST PROFILE IN THE CZECH REPUBLIC

Astrida Peruthová²⁹³

Abstract: *Tourism as an industry has so many types (urban tourism, rural tourism etc.). On the base of this there are also different types of visitors. Every single visitor has another motivation for visiting destination. They prefer another type of season for their trips, choose other types of accommodation or has different budget for their visit. This article wanted to find, who is the typical rural tourist in the Czech Republic. The research was based on domestic tourists. Our research is only at the beginning, 283 respondents were asked. The strongest motives for traveling to the rural tourist destination are natural beauty, relaxation and experiences. The most frequent activities are hiking in nature, typical summer activities like swimming or windsurfing etc. and visiting historical and cultural monuments. Typical rural tourist uses a car to travel to the destination and stays in the guest house. Visitor usually spend between 2 and 3 days in the rural tourist destination. This data are very important, because it is necessary to know, who is typical visitor of this type of destination. On the base of this data, it is possible to make some marketing strategy and better communicate with visitors. If the destinations will know what visitors want to, they can better manage their offers.*

Astrida Peruthová

Ph. D. student at Mendel University in Brno. Teaching activities are Tourism, Tourism Business and Marketing. I also work as a tour guide and I have been a director of travel agency for 2 years.



²⁹³Mendel University in Brno, Zemědělská 1, Brno, Czech Republic

VALORIZATION OF PAKLENICA NATIONAL PARK AS A DESTINATION FOR ECOTOURISM

Andelko Vrsaljko²⁹⁴

Abstract: *The National Park of "Paklenica", as one of the most impressive karstic parts in the world, with distinctive geological, geomorphological, hydrological and biological features, was founded in 1949. The international recognition of the Park has been verified through 20-year visitor data, with 85.7% foreign visitors/tourists. The tourist offer of the park is diversified by identifying and implementing specific forms of tourism such as adventure tourism, ecotourism, wildlife tourism, nature-based tourism. Therefore, we investigated the perception of visitors/tourists about the valorisation of the park regarding the development of ecotourism.*

We used the survey as the primary measurement instrument of empirical research in this paper. The survey was conducted through a structured questionnaire survey on the sample of 359 respondents (N = 359). As the method of data collection direct (face-to-face) interviews were used. The respondents were offered a Likert's scale in order to express their disagreement with the statements offered on a 1-7 degree scale. Different interests of the respondents indicate their sensibility to natural values / attractions in the park, and so most respondents are interested in the tourism of intact nature (31%), adventure tourism (29%), wildlife tourism (24%) and ecotourism (16%).

Furthermore, we have tested five parameters mentioned individually or in combination with all the definitions of ecotourism: a limited impact on environment / environmental sustainability, environmental interaction, local community involvement, environmental

The ecotourism level on the 5-dimensional scale is high but its interaction with nature and the involvement of the local community

Andelko Vrsaljko

Senior asistent at the Department of Information and Communications Studies, University of Zadar

Bibliography of the published articles:

1. Miljković, I., Čmelik Z., **Vrsaljko A.**, Duralija B. – Podloge za šljivu, *Pomologia Croatica*, Zagreb 2003;(1/4);73-90. AN 20043089505 in *Cab Abstracts* 2004/01- 2005/02.
2. **Vrsaljko A.** – Economic importance of Almonds from the aspect of nutrition and general usefulness, *Pomologia Croatica*, Zagreb 2002;8(1/4)103-113 AN 20033121246 in *Cab Abstracts* 2003.
3. Miljković I., Čmelik Z., **Vrsaljko A.**, - Podloge za trešnju, *Pomologia Croatica*, Zagreb 2002;8(1/4);103-113. AN 20033121248 in *Cab Abstracts* 2003.
4. Miljković I., **Vrsaljko A.**, - Podloge zamarelicu, *Pomologia Croatica*, Zagreb 2001;7(1/4);37-50. AN 20033090303 in *Cab Abstracts* 2003.
5. **Vrsaljko A.**, Milas Z., - Simptomi nedostatne hranitbe bresaka, nektaarina i šljiva, *Pomologia Croatica*, Zagreb 2001;7(1/4);51-59. AN 20033090304 in *Cab Abstracts* 2003.
6. **Vrsaljko A.**, Kolega A., - Wolesale market Benkovac as a factor of horticultural production development, *Agronomski glasnik*, Zagreb 2002;64(5/6);321-332. AN 20033053850 in *Cab Abstracts* 2003.
7. **Vrsaljko A.** – Phenology of peach and nectarine flowering in ecological conditions of Ravni kotari, *Pomologia Croatica*, Zagreb 2000;6(1/4)93-98. AN 20023085077 in *Cab Abstracts* 2002
8. **Vrsaljko A.** – Kemijski sastav plodova bajama cv. Ferragnes u Ravnim kotarima, *Pomologia Croatica*, Zagreb 2008;4(1/4)3-15 AN 20013076482 in *Cab Abstracts* 2001.
9. **Vrsaljko A.** – The flower buds susceptibility of different Peach and Nectarine cultivars to the winter frost in the ecological conditions of Ravni kotari Region, *Pomologia Croatica*, Zagreb 1999;527-38.
10. - . **Vrsaljko A.** – The dynamic of biogenetic elements in fruits and leaves of Almonds cv. Ferragnes in ravni kotari, *Pomologia Croatica*, Zagreb 2008;4(1/4)17-43 AN 20013076482 in *Cab Abstracts* 2001.

²⁹⁴ Sveučilište u Zadru, Mihovila Pavlinovića, 23 000 Zadar, Croatia

has not reached such a level that can ensure an excellent ecotourism product at the National Park of Paklenica.

All summed up, the results show that we have a very good and recognizable ecotourism product in the area of NP Paklenica, and to make it excellent, we have to work seriously on the above mentioned parameters by raising other parameters, too.

Key words: *Ecotourism, Valorization, National park*

MEASURING A SUSTAINABLE TOURISM DESTINATION IN THE CONTEXT OF COMPETITIVENESS WITH MULTIPLE ATTRIBUTE DECISION MAKING

Zoran Ćirić²⁹⁵
Otilija Sedlak²⁹⁶
Stojan Ivanišević²⁹⁷
Boris Radovanov²⁹⁸
Bojana Ćirić²⁹⁹

Abstract: *There is no universal model for the sustainable tourism destinations. The cities or tourist places have to have different offers which require multiple demands and multiple attributes (economic, political, social, etc.). Operational research offers optimization models aimed at finding an activity programme that will yield the best possible results. The models use precisely determined and known data. Constraints are also precisely determined, and the goal function is clearly defined, so that it can be formulated easily and simply.*

Reality, however, is different: very often we lack precise information on the value of individual input parameters, or the values of coefficients in constraint and goal functions, and imprecise formulation of limitations themselves is possible as well.

