Eighth International Scientific Conference
on Recent Advances in Information Technology,
Tourism, Economics, Management and Agriculture

ITEMA 2024

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BOOK OF ABSTRACTS

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EIGHTH INTERNATIONAL SCIENTIFIC CONFERENCE
ITEMA 2024

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

BOOK OF ABSTRACTS

Zayed University, Dubai, UAE
October 24, 2024

Eighth International Scientific Conference ITEMA
Recent Advances in Information Technology, Tourism, Economics, Management and Agriculture
ISSN 2683-5991
Book of Abstracts (part of ITEMA conference collection)

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Published by:
Association of Economists and Managers of the Balkans – **UdEkoM Balkan**
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office@udekom.org.rs
+381 62 8125 779

Conference partners:
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Cover image by: Gerd Altmann from Pixabay
Printed by: SKRIPTA International, Belgrade
Print circulation: 100 copies
Belgrade, 2025
ISBN 978-86-80194-88-2
ISSN 2683-5991

Disclaimer: The author(s) of each paper appearing in this publication is/are solely responsible for the content thereof; the findings, interpretations and conclusions expressed in the papers are those of the authors and do not reflect the view of the editor, reviewers, scientific committee members, the publisher, conference partners or anyone else involved in creating, producing or delivering this publication.

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CIP - Katalogizacija u publikaciji
Narodna biblioteka Srbije, Beograd

330(048)
004(048)
005(048)
338.48(048)
631(048)
502.131.1(048)

INTERNATIONAL Scientific Conference ITEMA 2024 Recent Advances in Information Technology, Tourism, Economics, Mmanagement and Agriculture (8 ; Dubai ; 2024)

Book of Abstracts / Eighth International Scientific Conference ITEMA 2024 Recent Advances in Information Technology, Tourism, Economics, Management and Agriculture, Zayed University, Dubai, UAE October 24, 2024 ; [editors Andreea Grecu, Snežana Štetić, Viktória Kundi]. - Belgrade : Association of Economists and Managers of the Balkans - UdEkoM Balkan, 2025 (Belgrade : Skripta international). - XVII, 49 str. ; 25 cm. - (ITEMA conference collection, ISSN 2683-5991)

Tiraž 100. - Registri.

ISBN 978-86-80194-88-2

a) Informaciona tehnologija -- Apstrakti b) Ekonomija -- Apstrakti v) Menadžment -- Apstrakti g) Turizam -- Apstrakti d) Poljoprivreda -- Apstrakti đ) Održivi razvoj -- Apstrakti

COBISS.SR-ID 175867145

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Preface

The Book of Abstracts of the 8th International Scientific Conference ITEMA 2024 – Recent Advances in Information Technology, Tourism, Economics, Management and Agriculture provides an overview of the diverse research presented at this year's gathering. This collection highlights the conference's interdisciplinary character, offering concise insights into current challenges, methodological innovations, and practical applications across multiple domains.

The volume begins with information technology and cybersecurity, where contributions address IT system integration, risk perception in cyber management, phishing detection, and IoT security. Studies also examine user experience issues such as motion sickness in immersive environments, as well as the role of blockchain and artificial intelligence in accounting, auditing, and business transparency.

Tourism and heritage form another central pillar of this collection. Research explores the relationship between tourism and economic growth, customer experience, visitor satisfaction, greenwashing practices, and the role of environmental communication. Case studies on cultural heritage protection, festival tourism, and innovative tourism forms such as garden tourism illustrate the evolving balance between tradition, authenticity, and modern demands.

The abstracts further address economics, finance, and sustainability, including fiscal sustainability in the EU, monetary policy effects, subjective poverty measurement, ESG pricing, green asset hedging, and financing mechanisms for environmental protection. Several papers explore financial inclusion, institutional banking, post-crisis competitiveness, and fraud risk, underscoring the financial sector's role in sustainable growth.

Management and organizational studies also feature prominently. Contributions investigate humanist management in the digital era, gendered dynamics of earnings management, entrepreneurial ecosystems, labor standards, and social responsibility. Research on education and entrepreneurship education highlights how knowledge and innovation shape future economic and social systems.

Finally, agriculture and environmental research address precision agriculture, sustainable viticulture, disaster risk management, and labor law reforms, offering practical insights into resilience and sustainability at both local and international levels.

By gathering such a wide range of perspectives, the Book of Abstracts reflects ITEMA's mission to integrate disciplines, foster dialogue, and stimulate collaborative solutions. It serves as a reference point for scholars, practitioners, and policymakers seeking to understand how information technology, economics, management, agriculture, and tourism contribute to sustainable and knowledge-driven development.

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Methods and Strategies for Efficient Management of Information Systems: Integration of ITIL with ERP

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Abstract: *This in-depth study explores the integration of IT Infrastructure Library (ITIL) with Enterprise Resource Planning (ERP) systems, focusing on optimizing information systems management in the context of an increasingly complex and dynamic environment. In the age of digital transformation, organizations face numerous challenges in effectively managing their resources and information. This research identifies and analyzes the most advanced methods and strategies for implementing ITIL functions within an ERP framework, aiming to create a holistic approach that promotes operational efficiency and enhances user satisfaction.*

Through a thorough analysis of existing literature and some case studies, this paper provides a clear overview of best practices related to the integration of ITIL and ERP. One of the key findings is that successful implementation of ITIL in an ERP environment contributes to the improvement of service processes and incident management, helping organizations enhance their response to daily challenges and achieve a higher standard of customer service.

An important aspect of this study is the emphasis on continuous improvement as a crucial component of organizational success. By adopting ITIL principles, organizations can foster a culture of ongoing improvement that encourages innovation and adaptability in an ever-changing environment. This approach not only strengthens managerial capabilities but also contributes to increased user satisfaction, creating a better experience for all stakeholders involved.

Keywords: *ITIL, ERP, Information systems management, Integration, Implementation methods, Operational efficiency, Incident management, Continuous improvement*

Does Recency Bias Outweigh Optimism Bias in Shaping Cyber Risk Perception and Management Intention?