A new approach to the competitiveness of tourism destinations, in addition to the conventional attributes destinations, including business competitiveness factors. Factors influencing the competitiveness and attractiveness of the destination and its tourism offer can be used to build a methodology for making a rank tourist destinations. The ordering method focused on the multiple attribute decision making (MADM).

In practice, we often meet models where multiple attribute take part in decision-making simultaneously. This paper is an attempt to prepare a decision by the use of the

Ph.D. Zoran Ćirić is an associate professor at the University of Novi Sad, Faculty of Economics Subotica, working within the Department of Business Informatics and Quantitative Methods. He is involved in the realization of the teaching process on basic studies, master studies as well as on PhD studies in subjects close to his scientific interests: Management information systems, Project management, Business process, Knowledge management.



Ph.D. Otilija Sedlak is a professor at the University of Novi Sad, Faculty of Economics Subotica, working within the Department of Business Informatics and Quantitative Methods. She is involved in the realization of the teaching process on basic studies, master studies as well as on PhD studies in subjects close to her scientific interests: Operational research, Financial and actuary mathematics, Mathematics for economists, Quantitative methods in economy and management, Risk management.



²⁹⁵ University of Novi Sad, Faculty of Economics Subotica, Serbia

²⁹⁶ University of Novi Sad, Faculty of Economics Subotica, Serbia

²⁹⁷ Ph.D. Candidate at the University of Novi Sad, Faculty of Economics Subotica, Serbia; JKP Informatika, Novi Sad, Serbia

²⁹⁸ University of Novi Sad, Faculty of Economics Subotica, Serbia

²⁹⁹ Master student at the University of Novi Sad, Faculty of Economics Subotica, Serbia

fuzzy method of ordering alternatives (i.e. aims), and to set priorities among some alternatives and criteria, in the decision-making situations where there are multiple decision-makers, multiple attribute and in the multiple time periods. The applied method of evaluating in this article is based on the usual assessment, i.e. marking method used in education.

The mark-giving method, very similar to R. Jain's ordering method, is based on the weighted aggregation of marks. As mark processing can be described by many rules, the method forms a fuzzy set of extra marks by the aggregation on the basis of rules, and it can also be programmed as a fuzzy system. The values of criteria, which describe alternatives, are given as marks. An extra mark is assigned to every alternative, aggregating fuzzy sets of marks which describe alternatives. Alternatives are ordered on the basis of extra marks. The mark-giving method based on examples can be generally applied for ordering.

The modified ranking or ordering method allows arranging such alternatives, where the fuzzy criteria can be described estimates, or where the value criteria can be considered estimates. The paper aim is to present the complexity of the problem: sustainable tourism as the ability of a tourist destination to remain competitive considering all of environmental and quality problems.

Key words: *Sustainable tourism, destination competitiveness, multiple attribute decision making*

Bojana Ćirić

Born in 1994. in Subotica, where she graduated at the Secondary School of Economics „Bosa Milićević“. Currently a Master Academic student at the Faculty of Economics in Subotica. Interested in customer behaviour and social media marketing.



From the year 2015 very active at a student organization called CeMar (Centre of Marketing), where she is the vicepresident. Participated in a few projects for student, with the aim of preparing students for the real work environment.

Participated in a case study competitions at the Corvinus University, Budapest and Sopron Faculty of Economics. Also, did a research of the impact of word of mouth on the decisionmaking in tourism.

Currently nominated for the best student of Economics by the Serbian Economic Union for the year 2017.

A COMPARATIVE STUDY ON TOURISM DEMAND WITH ARTIFICIAL NEURAL NETWORKS: THE CASE OF TURKEY

Gökhan Seçme³⁰⁰
Mert Topcu³⁰¹

Abstract: *Tourism, as a strategic tool for contributing national income, has become an important sector for countries. Tourism demand, a fundamental indicator for tourism revenues, has been studied in many researches. Besides the economic benefits, tourism has been affecting the international interaction. Tourism activities can be managed effectively if the tourism demand estimated with minimum error. Tourism demand can be viewed as a forecasting problem with many variables. Tourist arrivals, overnight stays, prices, exchange rates, marketing efforts, natural attractions and safety can affect the tourism demand.*

In this study, an artificial neural networks and time series models compared on forecasting tourism demand of Turkey. The seasonality and volatility of tourism datas makes the problem more difficult to estimate. Traditional forecasting methods based on moving average techniques and artificial neural networks compared on forecasting tourism demand function. The demand function composed of multiple variables including tourist arrivals, overnight stays, exchange rates, inflation rate, GDP and etc. While the number of variables increase, the difficulty of the problem also increases. Furthermore, it is difficult to measure some non-numerical data such as safety, popularity, international relations of the country. Integrating this kind of data to the model brings with some other problems. However, artificial neural networks, as a non-linear model with parallel computing, helps to model the problem with acceptable solutions.

A feedforward backpropagation neural network structure with 2 hidden layers used to forecast the tourism demand of Turkey. Results show that neural networks outperforms the traditional linear moving averages methods. However, autoregressive moving average methods has less MSE values with regard to artificial neural networks.

Key words: *Tourism demand, time series models, artificial neural networks*

Dr. Gökhan Seçme has been working as an Asst. Prof. Dr. at Business Administration Department, Nevşehir Hacı Bektaş Veli University, Nevşehir, Turkey. He has been studying on Operations Management problems and Artificial Intelligence techniques.



Dr. Mert Topcu has been working as an Asst. Prof. Dr. at Department of Economics in Nevşehir Hacı Bektaş Veli University, Nevşehir, Turkey. He has been studying on Econometrics and economic modelling.