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Abstract: *As digital transformation progresses, business organizations face increased exposure to cyber risks, making the management of these risks critical to their security and resilience. In light of these increasing risks, exploring what motivates or limits organizations in managing cyber risks becomes important. While the Protection Motivation Theory (PMT) predicts that a higher level of risk perception increases the intention to manage risk, this approach does not provide insight into the influence of cognitive biases on intention. Extending the PMT model with cognitive biases, this research examines and compares the impact of optimism bias and recency bias on cyber risk perception, as well as their indirect impact on cyber risk management intention through the perception of cyber risks as a threat. In addition, it investigates how perceptions of cyber risk management ability influence cyber risk management motivation, taking into account CEOs' experience in IT activities and organizational factors such as size, industry and digital maturity. The empirical analysis is based on survey responses of CEOs in Croatia. Conducting structural equation modelling (SEM) using the PLS-SEM approach, the results show that optimism and recency bias, significantly influence the perception of cyber risk. Moreover, recency bias has a stronger impact on the perception of cyber risks than optimism bias. Results confirm the mediating role of cyber risk perception in the relationship between cognitive biases and cyber risk management intentions. This research highlights the importance of considering cognitive biases in cyber risk management models and supports the need for their integration into the PMT framework.*

Keywords: *Optimism bias, Recency bias, Cyber risk perception, Risk management intention, Chief executive officers*

Assessment of Motion Sickness in 360-Degree Video Experience

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Abstract: *360-degree virtual reality (VR) videos offer immersive experiences by allowing the user to explore environments from all directions. This technology is increasingly being used in various fields, including entertainment, education and training. Thanks to advances in virtual reality (VR), augmented reality (AR) and immersive technologies, the number of 360-degree films is constantly growing. Several well-known production companies and independent filmmakers are investing in this medium for films, documentaries and other forms of storytelling. At VR festivals and events such as Venice VR Expanded or Sundance Film Festival's New Frontier, new 360-degree films are frequently screened, suggesting that new projects are constantly in the works. In addition, platforms such as YouTube VR and VeeR VR regularly release new 360-degree videos, many of which are cinematic, although not all are intended for the traditional cinema screen. Unlike traditional narrative cinema, abstract VR experiences focus on visual and auditory stimuli to evoke emotion and immersion. This even allows the user to participate in the action in real time in the first person. This experience can be used in cinema halls, but each user watches it with their own headset in their own private space. However, the immersive nature of VR can cause motion sickness or discomfort for users. Therefore, it is important to assess and mitigate these effects in relation to the immersive experience. In this paper, we would like to evaluate the perspective of a broader use of the 360° cinema experience. VR headsets limit users to a personalised experience. Due to the immersive view and technical limitations, motion sickness or other discomfort may occur. The Simulator Sickness Questionnaire (SSQ) is a widely used instrument to measure and assess symptoms of simulator sickness, such as nausea, oculomotor disturbances and disorientation, which are often associated with VR use. The research investigates how elements such as movement, colour, spatial sound and interactive components influence immersion, presence and comfort, key indicators of motion sickness in virtual environments. We explored various methods and questionnaires specifically adapted for virtual reality that has been used in related work and proposed a novel, improved questionnaire and methodology. By completing the questionnaire before and after each 360° video experience, we aim to quantify the intensity and frequency of symptoms of simulator sickness, relate them to the user's experience and provide insights into the factors contributing to discomfort. Understanding these effects is crucial for optimising VR 360 experiences, improving user comfort and enhancing the 360° cinema experience in general. Two questionnaires were proposed to evaluate the previous user experience: motion discomfort and satisfaction with the 360 video experience. For the evaluation, we experimented with 50 subjects who watched 10 different 360 videos. We analysed the correlation with previous research in this field, as the quality of headsets has improved significantly. In our experiment, we did not exclude people with difficulties described in related work as susceptible to VR sickeness to determine the possibility of the VR experience for them.*

Keywords: *Virtual reality, Movie, Motion sickness*

Percentage of Known Words from the Dictionary in Phishing Domain Name as a Possible Indication of Its Compromised Status

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Abstract: *Recognising phishing domains has become increasingly important for protecting users and systems from cyber threats. Phishing is a fraudulent attempt, usually via email or messaging applications, to steal your personal information. Phishing domains pose as well-known organisations asking for your personal information — such as credit card number, national insurance number, bank account number, or password. The best way to protect yourself from phishing is to learn how to recognise a phish. Suspicious signs include a generic greeting, a missing link, a request for personal information and a sense of urgency. A link to insecure domains without certificates is almost a sure sign of phishing. All these methods are difficult to recognize to ordinary users, which is why automatic methods for evaluating domain names are being developed. Traditional approaches such as blacklisting and heuristic methods often cannot keep up with the ever-changing landscape of phishing sites. These methods can recognise the validity of the domain and warn the user to look out for certain indicators. Phishing domains try to be as similar as possible to real domains in terms of name and appearance. Recognition algorithms use a variety of features and make the final decision on compromise by adding an importance coefficient. Recent advances have introduced more sophisticated detection techniques that can analyse a variety of features, including lexical features, DNS records and WHOIS information. Lexical features consist of replacing letters, adding different characters such as numbers or special characters. Over time, certain features become less or more pronounced, depending on the availability of domain names as well as the organisation of the network of compromised computers (botnets). One of the interesting features is the comparison of words from domain names with an extended dictionary. The dictionary is extended to include words that are expected in a domain name, such as the www tag or top-level domain tags. In this paper, research was conducted with several well-known dictionaries, and results were given on known phishing domains in relation to legitimate domains. Our approach not only addresses the dynamic nature of phishing, but also provides a scalable feature that can adapt to emerging threats, providing better protection to Internet users and organisations alike.*

Keywords: *Bothet, Phishing, Lexical features*

Cyber Risk and Cybersecurity: A Systematic Review of Data Availability

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Abstract: *Cybercrime has become more common and severe because of globalization, digitization, and the surge in smart device usage. Notwithstanding the relatively recent age of the area in both academia and industry, the significance of good cybersecurity defensive systems has been brought to the attention of national, supranational, and corporate levels. Through the application of a risk management strategy, this study investigates cyber risk and how cybersecurity and CyberSource contribute to the reduction and transmission of risk. In addition to this, the most recent research on cybersecurity and cyber risk is analyzed, as well as data sources that are currently available. About cybersecurity and cyber risk, this is the first comprehensive analysis of data accessibility that has ever been conducted. To help the scientific community in Albania, we work to discover, assess, aggregate, summarize, and classify any publicly available datasets. The report of the study emphasizes the importance of having unrestricted access to data that is peculiar to cyberspace, without any restrictions based on financial or permission constraints.*