³⁰⁰ Nevşehir HBV University, Department of Business Administration, Nevşehir, Turkey

³⁰¹ Nevşehir HBV University, Department of Economics, Nevşehir, Turkey

TENDENCIES AND CHALLENGES TO THE DEVELOPMENT OF LABOR IN THE KNOWLEDGE ECONOMY

Elka Syarova³⁰²

Abstract: *The information and communication revolution we are facing past decade brought a significant and irreversible changes in social and political aspect, and also heavily affected economy and technology. This has a strong impact on global and national markets and as a result, they struggle with serious challenges. The processes have tremendous impact on the labor market, too.*

The subject of the paper is the theoretical analysis of the changes that occurred in this field. The report is based on the methods of logical analysis and synthesis, induction and deduction and summarize the main changes in the labor, such as the changed proportion between intellectual and manual labor in the production process, the need of building new skillset and mindset of the workforce, the danger of a disappearance of certain professions and the prospect of creating new ones, which require new types of qualification, etc.

The report also focuses on some of the main challenges in the labor market development in terms of the knowledge economy: the introduction of artificial intelligence, the concentration of the most qualified people in developed countries, the continuing process of narrow specialization in certain professions, etc.

Key words: *knowledge economy, labor, labor market*

Elka Syarova

Work experience:

Since 2010 – Assistant, Department of Political Economy, University of National and World Economy (UNWE), Sofia

2005-2009 – Expert, Government Information Service, Council of Ministers of Bulgaria

Main activities and responsibilities:

Lecturer in History of Economic Theories

Participant in national and international conferences

Author of scientific articles and papers as participant in scientific conferences, in Bulgarian and English

Education:

2003-2004 – Master's degree in International Relations, UNWE, Sofia

1999-2003 – Bachelor's degree in International Relations, UNWE, Sofia

1994-1999 – German Language High School, Sofia, Bulgaria



³⁰² University of National and World Economy (UNWE), Sofia, Bulgaria

DEVELOPING LOCAL INDUSTRY THROUGH COOPERATION – A JAPANESE PROGRAM ONE VILLAGE, ONE PRODUCT AND CLUSTERS

Anna H. Jankowiak³⁰³

Abstract: *In the dynamically changing global economy, there is a need to seek for new models of regional development. All of the forms of regional cooperation between local companies and small and medium firm are more and more important elements of regional policy. One of the examples of such a regional cooperation are clusters, which combine companies, universities and local government to increase the local development and the level of innovativeness. Other example of new approach to regional development can be the Japanese program One village, one product (OVOP), which can be seen as a very early stage of clustering created using bottom – up method. One village, one product was originally created by the Governor of Oita Prefecture, M. Hiramatsu, in Japan in 1979, but even after the end of the program in 2003, the new idea was spread on many countries not only in Asia but in Africa and South America as well. What is interesting about this model is that it was first presented and implemented in very well developed country as Japan, and now it can be used in developing economies with a success. As it will be proved in the paper, the model of OVOP and local clusters can be a reference model for other regions, but because of geographic differences, local environment and culture, it will be hard to transfer directly to next national economy. That models, studied in the paper, have however some characteristics figures that can show the universal character of this model as a part of regional development policy. The task of both OVOP and clusters is to activate local resources (labor force, capital, culture) to better exploitation for economic growth. By using this model, local products and services can be produced and sold on regional, national and international market to generate revenues for home firms and countries. The success of those two concepts (OVOP and clusters) cannot be achieved without the involvement of local*

Anna H. Jankowiak, Ph. D., Assistant Professor in the Department of International Economic Relations and Head of the International Cooperation Center at the Wrocław University of Economics; co-founder of the Asia-Pacific Research Centre and the main coordinator of Asian Conference at Wrocław University of Economics; author and co-author of 40 articles and 7 books in Polish and English concerning the issues of the Asian regionalism, Asian economies, transnational corporation, international business, global production networks and clusters in global economy; member of European International Business Academy; co-creator of the research project “Clusters as an innovation carrier of enterprises and regions. Verification and implementation of Asian models in terms of the Polish economy”, funded by National Science Centre, Poland; co-author of the expertise Niche markets for Polish products in China, prepared at the request of Polish Information and Foreign Investment Agency; visiting professor in the Center for Asian and Pacific Studies (CAPS) at Seikei University in Tokyo (Japan), in the School of Business at the University of Iceland (Reykjavik, Iceland), in the Beijing Foreign Study University (China), Tallinn University of Technology (Estonia) and School of Interdisciplinary Area Studies, University of Oxford (Oxford, Great Britain); member of expert group for the Polish export to China, formed in the Ministry of Economy of Poland.



³⁰³ Department of International Economic Relations, Wrocław University of Economics, Wrocław, Poland

government and authorities, who can provide financial support and special services to the local business. A lot of national governments are entering programs supporting local specialization and production to their development policy. That is the common feature of OVOP and clustering what will be proved in the paper.

The main aim of the paper is to present the one village, one product model and clusters in the context of regional development through cooperation. Both clusters and OVOP can be a source of entrepreneurship, regional economic growth and regional development. The added value of this paper will be the research on the links between actors in clusters and OVOP and results of cooperation between them, as a target element of regional policy.

SERBIAN VILLAGES IN THE SELF-GOVERNMENT SYSTEM³⁰⁴

Nada Kosanovic³⁰⁵

Danijela Rakic³⁰⁶

Abstract: *Throughout the history, villages were a stronghold of survival and state development in the crisis period. Today, our villages are dying out which is confirmed by both, the statistics and the real life. The base of safety, stability and healthy way of life is dying out. A significant problem of development which Serbia must solve is the fact that several hundreds of villages are dying out and as a consequence, strategically important areas of Serbian state are being emptied of their population.*

Sustainable development of villages is possible only providing that favourable local preconditions for it are met. Therefore, it is considered by the authors of this paper as necessary to start a legal initiative for the revival of local village self-government and institutionally expand the jurisdiction of village Local communities as the form of local self-government within Serbian national tradition.