Keywords: *Cybersecurity, Digitization, Information security, Statistical analyses, Cyber risks*

Cybersecurity Risk Analysis in the IoT: A Systematic Review

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Abstract: *The usage of modern technical advancements, such as social media platforms and instant messaging, has made information sharing faster and more efficient. It has therefore gotten simpler to obtain information. New cybersecurity concerns, however, have simultaneously surfaced and usually lead to both data loss and misuse. Thus, it is crucial and essential to protect data privacy in complex systems, especially in organisations where students make up the great majority of those interacting with them. Due to their ignorance of cybersecurity and the repercussions of cybercrime, students typically participate in data breaches and other forms of digital misconduct. The purpose of this study was to employ a scientific questionnaire based on many Internet safety aspects to explore and assess the degree of cybersecurity knowledge and user compliance among undergraduate students at Luarasi University. In order to demonstrate the necessity of user education, training, and awareness, we objectively assessed students' understanding of cybercrime and protection. Bartlett's tests and a quantitative research approach were employed in this study to assess and examine the hypotheses. This study thoroughly evaluated security issues with electronic emails, computer viruses, phishing, fake advertisements, pop-up windows, and further online outbreaks. In conclusion, we offer suggestions derived from the gathered information to address this prevalent issue.*

Keywords: *Cybersecurity, Security awareness, Information security, Cybercrime*

Geobim Modeling & Integrated Protection of UNESCO Cultural Heritage – Balkan Case Study

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Abstract: *In order to protect and preserve the objects and locations of the UNESCO World Heritage List, must be applied innovative digital tools, additional awareness-raising initiatives and effective measures for building technical-technological capacities. To achieve these goals, it is necessary to implement a smart specialization of personnel with the application of innovative digital technologies and build a quadruple helix of excellence through strengthening the chain between the academic community, government institutions, civil society organizations and the private sector. Digitization of integrated risk management at locations and objects from the UNESCO list represents an efficient and transparent model for the realization of project goals. To implement these measures, it is necessary to develop innovative digital management tools based on GeoBIM 8D modeling, AI prediction and efficiency, then build highly skilled educational human potential, and raise the awareness of all interested parties for the preservation of multicultural and historical heritage. Smart specialization based on digital innovations represents a modern and attractive approach for attracting young experts through expanding educational opportunities and improving the inclusion of all categories of society, based on the relevance and quality of learning with the help of innovative tools. To reach these goals, there must be continuous work on the development of digital literacy and competences with a focus on teachers and students. By implementing these activities, it is necessary to include 4 target groups and their needs: institutions that manage cultural heritage, to strengthen the institutional framework at the domestic and international level, the academic community in order to create new attractive and smart programs for higher education and the development of specialist skills, religious and cultural communities, in order to strengthen the ties between religion and science, and private organizations specialized in digitization and innovative tools.*

Keywords: *UNESCO cultural heritage, Digitization, Risk management*

The Analysis of the Relationship Between Tourism and Economic Growth in European Countries Using Convergence Analysis

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Abstract: *The purpose of this paper is to analyze tourism and economic growth in European countries, taking into consideration the effects of the Covid-19 pandemic. The pandemic has significantly influenced people's lives, their behavior during leisure time, and has presented major challenges for the development of tourism. The research methods focus on convergence analysis. The authors examined whether economic convergence occurred in European countries from the perspective of the tourism sector. This paper contributes to the literature by using indicators that describe the tourism sector, with the convergence analysis based on indicators related to accommodation, transport, and restaurant services.*

Keywords: *Tourism, Economic growth, Economic convergence, Covid-19 pandemic*

Effects of Business Attractiveness in the Tourism Sector

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Abstract: *Tourism has become the driving force behind the development of many countries. Movements and trends in the development of international tourism and its perspective in the coming period will take place in changing conditions caused by the influence of numerous factors in the macro and microenvironment. Changes in the economic environment include tendencies and trends that can be manifested through many economic indicators. The current long-term forecasts of economic indicators by world experts are considered very optimistic regarding the growth of the gross social product, national income, standard of living, and other indicators, in countries that are the carriers of development in the world.*

Keywords: *Attractiveness of business in the tourism sector, Factors for the improvement of tourism, Tourist destination*

Customer Experience Management in the Tourism Sector

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Abstract: *This paper investigates the crucial role of Customer Experience Management (CEM) in the tourism industry, underscoring its significance in boosting customer satisfaction, fostering loyalty, and enhancing overall business performance. It begins by outlining key questions that guide the exploration of CEM practices. Building on these foundational questions, the paper offers a thorough review of existing literature, illuminating the theoretical frameworks and models within the field while identifying areas for future research. This literature review provides the groundwork for formulating hypotheses that suggest specific relationships between CEM practices and various customer outcomes. The subsequent data analysis leads to actionable conclusions, offering practical strategies for optimizing CEM.*

Keywords: *Customer Experience Management, Tourism industry, Customer satisfaction*

A Comparative Study of Greenwashing in the Tourism Sector: The Role of Environmental Communication and Implementation

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Abstract: *Sustainability plays an increasingly important role in modern society, particularly in the tourism industry where reducing environmental impacts is crucial. Despite this, greenwashing, or the false portrayal of environmental responsibility, is becoming more prevalent. Our study aims to explore the extent of greenwashing in the tourism sector, with a focus on the hotel industry, and to understand how guests react to this phenomenon. Additionally, we investigate the differences in environmental communication and implementation between large multinational hotel chains and family-owned hotels.*

Our research seeks to answer three main questions: (1) To what extent does greenwashing occur in the hotel industry? (2) How do guests respond to greenwashing in their feedback? (3) What differences exist between large multinational hotel chains and family-owned hotels in terms of environmental communication and implementation? Our hypotheses are: (1) the environmental communication of hotels does not reflect reality, (2) guests perceive and react negatively to greenwashing in their reviews, and (3) there are regional and corporate differences in the frequency and types of greenwashing. As part of our research methodology, we conduct case studies on several known instances of greenwashing in tourism. We collect and analyze online guest reviews from various platforms (e.g., booking.com, tripadvisor) using web scraping methods, and process data from hotels with eco-labels or green certifications. The data analysis includes keyword analysis, TF-IDF analysis, word association mapping, clustering, and sentiment analysis. Additionally, we conduct structured interviews with 5 European multinational hotels and 5 European family-owned hotels. Our findings reveal conclusions drawn from the case studies, the results of guest review analyses, and interview insights. We present the current state of greenwashing in tourism and provide key lessons and recommendations for hotels to achieve and communicate genuine environmental sustainability.

Keywords: *Greenwashing, Sustainability, Tourism, Guest feedback, Environmental communication*

Exploring Visitor Satisfaction of Local Heritage Festival

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Abstract: *Events and festivals are regarded as leisure activities that can attract visitors to a destination, especially during the low season period. Local heritage festivals are believed to contribute to the area's economic and tourism growth and can act as effective means of preserving and promoting the traditional identity and local way of life. Monitoring and assessing visitor satisfaction is essential for festival organizers because it helps them understand and identify the needs, preferences and perceptions of festival participants. This helps them design, modify and customize festival elements that will increase visitor satisfaction, leading to beneficial behavioural intentions of festival attendees. The purpose of this study was to evaluate visitors' satisfaction with festival elements and offerings at small, local festival held in an island destination. In this regard, the study aimed to: (a) assess visitors' satisfaction with individual festival elements, (b) determine the overall level of satisfaction with the festival, (c) examine whether the level of satisfaction depends on visitors' demographics, and (d) to identify elements that contribute the most to overall visitor satisfaction. In an attempt to address the study's goals, empirical research was conducted, using primary data gathered from festivals' visitors. Respondents participated in the small festival held in an island destination. The festival promotes local nonmaterial cultural heritage, focusing on maritime and gastronomic heritage. Descriptive statistical analysis results showed high levels of visitors' satisfaction, especially with festival area and organization, gastronomy, and variety of activities and programme. T-test and ANOVA recognized significant differences between visitors with different demographic characteristics. In addition, regression analysis identified a positive relationship between individual festival elements and overall visitor satisfaction, with gastronomy as the most effective predictor of satisfaction. This study affirms that local cultural heritage festival represents a desirable product that appeals to both domestic and foreign visitors, and promotes local values and customs. In addition, the study's results can direct organizers of similar small, local festivals to more efficient use of resources to create high-quality events and to increase overall visitor satisfaction.*

Keywords: *Visitor satisfaction, Festival quality elements, Cultural heritage festival*

Something Old, Something New, Something Borrowed: Leveraging Traditional Elements with Modern Tools in Tourism in Eastern European Countries

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Abstract: *Authenticity and cultural heritage are key elements of regional and national tourism. They represent the foundation on which tourism offerings and promotional campaigns are carefully built, often serving as the central pivot of a local, regional, or national differentiation strategy, and in specific cases, even transnational. Particularly for rural tourism, architecture, crafts, and gastronomy can become defining factors for success in attracting both domestic and international tourists. Increasing tourist satisfaction often involves making compromises in setting the parameters of tourism offerings and destination promotion. Tourist behavior evolves, making it necessary to adapt to their diverse needs through the use of modern tools. This becomes critical for countries facing low attractiveness, as is the case for those in Eastern Europe compared to Central and Western Europe. The purpose of the paper is to analyze how traditional elements intersect with modern tools for designing and promoting tourism offerings in various Eastern European countries. The research objectives focus on highlighting a specific typology of significant tourist attractions in the regions studied, based on the prevalence of traditional elements, and identifying factors influencing the adoption and use of modern design and promotion tools. The methodological approach is qualitative and is structured into two levels. The first stage includes an analysis of tourism attraction databases and a selection of relevant traditional tourist objectives for various categories: architectural, cultural, historical elements, festivals, accommodations, restaurants, etc. For each of the selected attractions, documentation was carried out to identify key traditional elements and the modern tools used. The second stage includes a content analysis of tourist posts and reviews to measure positive or negative appreciation for the two categories of elements - traditional and modern. The results obtained from the analyses in both stages are correlated, in order to achieve, on the one hand, a clustering of the analyzed tourist objectives, and on the other hand, a projection of the effects of introducing and adapting modern methods of designing and promoting traditional tourism products. The conclusions of the paper can be considered relevant for tourism stakeholders - owners, employees, and tourism promotion experts.*

Keywords: *Traditional tourism product, Promotion, Product design, Stakeholders*

Garden Tourism: A Case Study on the Opportunities and Challenges in Hungary

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Abstract: *Garden tourism is part of cultural tourism and one of the untapped areas of sustainable tourism. It can be connected to staycation, proximity tourism and slow tourism among others. Carefully planned garden tourism can extend the length of stay of visitors, and encourage multiple visits, and by packaging with other attractions, lesser-known destinations can be developed sustainably. This research aims to explore all the directions that garden tourism can take by analysing the case of Hungary. Gardens are in abundance with 2000 gardens scattered around the country, and most of them are complex attractions with notable natural, heritage and landscape values. I chose expert interviews as a methodology due to the scarcity of research on the topic. Snowball sampling was used to find experts from different areas and eight of them were willing to participate, including a policy maker, four tourism experts, two members of a civic organization, and a garden influencer. The interview revolved around a possible typology of gardens attractive to tourists, finding different segments, identifying problems, and looking into opportunities. The research deals with a range of gardens including national botanic gardens, castle gardens, city parks, cemetery parks, healing gardens and private gardens. It also delves into the connection between garden and wildlife and between garden and arts. Based on the series of interviews the following problems were identified: 1. Garden visits are not the primary reason for choosing a destination. 2. There is a growing niche of visitors who methodically visit (castle) gardens in Hungary. 3. Some parks surrounding heritage buildings cannot be visited outside opening hours. 4. Activities are limited in parks 5. Seasonal attractions. The interviewers cited recent research and revealed the type of people who visit gardens. Currently, most garden visitors are middle-aged, above-average spenders who stay longer at the destination. This group also includes hobby gardeners. For nature lovers, garden visits are secondary motivations, and for the rest, gardens provide a pretty landscape and go to gardens for special events. The experts agreed that one of the main tasks is to involve Hungarian gardens more intensively in the Network of European Historic Gardens, where the country is represented by only three gardens. It would also be essential to create the Network of Hungarian Historic Garden where a more effective international involvement can spring from. Considering the target market, the development should include both mobile applications and paper maps. It can be concluded that garden tourism has great potential in the future because its complex offerings and sustainability aspects appeal to different generations. The limitation of the research lies in the qualitative nature of the research. However, this study provides only a solid footing on which surveys can be conducted to analyze existing and potential demand.*