*The units of local self-government in Serbia are municipalities, cities and the city of Belgrade as it is stated in the Constitution of the Republic of Serbia adopted in 2006 which determine the position of units of local self-government. **Villages are not defined within the system of the local self-government; they do not have the status, budget, source revenues and jurisdiction. The Councils of Local communities representing the form in which the administration in the villages is organized starting from 1963 are the guarantee of further rapid deterioration of the villages.** According to the Law on Local Self-Government ("Official Gazette of the Republic of Serbia", no. 129/07, 83/14 - state law), village Local communities are not the level of authority which may have the jurisdiction determined by the law. The tasks which (village) Local communities may perform are defined by the unit of local self-government in accordance with the citizens' needs and possibilities of Local community and the same unit also provides the funds for that purpose. Amendments to the Law on Local Self-government ("Official Gazette of the Republic of Serbia", no. 129/07, 83/14 - state law) prescribe the local community councils for villages which only may propose and bring the jurisdiction and plans prescribed by the Law, shall not bring any decisions, do not have budget, source revenues and precise jurisdiction in terms of subsidiarity – the number of aldermen from villages depending on the number of inhabitants in the villages and percentage of inhabitants in the municipality to which they belong, as it is the case in the countries of the European Union. Considering that the Draft Law on Amendments to the Law on Local Self-government is withdrawn from the procedure in the Assembly of the Republic of Serbia, the authors of this work, point out the need of regulating the status and jurisdiction of villages by a new Law within the Constitution of the Republic of Serbia.*

Key words: *Village, status, developmental politics, local communities, local self-government.*

³⁰⁴ This paper is the result of the work within the Project 46006 "Sustainable Agriculture and Rural Development in terms of the Republic of Serbia Strategic Goals Realization within the Danube Region - Development of Local Communities"

³⁰⁵ Research associate, Institute of Applied Science in Agriculture, Bulevar Despota Stefana St. 68b, Belgrade, Republic of Serbia

³⁰⁶ Phd student at the Faculty of Culture and Media in Belgrade

SINGLE MONETARY POLICY VERSUS MACROECONOMIC FUNDAMENTALS IN NEW MEMBER STATES

Marianna Siničáková³⁰⁷
Vojtech Siničák

Abstract: After introduction of euro in Slovakia and the Baltic countries, their monetary policy is not independent but affected by the euro area policy including common interest rates. Interbank interest rate is considered as a proxy-variable aggregating overall monetary policy setting. The objective of the paper is to evaluate compatibility of the euro area interest rates with macroeconomic situation in Slovakia and the Baltic states. In other words, the key question is whether common interest rates respond sufficiently to inflation gap, output gap or other indicators. Reaction function is estimated via linear regression with the Newey-West approach for the pre-euro period as well as euro period. Results demonstrate that the euro area interbank interest rates did not react always sufficiently neither to chosen countries' inflation nor output gap. These led to extremely low inflation during a certain period approaching to the critical point of deflation with possible negative impacts on these economies.

Marianna Siničáková, PhD,
Associate Professor

Her research interests are: monetary policy, international and public finance. She teaches also economic subjects in French language within the programme of double diploma in the cooperation with the University of Nice in France. Marianna is participating in several research and educational projects. List of courses taught: Finance and Currency, Public Finance, International Finance, Monetary and Financial Macroeconomics, Economics of Industry.



Some of her monographs and papers:

Monetary Rules and Their Importance in Context of Monetary Union and Economic Crisis / Rajmund Mirdala ... [et al.] - 1. vyd. - Belgrade : Institute of Economic Sciences - 2013. - 167 p.. - ISBN 978-86-80315-99-7.

[MIRDALA, Rajmund - SINIČÁKOVÁ, Marianna - BARTÓKOVÁ, Ludmila - ĎURČOVÁ, Júlia - REDZEPAGIC, Srdjan - FILIMONOVIC, Dragan - BODROZA, Dusko]

Macroéconomie monétaire et financière / Marianna Siničáková, Ludmila Bartóková - 1. vyd. - Košice : TU - 2013. - 120 s.. - ISBN 978-80-553-1303-0.

[SINIČÁKOVÁ, Marianna - BARTÓKOVÁ, Ludmila]

Single monetary policy versus macroeconomic fundamentals in Slovakia / Marianna Siničáková, Beáta Gavurová - 2017. In: Ekonomický časopis. Roč. 65, č. 2 (2017), s. 158-172. - ISSN 0013-3035
[SINIČÁKOVÁ, Marianna - GAVUROVÁ, Beáta]

The optimal monetary rule for the Slovak Republic / Marianna Neupauerová - 2006. In: Panoeconomicus. Vol. 52, no. 1 (2006), p. 79-87. - ISSN 1452-595X

[SINIČÁKOVÁ, Marianna]
]

³⁰⁷ Technical University of Košice, Faculty of Economics, Nemcovej 32, 040 01 Košice, Slovakia

DE-EUROIZATION IN MACEDONIA

Kiril Jovanovski³⁰⁸

Abstract: *The fact that the euroization is associated with inherent risks makes the academic economists, monetary policymakers and the credit rating agencies to follow the dynamics of these assets continuously. However, despite the confirmed link between the euroization and financial fragility, today we cannot identify significant results in de-euroization.*

One possible explanation for such behavior of the policymakers is the fact that until the last global financial crises we have not witnessed devastating materialization of such inherent risks. Alternative explanation could be that despite the efforts for promoting the confidence in the domestic currency, the agent are still saving in foreign currencies. That is the case even when there are negative real returns.

In the case of Macedonia, there is noticeable decrease in the deposit euroization. However, even thou that decrease can lead to conclusion for bigger confidence in domestic currency, the fact that the periods when there is a rise in euroization we are witnessing both economic and political uncertainty shows that there is still more confidence to gain. This paper concludes that the nominal amount of foreign currency denomination is stable, where the percentage of deposit euroization decreases. That leads to another conclusion where numerous households keep their savings in foreign currency for long periods, regardless of the long period of stable domestic currency exchange rate. Additionally, it is the case even when the interest rates on domestic currency deposit is raising faster than the ones' in foreign currency.

At the end, it is noticeable that major factor for currency composition of the assets is the decision of the households for passing the value of the savings though the time. Ultimately, it is connected with the expectations for future economic developments.

Key words: *Inherent credit risk, de-euroization, confidence in policymakers, behavior of households.*

Kiril Jovanovski was appointed an assistant professor in finance on October 2014.

He graduated in 2005 with financial management as his major. The same year, he was employed at Stopanska Banka AD Skopje, within the corporate lending division. On March 2006, he moved to Komercijalna Banka AD Skopje, the corporate lending division. Since his student days, he has attended a number of seminars, summer schools, workshops, forums, all related to finance.

His major interest are financial markets and institutions, international finances, personal finances and behavioral finances.