Keywords: *Garden tourism, Sustainable tourism, Botanic gardens, Staycation, Slow tourism*

Exploring the Influential Factors of Cost System Design: Evidence from the Greek Hotel Industry

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Abstract: *The limitations and disadvantages of traditional costing have contributed to the design of sophisticated costing systems that can provide accurate costing of products and services and produce appropriate costing information for improved management decisions that will lead to the desired competitive advantage. The issue of investigating the factors influencing the design of costing systems is significant as there is no accounting system suitable for all business environments. This study examines the sophistication of costing systems concerning many factors based on the contingency theory and the upper echelon theory in the context of the Greek hotel industry. Using structured questionnaires, the research was conducted by random sampling in Greek hotels belonging to the three (3***), four (4****), and five (5*****) star categories. By applying multiple regression analysis, the results of the research revealed that the firm size, the costing structure, the importance of cost information in decision-making, and the integrated information technology are the factors that influence the complexity of costing systems. On the contrary, the competition, the range of services, the business strategy, the organisational life cycle and, the age, the years of experience, and the education of managers have no statistically significant effect. These findings contribute to the management accounting and hospitality literature by combining theories and highlighting the determinants of costing systems sophistication in the hotel industry. Moreover, practical implications can be drawn for the costing system designers of the industry.*

Keywords: *Costing System Design, Complexity, Factors, Hotels*

Fiscal Sustainability in the EU: Cointegration of Revenues, Expenditures, and the Role of Fiscal Rules

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Abstract: *The sustainability of public finances is a key concern for policymakers, particularly in the context of the European Union (EU), where diverse economic conditions and fiscal policies coexist. This study explores the sustainability of public finances across EU member states, focusing on the long-run relationship between government revenues and expenditures, and aims to assess the role of fiscal rules in supporting or undermining fiscal sustainability. To evaluate fiscal sustainability at both regional and national levels, this study first employs the Pedroni Panel Cointegration Test, which is ideal for analysing regional trends, to capture long-run equilibrium relationships between government revenues and expenditures across EU countries. Second, Engle-Granger two-step procedure allows for more granular, country-specific insights. The findings suggest that, on average, EU countries maintain fiscal sustainability at the regional level. However, individual country analyses reveal significant variation: 15 countries, including Austria, Cyprus, Czechia, Denmark, Estonia, Finland, Germany, Greece, Italy, Latvia, Luxembourg, Poland, Portugal, Romania, and Sweden, exhibit cointegration between revenues and expenditures, indicating fiscal sustainability, while 12 others, such as Belgium, Bulgaria, Croatia, France, Hungary, Ireland, Lithuania, Malta, the Netherlands, Slovakia, Slovenia, and Spain, show no such evidence, signalling potential fiscal unsustainability. The second phase of this research will focus on the impact of fiscal rules, which are mechanisms designed to limit government deficits and debt, on fiscal sustainability. To explore this, we will conduct a panel analysis comparing the two groups of countries—those with sustainable public finances and those without—examining whether fiscal rules contribute to the observed differences in sustainability. This analysis aims to uncover the extent to which fiscal rules can mitigate unsustainable fiscal paths and promote long-term fiscal health. By providing empirical insights into the sustainability of public finances and the influence of fiscal rules, this research will contribute to ongoing policy debates regarding the design and enforcement of fiscal frameworks within the EU.*

Keywords: *Fiscal sustainability, Fiscal rules, Fiscal health, Cointegration test, Panel analysis*

The Impact of Financial Stress and Monetary Policy on Economic Dynamics in the Eurozone: Vector Autoregression Approach

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Abstract: *This paper examines the relationship between systemic stress and many key macroeconomic variables, including gross domestic product (GDP), inflation, and unemployment, as well as the monetary policy tools at the disposal of the European Central Bank (ECB). A vector autoregression (VAR) model was selected for analysis of euro area data from 1999 to 2023. This approach allows for a comprehensive examination of the interaction between financial systemic stress and variables related to economic performance and dynamics over time.*

Through impulse response functions (IRFs) and forecast error variance decomposition (FEVD), we fulfil our stated objective of analysing the importance and impact of financial stress and other selected variables in the context of the effectiveness of the ECB's monetary policy. We observe and evaluate the following results - how monetary policy instruments, such as the main refinancing operations, react to the occurrence of multiple shocks.

Our findings underline the need for the ECB's monetary authority as well as the fiscal authorities of euro-area countries to be ready to respond flexibly, especially in periods of heightened uncertainty and economic, multiple economic shocks.

This study contributes to the empirical literature by offering insights into financial stress and its macroeconomic effects in periods of multiple shocks, thus filling a gap in the existing research. It also highlights the importance of monitoring economic and financial linkages during different phases of the business cycle, especially in the context of multiple simultaneous global crises.