³⁰⁸ Ss. Cyril and Methodius University in Skopje, Faculty of Economics – Skopje, Macedonia

ICO CROWD-SALES OVERVIEW AND PERSPECTIVE

Stojan Ivanišević³⁰⁹

Zoran Ćirić³¹⁰

Otilija Sedlak³¹¹

Ivana Ćirić³¹²

Abstract: *This paper is an attempt to create scientific based segmentation of initial coin offerings as a newly used crowd-sale model which is getting increased significance. The number of ICO is rising as well as number of participants and gathered funds. But ICOs differ from crowd funding in that the backers of the former are motivated by a prospective return in their investments, while the funds raised in the latter campaign are basically donations. ICO gathers crypto coins rather than conventional currencies called „fiat money“ in cypto community. Many ICO are fraudulent and often end in loss of invested assets. This paper attempts to study these ICO's in order to provide increased insight and base for further analysis in order to determine ICO success rate and correlation between factors influencing ICO success.*

Key words: *ICO, Blockchain, Ethereum, Crowd funding, Crowd sales, Crowd investing*

³⁰⁹ Informatika Novi Sad, Serbia

³¹⁰ University of Novi Sad, Faculty of Economics Subotica, Serbia

³¹¹ University of Novi Sad, Faculty of Economics Subotica, Serbia

³¹² Secondary School of Economics Subotica, Serbia

THE ETHICAL CONDITIONING OF REALIZATION OF THE IMAGE-CREATION ACCOUNTING FUNCTION

Artur Jastrzębowski³¹³

The complexity of the modern economic world means that stakeholders are seeking for help in assessing the economic condition of the entities in which they would like to invest. Attention of stakeholders are often focused on data derived from the company's accounting system. The reason for this is that accounting is one of the key and complex information systems of an entity that generates and aggregates a wide range of data which represents the processes which takes place within an organization, what is making it a natural and accessible source of information about the material and financial situation available for external users.

Such a big importance of accounting system determines the necessity of taking care of appropriate accounting standards of accounting staff. The adopted ethical standards should support the implementation of the overarching accounting principle - the principle of true and fair view. It should be notice, that the continuous development of accounting involves the creation of new accounting functions which may force the persons responsible for preparing the information in the accounting system to make decisions whose effects may not only be ethically questionable but even threatening the implementation of the principle of true and fair view. One of the functions generating ethical hazards is the image-creation function of accounting.

The main aim of the article was to present possible ethical dangers as a result of the implementation of image-creation accounting function. Achieving the main goal required prior realization of specific objectives, including the need to present the essence of image-creation accounting function and ethical norms, which allow the implementation of the principle of true and fair view.

The assumed assumptions of the article determined the structure of the article, so in the first part was characterized the image-creation function of accounting. Next, the ethical standards that should be implemented by the persons who create information in the accounting system. In the third part, a comparative analysis was carried out to identify the ethical dangers that may arise in the context of the implementation of image-creation accounting function.

In parts covered theoretical considerations on the essence of image-creation accounting function and ethical principles in accounting, a critical analysis of sources has been used. In addition, the first part were mentioned the results of a questionnaire survey conducted for the purposes of the doctoral dissertation, related to the contemporary identified accounting functions. The last part focused on comparative analysis using the elements of inductive reasoning.

Artur Jastrzębowski, phd,
assistant professor in
Department of Accounting,
Poznań University of
Economics and Business
The areas of scientific
interest include:

- Accounting history,
- Accounting theory,
- Accounting functions.



³¹³ Poznań University of Economics and Business, Al. Niepodległości 10, 61-875 Poznań, Poland

A COMPARATIVE ANALYSIS OF ALBANIA HUMAN CAPITAL WITH THE REGION COUNTRIES

Megi Marku³¹⁴

Abstract: *A country in order to be successful requires talented and trained people. In fact, the future of a country is related particularly with its human capital. Investing in human resources is fundamental from the individual perspective, from the social perspective and from the economic perspective, given that the natural resources are limited in the front of endless and growing needs of the population. The human capital of a country which consists in the capabilities of its people can be the most important source in the long run than any other source. Therefore it has to be invested efficiently in order that the whole economy can benefit from it.*

The purpose of this paper is to evince the importance of human capital in the economic growth and to analyze the situation of Albania in comparison to the countries of the region through the human development index. It was chosen this index due to its complexity in evaluating the human capital. This index consists in three variables; life expectancy, education and per capita income. From the comparative analysis it was deduced that Albania has a substandard situation compared to the Region countries regarding the development of human capital. It was ranked 17th out of 21 countries with which it was compared leaving behind only Kyrgyzstan, Moldova, Bosnia and Herzegovina, and Uzbekistan.

Key words: *human capital, comparative analyses, region, human development index*

Megi Marku was born in 1987 in Tirana, Albania. She is a Lecturer nearby the Economic Faculty of “Aleksander Xhuvany” University in Elbasan, Albania. Mrs. Marku holds degrees from the “Aleksander Xhuvany”



University (BSc in Finance and Accounting), and the University of Tirana (Msc in Economics and PhD in Economics). Her main research includes Development Economics, Microeconomics, Economics, Institutional Economics. In 2014 she published her first monography “The crisis of the European Union budget”. Her works have been published in various journals (International Journal of Current Research, European Journal of Sustainable research etc.) and have been presented in some conferences (Albania, Italy, and Austria).

From 2014-2016 Mrs. Marku has served as an economic advisor for the Catholic University “Our Lady of Good Counsel.

³¹⁴ Economic Faculty, Aleksander Xhuvani University, Elbasan, Albania

COMPANIES' SUSTAINABILITY PRACTICES AND CONSUMER BOYCOTTS: A CONCEPTUAL MODEL

Dursun Yener³¹⁵
Mertcan Taşcıoğlu³¹⁶

Abstract: *Consumer behavior has an important influence and share in the marketing studies. The reasons why a consumer prefers a product rather than a specific product are analyzed to the finest detail, and they have been the subject of numerous scientific studies. Although consumer boycotts are a consumer preference that involve not buying a product, they have not been attracted to the same interest level.*

A consumer boycott is defined as an attempt by one or more parties to achieve certain objectives by urging individual consumers to refrain from making selected purchases in the marketplace [1]. Boycotts can be conceptualized as social dilemmas, wherein a consumer chooses between the individual benefit of consumption and the wish of a collective to refrain from consumption so that all receive the shared benefits of a successful boycott [2]. In recent years, the literature which studies boycotting has increased, most significantly in regards to two concerns: types of boycott behavior [3] and the motivations that underlie participation [4], [5], [6], [7], [8], [9].