Keywords: *VAR, IRF, Financial stress, Eurozone, Economic shocks*

Inflation Convergence in Europe

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Abstract: *The subject of the study is the analysis of the presence of inflation convergence among various groups of countries in Europe. To verify this convergence, we apply the approaches of β-convergence and σ-convergence. The calculation of β-convergence is carried out through linear regression, while σ-convergence is determined using the coefficient of variation, defined as the ratio of the standard deviation to the average inflation rate of individual countries within the studied groups for each year. The period analysed in the study covers the years 1999 to 2019, excluding the COVID-19 pandemic and post-pandemic periods. The study's findings provide evidence of the existence of inflation convergence. For countries in Eastern and Western Europe, non-Eurozone states, and the new EU member states that joined in 2004, inflation convergence is confirmed through both β and σ-convergence approaches. In the case of the founding member states of the European Union, inflation convergence is demonstrated via the β-convergence method. Additionally, the use of σ-convergence confirms inflation convergence across all EU member states, Eurozone countries, and the largest exporters. The results also suggest convergence between the group of founding member states and the new members that joined the EU in 2004.*

Keywords: *Inflation convergence, Inflation, Beta convergence, Sigma convergence, Divergence*

Challenges in Estimating Subjective Poverty Lines

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Abstract: *Monitoring the ongoing changes in socio-economic indicators plays a key role in shaping public opinion and informing policy strategies. Poverty can be considered a very complex construct and can be examined from many different perspectives. The subjective concept of poverty, in addition to the emphasis placed on an objective approach, often remains in the background. Although the European Union recognizes its importance, the availability of such data is limited. The identification of subjective poverty is mostly based on the self-assessment of the respondents in surveys. Until 2020, the Minimum Income Question (MIQ) was a compulsory variable within the European Union statistic on income and living conditions (EU-SILC) survey. However, the question has been dropped since the 2021 EU-SILC wave. Consequently, the standard approach to estimating subjective poverty lines (SPL) based on the MIQ cannot be adapted which hinders the ability to monitor trends in subjective poverty within the EU. Hence, alternative methods need to be developed. In this study, we focus on one of the potential approaches to estimating SPLs, which is based on discrete information. The Deleeck attitude question can be used to estimate SPLs and is included in the EU-SILC survey. Respondents compare their income based on a subjective poverty line, which is unobserved and must be estimated. The literature provides multiple metrics derived from the confusion matrix including Youden index, which can be employed to determine the optimal cut-off point. However, different techniques can provide different results. Therefore, we perform a simulation analysis to examine how relative bias is related to the value of the metric at which the cut-off point is optimized. We illustrate an alternative approach to SPL estimation in the example of Slovakia using data covering the entire available period (2005 to 2020) from the EU-SILC survey. While monitoring the dynamics of poverty, it is more important to observe trends than to analyze the values themselves. Hence, this analysis aims to show how SPL values develop over time and how considerable the variability can be in the resulting estimated subjective poverty lines.*

Keywords: *Subjective poverty line, Deleeck attitude question, Confusion matrix, EU-SILC*

Long-run Determinants of Food Inflation: Evidence from Azerbaijan

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Abstract: *The paper examines the long-run determinants of food inflation in Azerbaijan using quarterly data from 2004Q1 to 2024Q2. Since the food products category makes up more than 40% of Azerbaijan's consumer basket of goods and services, studying the main determinants of food inflation is of great interest. I employ an autoregressive distributed lag (ARDL) model approach as a research method. One of the main advantages of this model is that it is a more statistically significant approach to determining the cointegration relationship in a small sample-size environment. In addition, ARDL allows the estimation of both long-run and short-run parameters of the model simultaneously, and it can incorporate stationary and non-stationary variables in the model. The results reveal that the main determinants of food inflation are the producer price index of agricultural products, real gross domestic product (GDP), unit labour cost in the non-oil sector, consumer prices in major trading partners, and non-oil import-weighted nominal effective exchange rate. Of these, the first four variables positively affect inflation, while the latter negatively affects inflation. When prices of agricultural products increase by 1%, food inflation increases by 0.56 percentage points. 1% increase in real GDP and non-oil unit labour cost each causes a 0.17% increase in the food price index. Foreign inflation also plays a considerable role in explaining food inflation, as a one percentage point rise in the inflation of major trading partners is associated with a 0.52 percentage point increase in food inflation. Finally, a 1% appreciation of the multilateral exchange rate reduces the food price index by 0.44%. The residual diagnostics show that the residuals are homoscedastic, free from serial correlation, and normally distributed. I have also tested the stability of the model, and both cumulative sum (CUSUM) and CUSUM squares analysis confirm the stability. Hence, the model can be deemed appropriate for inflation analysis, and the implications of the findings can be considered in inflation forecasting exercises and monetary policy decisions.*

Keywords: *Azerbaijan, ARDL, Food inflation, Long-run determinants of food inflation*

Enabling AI in European and Western Balkans MSMEs: A Preliminary Comparative Analysis of the Trends and Challenges in Artificial Intelligence Adoption

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Abstract: *Artificial intelligence (AI) holds immense potential to transform micro, small, and medium-sized enterprises (MSMEs), driving competitiveness, innovation, and economic growth. Despite initial reservations, a growing number of MSMEs recognize AI as a key differentiator in today's digital economy. This paper explores the emerging trends propelling AI adoption among mainly European and worldwide MSMEs, from chatbots enhancing customer service to predictive analytics streamlining operations, improved customer engagement, transformed products and services, and employee empowerment among many other services. It attempts a first preliminary comparison of these trends with what is taking place at Western Balkans MSMEs. Although AI revolution is here, several obstacles lead to an adoption gap between large corporates and MSMEs, including lack of investment support, networking, partnerships, and cultural inertia.*

We examine, in a preliminary comparative study, how accessible AI tools, cloud-based services, and collaborative initiatives are lowering barriers to entry. Importantly, as well as we discuss the evolving policy landscape supporting MSMEs in harnessing AI while addressing ethical considerations and other challenges that are herein analyzed. To remain competitive, MSMEs could benefit from AI-driven solutions to address challenges like administrative burdens, lack of time due to limited staffing, and intensified global competition. Specific AI applications are sector-dependent, with manual-intensive sectors like agriculture and construction benefiting from robotization and automation. Boosting MSME productivity relative to large companies could yield significant economic value, equivalent to 5% of GDP in advanced economies and 10% in emerging economies. Capturing this value requires a granular view, as relative productivity varies widely across subsectors and countries. A "win-win" economic fabric where MSME and large company productivity move in tandem indicates potential spillovers if the right conditions are created.