Three variables are posited as determinants of the effectiveness of a boycott: economic pressure, image pressure and policy commitment. As marketing exchange partners, including consumers, suppliers, and/or distributors, refuse to interact with a target, the target may suffer some degree of economic loss. The announcement of a boycott against an organization may create undesirable publicity for the target, whether or not the agents' charges are justified. Policy commitment is the level of resistance that the target decides to adopt, in response to the agents' coercive efforts to modify its policies [10]. Consumer activists are motivated to boycott for many reasons, including expressing outrage, to maintain self-esteem, and to enhance their identity and sense of belonging [11].

Today many companies try to be more socially responsible and environmentally friendly in order to avoid consumer boycotts. Increasing social and environmental concerns influenced consumer behavior on boycotting products of Nestlé, high street banks such as Barclays [12], or specific products like CFC-driven aerosols showing that consumers can be organized by social or environmental causes [13]. So companies such as BMW, Honda, IDEO, Patagonia, and Timberland started to follow socially responsible and environmentally friendly practices

Dursun Yener has PhD degree on Production Management and Marketing. His research areas are marketing theory, social marketing and consumer behaviour. He has many publications in national and international journals and books. He works at Istanbul Medeniyet University as an Associate Professor.



Mertcan Taşcıoğlu (PhD, Georgia Southern University) is an Assistant Professor at Istanbul Medeniyet University. His research includes ethical and social issues in consumer decision-making, international /cross-cultural consumer behavior, and green marketing.



³¹⁵ İstanbul Medeniyet University, Turkey

³¹⁶ İstanbul Medeniyet University, Turkey

to meet consumer demand [14]. Another popular reason for consumer boycotting behavior is country-of-origin bias which has been extensively studied in the literature [15], [16]. There are basically three main mechanisms to explain country-of-origin effects: cognitive (e.g., country-of-origin is a sign for product quality), affective (e.g., country-of-origin has symbolic and emotional value to consumers), and normative (e.g., consumers hold social and personal norms related to country of origin) [17].

In this study we propose a scenario based experimental research model to test the cause-and-effect relationship among bad social and environmental practices, country of origin, and consumers' attitude toward boycotting, and boycott likelihood. This conceptual model contributes to the body of knowledge by leading the way to gain a better understanding of whether bad social or environmental practices have greater impact on consumer boycotts and how country-of-origin affects that relationship.

Key words: Boycotts, social sustainability, environmental sustainability, country of origin

REFERENCES

- [1] Friedman, Monroe, (1985), "Consumer Boycotts in the United States, 1970-1980: Contemporary Events in Historical Perspective", *The Journal of Consumer Affairs*, Summer, Vol.19, No.1, pp.96-117.
- [2] Sen, Sankar, Gürhan-Canlı, Zeynep, Morwitz, Vicki, (2001), "Withholding Consumption: A Social Dilemma Perspective on Consumer Boycotts", *The Journal of Consumer Research*, Vol.28, No.3, December, pp. 399-417.
- [3] Kozinets, Robert V., Jay M. Handelman, (1998), "Ensouling Consumption: A Netnographic Exploration of Boycotting Behavior," *Advances in Consumer Research*, Vol. 25 , pp.475-480.
- [4] John, Andrew, Klein, Jill, (2003), "The Boycott Puzzle: Consumer Motivations for Purchase Sacrifice", *Management Science*, Vol. 49, No. 9, September, pp. 1196-1209.
- [5] Tyran, Jean-Robert, Engelmann, Dirk, (2005), "To Buy or Not to Buy? An Experimental Study of Consumer Boycotts in Retail Markets", *Economica*, Vol.72, No.285, February, pp. 1-16.
- [6] Yener, Dursun, (2014), Consumer Boycotts as a Consequence of Consumerism In H.R. Kaufmann and M.F.A. Panni (Eds), *Consumerism in Business and Marketing: Concepts and Practices*, IGI Global Publications, pp.458-471.
- [7] Yener, Dursun, Oskaybaş, Kader, Dursun, Tolga, (2014), Hedonism, Materialism and Consumer Boycotts Participation, *İİB International Refereed Academic Social Sciences Journal*, Vol. 5, No. 15, pp. 99-111.
- [8] Yener Dursun, Dursun Tolga, Oskaybaş Kader, (2016), Determinants That Affect Consumers' Boycotts Participation, *ASOS Journal*, Kasım, Sayı: 33, pp.61-75.
- [9] Yener Dursun, (2017), Social Impact in Consumer Behaviour – Consumer Boycotts as a Consumerism Activity, In H.R. Kaufmann and M.F.A. Panni (Eds), *Socio-Economic Perspectives on Consumer Engagement and Buying Behaviour*, IGI Global Publications, pp. 22-35.
- [10] Garrett, Dennis E, (1987), "The Effectiveness of Marketing Policy Boycotts: Environmental Opposition to Marketing", *Journal of Marketing*, Vol. 51, April, pp.46-57.
- [11] Farah MF, Newman AJ, (2009), "Exploring consumer boycott intelligence using a socio-cognitive approach", *Journal of Business Research*, Vol.63, pp. 347-355.
- [12] Strong, C. (1997). The problems of translating fair trade principles into consumer purchase behaviour. *Marketing intelligence & planning*, 15(1), 32-37.