All stakeholders have a role to play in developing granular productivity strategies tailored to subsector needs. Strengthening interactions between MSMEs and large enterprises, building networks, and improving infrastructure and policies can help boost AI adoption and productivity.

As AI seemingly becomes increasingly democratized, its integration into MSMEs will be pivotal in shaping Europe's and worldwide enterprises' future, but even more importantly western Balkans enterprises' future towards a regional innovation hub.

Keywords: *AI revolution, AI adoption, MSME, SME, Western Balkans*

Financing the Environment: Challenges and Blockchain-Based Remedies

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Abstract: *The world is changing for the good and the bad. Climate change is unleashing a barrage of environmental catastrophes from floods to droughts while raising temperatures to record levels. This has rallied the global community to act to arrest the deterioration in the environment. But acting to slow and perhaps reverse the environmental decimation requires funding. The current environmental financing options are predominantly global, multilateral, and governmental funds with a dose of market-oriented mechanisms. All these are however riddled with challenges from transparency to efficiency. In this essay, we review the fundamental mechanisms, and instruments for environmental finance and then highlight the extant challenges these mechanisms and instruments face. We then examine the properties of blockchain-based distributed ledger technologies and how they can be used to at least ameliorate the challenges in environmental finance.*

Keywords: *Green finance, Blockchain, Global environmental facility, Climate finance*

Financial Inclusion and Technology: Key Drivers in Addressing Inequality in Europe

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Abstract: *The world is continuously changing, and technological access profoundly impacts economies. The onset of the Fourth Industrial Revolution indicates a significant transformation of industry and society, based on the integration of cutting-edge technology. The coronavirus pandemic accelerated digital transformation, and despite its adverse effects, the COVID-19 period can be regarded as having a positive impact on technological progress. The importance of access to affordable and reliable financial products in promoting economic development and reducing income disparities has become increasingly apparent as technological advancements continue to transform financial services. This research investigates the impact of new technologies such as digital banking on enhancing financial inclusion for populations by granting them access to essential financial resources. The paper examines the extensive socio-economic aspects of financial inclusion and technology adoption on income inequality, emphasizing case studies from multiple European nations where technology-driven banking services have successfully reduced economic disparities. The study examined 31 European countries, excluding Albania, Bosnia, Belarus, Montenegro, Moldova, North Macedonia, Russia, Serbia, and Ukraine due to lack of data. The empirical analysis utilized annual frequency data from 2000 to 2023. In order to investigate the relationship between technological advancements, financial services, and income inequality, as well as societal responses to the fourth industrial revolution, a panel data econometric model was employed to analyze cross-sectional and time-series variations among the studied countries. The paper reveals that nations with advanced technological infrastructure and greater access to financial services generally exhibit lower income inequality. Overall, embracing technological innovations and improving financial services proved effective in reducing inequality and fostering economic growth. Additionally, the research highlights that European Union countries that are not using the euro currency showed lower levels of financial inclusion, particularly in terms of access to financial markets and institutions within their own economies. Furthermore, promoting financial education and digital literacy alongside the adoption of new technologies is crucial for policymakers aiming to reduce inequality and drive inclusive economic development.*

Keywords: *Europe, Inequality, Industrial revolution, Financial inclusion, Technology*

The Influence of the Financial Policy of Companies in the Mineral Sector on Business in the Mineral Economy*

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Abstract: *The economic or economic system is an expression of the totality of socio-economic relations in the country at a certain time and is characterized by great diversity and complexity. The analysis of the economic system, as an economic category, includes the study of the associated business systems including the mineral sector with the corresponding mineral production. Business finance of companies in the mineral sector, as a synonym for financial management, represents the process of creating financial conditions for the efficient achievement of selected financial goals, with special specifics in the mineral sector. In the modern turbulent business conditions of companies in the mineral sector, market changes are taking place in a particularly specific market of mineral raw materials, which are directly reflected in the economic results and financial success of these companies' operations. Achieving financial liquidity of companies in the mineral sector with the highest profit rate is the central motive in the market conditions of the mineral economy of the country, which affects the financial management, which should ensure a competitive market position for the company with its appropriate financial capacity. Creation and implementation of the policy of optimal financial placements while dynamically maintaining the optimal degree of company liquidity is the fundamental goal of managing the business finances of companies in the mineral sector as part of the mineral economy. The financial policy of a mineral sector company essentially refers to the company's basic financial goals and to finding the most favorable methods and procedures for achieving the goals of a mineral sector company, so that it represents the basis of the company's financial management. At the same time, the financial policy is based on the integral business policy of the company, in accordance with the set business goals of the mineral sector company. Determining and choosing the goals of the company's financial policy should also take into account their variability. For a more complete understanding of the company's financial policy, it is necessary to plan, implement and monitor basic financial processes, as the basic activities of financial management in the mineral economy. In a complete consideration, financial policy includes three separate financial processes: (a) Acquisition of financial resources; (b) Use of financial resources, i.e. their placement; and (c) Monitoring the company's liquidity, through the process of harmonizing the inflow and outflow of funds, i.e. the permanent settlement of obligations with an increase in the profitability of investment of funds with mineral production.*

The policy of obtaining the financial resources needed by the mineral sector company includes the financial management phase in which financial decisions are made on: (a) The required volume of the company's funds; (b) Ratio of necessary fixed and working capital for mineral production; (c) Sources of financial resources to be obtained; (d) Ratio of own and other's funds; and (e) The terms of engagement of assets, taking into account the ratio of long-term and short-term assets of companies in the mineral sector. The main goal of the financial policy of mineral sector companies is to achieve a permanent balance between the acquired funds and their investment in the next phase of financial management in the country's mineral economy.

Keywords: *Financial policy, Mineral sector, Mineral economy, Mineral market, Mineral production*

* The work is the result of a scientific research project financed by the Ministry of Science, Technological Development and Innovation of the Republic of Serbia based on Contract no. 451-03-65/2024-03/200126.