- [13] Peattie, K. (2001). Towards sustainability: The third age of green marketing. *The Marketing Review*, 2(2), 129-146.
- [14] Sharma, A., Iyer, G. R., Mehrotra, A., & Krishnan, R. (2010). Sustainability and business-to-business marketing: A framework and implications. *Industrial Marketing Management*, 39(2), 330-341.
- [15] Bilkey, W. J., & Nes, E. (1982). Country-of-origin effects on product evaluations. *Journal of international business studies*, 13(1), 89-100.
- [16] Smith, W. R. (1993). Country-of-origin bias: a regional labelling solution. *International marketing review*, 10(6).
- [17] Verlegh, P. W., & Steenkamp, J. B. E. (1999). A review and meta-analysis of country-of-origin research. *Journal of economic psychology*, 20(5), 521-546.
-

ADVANCES OF BUSINESS RESEARCH: IMPACT OF THE INTERNET ON QUANTITATIVE AND QUALITATIVE MARKETING RESEARCH

Nikolina Ljepava³¹⁷
Marko Selakovic³¹⁸

Abstract: *Despite the relatively short period of Internet usage in the context of a medium for the implementation of business research, many authors believe that Internet-based methodologies and research techniques have largely become a routine both in academic work and in business practice in most research and business areas (Farel & Petersen, 2010; Behr et al, 2012; Bredl et al, 2012). Rapid technological development has changed the paradigm of work, communication, collaboration and daily functioning; in a relatively short period of time, both everyday life and business became intertwined with the use of new technologies. Internet has brought a number of new opportunities in modern business by providing access to information, knowledge sharing, increasing the efficiency of business processes, accessing potential clients or customers, and introducing an personalized and individualized approach in number of business areas (Ljepava & Janičić, 2015). Information technologies and the Internet have brought new approaches to marketing and integrated communications, having influenced almost all marketing concepts and tools. Marketing research traditionally involves a wide range of potential activities; review of secondary sources, qualitative research through interviews or focus groups, observation, experiments or questionnaires; all these activities have an important role in data collection that is crucial for making marketing decisions. However, after a period of propulsive growth and the development of the application of quantitative research in the period up to 1990, in the mid-1990s, the decline have been noticed in respondents' participation rates in polls and surveys, weakening of the standard sampling frame (Bennet and Nair, 2010; Chang & Krosnick, 2009). In the era of digital communications, all research methods, qualitative and quantitative, are increasingly being transferred to the Internet environment by opening up a new field and research methods, as well as a whole range of methodological issues related to the conception, planning and implementation of qualitative and quantitative research on the Internet. The use of the Internet for the purpose of public opinion research and market research has become the industry worth billions of dollars in*

Dr. Nikolina Ljepava is MBA Program Director and Assistant Professor of Marketing at American University in the Emirates. She is a practice-oriented academic with more than ten years of international industry and consulting experience in North America, Europe and Asia, in the areas of marketing research, evaluation and assessment and online communications. She holds PhD from the University of Belgrade, two Master's degrees: in E-business and Social Data Analysis, and degree in Psychology from the University of Windsor, Canada.



Research interests of Dr. Nikolina are related to online consumer behavior, psychology of social media, digital marketing, survey methodology and online panel research. She is an author of numerous conference papers and articles, and had a number of successful media appearances on the above mentioned

³¹⁷ American University in the Emirates, Dubai UAE

³¹⁸ DOBA Faculty of Applied Business and Social Sciences, Maribor Slovenia

developed countries over the past ten years (Farel & Petersen, 2010), with both qualitative and quantitative research being conducted online. The present study provides a comparative analysis of the current methods of technology-based and Internet-based business and marketing research, and identifies advantages and limitations of such research.

Key words: *business research, marketing research, qualitative methods, qualitative methods*

Mr. Marko Selakovic is award-winning communications professional with more than 15 years of top-level European and Middle Eastern experience. He is Vice-President of the Board of the International Association of Business Communicators GCC Chapter, member of the 2018 IABC World Communications Conference Program Advisory Committee and official representative of the Knowledge Economy Network for Middle East. His portfolio includes C-level strategic advisory and consultancy for Governments, multinational systems and international organizations. Marko obtained Master of Business Sciences degree at DOBA Faculty of Applied Business and Social Studies, Maribor, Slovenia with great distinction. Marko is specialized in strategic communications, stakeholder and relationship management and crisis communications.



E-PRIVACY AS A KEY CHALLENGE OF EU-US COOPERATION ON THE TRANSATLANTIC DIGITAL ECONOMY

Karolina Olszewska³¹⁹

Abstract: *The development of digital technology at the turn of the twentieth century has modified the conditions of economic growth and development. At the same time it has also opened up new opportunities for intensifying international economic relations between the countries. The digitalization of economies, resulting in changes in the global market, creates a need for more intensive international regulatory cooperation in the domain of a digital economy. This necessity concerns, in particular, an assurance of e-privacy and personal data protection defined as a core fundamental rights online which, besides legal aspects, presents a tremendous impact on economic and social welfare. In the context of building the European Digital Single Market, one of the key priority of the EU is strengthening digital security thanks to an active collaboration with another countries. This is especially the case of the US, the biggest digital trade partner of Europe. The main aim of this paper is a synthetic and critical analysis of the economic aspects of digital privacy, with reference to transatlantic cooperation in this domain. Special attention is devoted to the surveillance policy and its impact on business cooperation. The research shows the importance of trust in the transatlantic relationship concerning cyberspace security and the need for a consensus on international digital privacy standards. This is especially a serious challenge in the situation when the EU and US approaches to regulate e-privacy and data protection differ significantly. The paper presents research results based on the literature review, critical analysis of strategic documents on a digital economy of the EU and US, using also the method of a case study of transatlantic digital dialogue between Germany and US. The findings could be useful for the European Union member countries which are currently in the process of establishing frameworks for the international cooperation on the digital economy.*

Karolina Olszewska, Ph.D., is an Assistant Professor at the University of Wrocław (Faculty of Social Sciences, Institute of International Studies, Section of International Economic Relations and European Integration).



She is a graduate of the University of Wrocław (LLM in Commercial Law), Strasburg III (DESS in European Public Policy) and the University of Nice Sophia-Antipolis (LLM in International and European Law). She earned her Ph.D. in Economics from the University of Economics in Wrocław on the basis of the dissertation "Mergers and acquisitions in the ICT sector in the European Union". She has taught as a visiting scholar at the University of Nice Sophia-Antipolis, the University of Las Palmas de Gran Canaria, the Autonomous University of Madrid and the Libertas International University in Zagreb. She is a member of CEDIMES (Centre for Studies in International Development and Economic and Social Movements) and a member of AIELF (International Association of French-speaking Economists). Her research focuses on economic and legal aspects of innovation, cross-border technology transfer, knowledge-based competitiveness, as well as the digital single market development.

³¹⁹ Institute of International Studies, University of Wrocław, Koszarowa 3 Street, 51-149 Wrocław Poland

Key words: *Digital economy, Digital Single Market, Transatlantic Cooperation, Digital Privacy, Data Protection, Digital Surveillance, Data Flow, Digital Trade.*

ECONOMICS OF PRIVACY AND CHALLENGES OF NEW EU DATA PRIVACY REGULATION

Marija Boban³²⁰

Abstract: *Digital economy and new information society trend are introducing the important issue of privacy specifically mentioning the economic roots and nuances of the current privacy debate as the meaning of privacy has evolved over time and across cultures. Most of the economics research on privacy is about informational privacy and studying privacy implies facing semantic ambiguities and contradictions. It is noted that economics provides a useful framework to address privacy issues. On this traque, author in this article summarizes and draws connections among diverse streams of the interdisciplinary approach on the economics of privacy. Although author of the paper focuses on the technological aspects and also economic value and consequences of protecting and disclosing personal information, it also introduces consumers' understanding and decisions regarding the trade-offs associated with law and new EU General Data Protection Regulation (GDPR) regarding the privacy and the sharing of personal data. Also the paper highlights how the economic analysis of privacy evolved over time, as advancements in information technology raised increasingly in the new information economy surroundings.*

Key words: *privacy, digital economy, technology, economics of privacy, GDPR, protection of personal data, ePrivacy*

³²⁰ PhD, Assistant professor, Head of department for economic and financial sciences, University of Split Faculty of Law

THE EU SCHENGEN NEEDS RESPECT FOR INTERNATIONAL LAWS ALSO ON FIGHT AGAINST INTERNATIONAL CRIME – HUMAN TRAFFICKING AND SMUGGLING NOT QUOTAS

Dusan Soltes³²¹

Abstract: *The paper is dealing with one of the currently most controversial issues in the EU regarding the protection of the external borders of the EU in the form of the so-called Schengen external border system of the Union. On the one hand it is very difficult for the EU new member states to become a part of the Schengen border protection system like it is still the case of Romania, Bulgaria or Croatia as the Schengen legislation requires a lot of effort and investments into the latest smart ICT technology and all various other technical but also organizational and personnel requirements in order to meet all required membership precondition. But on the other hand, right now we have been witnessing a real disastrous situation on the southern and to some extent still also on the eastern flanks of the Schengen border where thousands of illegal immigrants especially from Africa and Asia are daily illegally entering the territory of the EU in spite of all protection provided by the latest smart surveillance, controlling and security ICT technology. By a certain paradox, in many cases these illegal immigrants are entering the EU territory on the principles of International law on humanitarian assistance to people in life threatening situation at open seas, etc. But at the same time the Frontex costal guards are not taking any action against the human trafficking through which illegal people smugglers made huge money collected from those illegal immigrants. Thus they are violating any elementary principles of another kind of an important International laws on the fight against human trafficking as a part of the most dangerous acts of the international crime. In addition we have also*

Dusan Soltes

In years 1969-71 he had completed postgraduate studies in economic informatics, in year 2002 he had completed summer school in International law at the University of Pretoria. In year 2000 he became an Associated Professor. In year 2004 Extraordinary and in 2008 Full University Professor. in management/international business.

Since 1971 he has completed numerous staff development and research programs at various foreign universities and other educational institutions in the EU member states (the UK, the Netherlands, Germany, Spain, Portugal, etc.), Switzerland, the USA, China, etc. especially in the areas of the international business, support to emerging SME sector in the CEEC, etc.

Membership of professional bodies: *UN Agencies Rosters of Experts, EU 6 and 7FP Roster of Experts, EU-eBSN, EU-e-Practice, EU-e-Invoicing, e-Procurement, etc., UNESCO-ACEID, PIN-SME Brussels – Paneuropean Network of SME in ICT, IIIS (USA) – International Institute for Informatics and Systemics, SGBD of the Montclair State University (USA) – Society for Global Business & Development, etc.*

Key qualifications : *Dusan has served for various UN, EU and other agencies' projects as CTA – Chief Technical Advisor, National Coordinator, Senior Expert, Chief Training Expert in numerous international especially United Nations and EU funded projects on the national as well as regional projects in Europe, Asia and Africa and also for the joint projects with our USA partners with responsibilities also for the overall management of the particular projects including tender procedures, procurement, training, fellowships, etc*

to mention that any consideration on the quota

³²¹ Faculty of Management, Comenius University, 820 05 Bratislava, Slovakia

system for redistribution of the illegal immigrants is an other violation of the International laws viz. the UN Charter on the fundamental human rights that is clearly stipulating that everybody has right to live - of course legally – within the borders of any state of his/her choice and thus cannot be forced to live in any other country. In view of this the current proposals for redistribution of illegal immigrants to all member states of the Schengen system is a clear violation of the one of the fundamental human rights! as enshrines in the UN Charter. The paper in more details is dealing with this evident paradox between the utilization of the latest smart ICT technology vis-a-vis humanitarian aspects of International humanitarian law, but also the International law on the fight against the human trafficking as an act of the international crime as well as regarding the UN on fundamental human rights.

Key words: Schengen, human trafficking, smuggling

INTERNET OFFERS OF DNA TESTS

Katerina Dulčić³²²

Abstract: *DNA analysis has affordable prices, and laboratories are offering them on-line. DNA testing has its legal and ethical aspects that should be considered.*

The author examines the ethical aspects of other people (like employers) request DNA test, especially for genetic diseases of other people. Also, the author elaborates the actual legislation that regulates DNA testing and more important of DNA databases.

DNA databases are regulated by the data protection laws. In the European Union, it is going to be regulated uniformly since May 2018. The new REGULATION (EU) 2016/679 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) has specific norms on DNA data.

The author examines the general conditions of the companies that offer their services on-line, and what should be considered by potential clients when they chose a service.

The article should give the guidelines for the potential offerors to make their on-line offers in accordance with EU legal requests. Also the regulation for data protection of such sensitive databases is going to be explained, and also potential risks and responsibilities for data breach will be explained.

The research will give a general look up on this kind of e-commerce and note potential risks for the offeror and the client.

Katerina Dulčić, L.L.M.

Born in Rijeka, where she graduated high school, and Law faculty. She worked at a Law firm, before and after the graduation. Since 1997. she has been working at the Faculty of Law as young researcher. In 2004. she obtained master degree at the post graduate study "Law of international trade, transport and insurance" with the master paper "Electronic form of legal negotiations". Her interests is legal framework for electronic communications, and limits of Internet, within civil law.

Since 2010 works as lecturer at Polytechnic Nikola Tesla in Gospić, teaching civil law.



³²² LLM, lecturer, Polytechnics Nikola Tesla Gospić, Croatia