Impact of Economic Conditions on the Risk of Clean Energy Markets: An Analysis by Sector Using Wavelet Techniques

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Abstract: *Exploring the relationship between clean energy markets and business development is key to ensuring progress towards global sustainability. In the current context, where the energy transition is at the centre of environmental and economic policies, understanding how economic conditions influence clean energy markets becomes crucial. The main objective of this study is to understand this dynamic by analysing how variations in business conditions in the United States, captured by the Aruoba-Diebold-Scotti (ADS) index, affect risk in segmented clean energy markets. The study is based on daily data from 2013 to 2023. The study uses advanced methods such as wavelet coherence and wavelet quantile analysis to investigate the interactions between the ADS index and clean energy markets, segmented into different sectors such as solar, renewable, biomass, wind and the Clean Energy General Index. These methods allow for a detailed analysis of how economic conditions affect market behaviour at different time intervals and in different market states, offering a richer view of the complex correlations between economic development and risk in the clean energy sector. Furthermore, the study goes beyond directly analysing these interactions by incorporating the quantile Granger causality test to understand the indirect effects of business conditions on the performance of clean energy markets. This means that the study analyses the direct relationship between the ADS and risk and investigates how the economic conditions index can indirectly influence the clean energy market through other underlying mechanisms. The results show that the ADS index significantly impacts the level of risk in these markets, with variations in different time scales and market conditions. For example, in certain periods or under certain market conditions, the ADS can have a more pronounced effect on solar energy markets, while in other contexts, the impact can be stronger on wind energy or biomass. The contributions of this study are important on several levels: By segmenting the clean energy market into specific indices, such as the Solar Index (SOLAR), Renewable Energy Index (RE), Biomass Index (BIO), Wind Energy Index (WIND) and the Clean Energy Index (WILDER), the study provides a more comprehensive analysis of how different energy sources respond to variations in economic conditions. In addition, the study offers innovative evidence on the impact of economic conditions, detected through the ADS index, on the risk of segmented clean energy markets. These findings are relevant for economists, policymakers, and investors as they indicate that the behaviour of the clean energy market is closely linked to the economic cycle.*

Keywords: *ADS Business Conditions Index, Clean energy market, Wavelet coherence techniques*

Hedging Effectiveness and Safe Harbour Characteristics of Green and Non-Green Assets: An Analysis of South Asian Stock Markets

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Abstract: *In this study, several methods are used, such as the tail risk estimators VaR and CVaR, the time-varying connectivity approach DCC GJR-GARCH and the cost analysis of hedging instruments, to investigate the safe harbour characteristics and hedging effectiveness of global stocks and bonds (green and non-green) relative to the stock markets of Bangladesh, India, Pakistan and Sri Lanka. The results show that the Bangladeshi stock market has lower downside risk in each quantile, but global financial markets offer effective protection relative to the Bangladeshi, Indian and Pakistani stock markets during periods of crisis. However, the Sri Lankan stock market does not benefit from this protection or from hedging by global markets. In addition, global green assets, especially green bonds, have the most robust hedging characteristics for South Asian investors. Finally, the implications for portfolio formation suggest that while traditional global equity assets are favourable for South Asian investors, global equities and bonds (green and non-green) are more cost-effective alternatives for investment protection, especially in the markets of Bangladesh, Pakistan and Sri Lanka. These results have important implications for the region's investors, policymakers and market regulators.*

Keywords: *South Asia, DCC-GARCH, Safe haven, Hedging effectiveness, Sustainable growth*

Blockchain and Artificial Intelligence in Accounting and Auditing: Improving Transparency and Efficiency in Business Practices

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Abstract: *This article is based on a review of the existing literature on the impact of blockchain technology on accounting, emphasising auditing enabled by artificial intelligence (AI). The main objective is to analyse how blockchain can improve transparency and reliability in accounting processes and assess how professionals can use blockchain data to optimise decision-making, taking advantage of its fundamental characteristics of immutability, continuous attachment structure, distributed sharing, decentralised verification and consensus. The multi-party validation of blockchain protocols introduces reliable real-time data to the AI systems used by auditors, raising the assurance and efficiency of processes. The review highlights four main emerging themes in the literature related to the changes that blockchain technology has brought to accounting records management: event-driven accounting, real-time accounting, triple-entry accounting and continuous auditing. The findings are interpreted in the light of agency theory and stakeholder theory to understand how the use of blockchain can mitigate information asymmetry and enhance collaborations between stakeholders. In addition, the study discusses the challenges and presents the reasons why many organisations remain cautious about adopting blockchain. Finally, it is recommended that future studies utilise this study in two ways: Firstly, by applying the themes and issues identified to improve business practices and regulatory policies, and secondly, by promoting collaboration between accounting professionals, system developers and policymakers in order to create blockchain ecosystems that support digital transformations in the accounting and auditing fields.*

Keywords: *Auditing, Accounting, Blockchain, Artificial intelligence*

The Adequacy of Auditing Standards in the Face of Blockchain Use: Auditors' Perspectives on Challenges and Opportunities

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Abstract: *This study aims to assess the relevance of current auditing standards in the face of the growing use of blockchain technology from the perspective of auditors. A qualitative approach was used based on content analysis, and semi-structured interviews were conducted with auditors to capture their perceptions of the ability of current auditing standards to address the challenges posed by blockchain. The results show a growing demand for specific information technology (IT) auditing standards and a significant time lag between the rapid evolution of the technological environment and the regulators' delay in updating or issuing new standards. These findings mainly reflect the views of external auditors, which limits the generalisability of the results to other geographical contexts. In practical terms, the results show that auditors consider current IT auditing standards to be vague and insufficient, with a need for greater clarity both in auditing blockchain-based systems and in using emerging technologies as auditing tools. The main contribution of this study is to provide a detailed analysis of the suitability of current auditing standards for auditing companies that adopt blockchain, a topic that has still not been explored in the scientific literature.*

Keywords: *Auditing standards, Blockchain, New technologies*

Challenges of the Audit for the Sustainable Development of the Western Balkans Region Using ISAS

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Abstract: *The strategic evaluation of auditing firms has advanced, contributing to broader operations and activities in the Western Balkans, particularly through the application of ISAs (International Standards on Auditing) and other forms of reporting throughout the year. This progress aims to enhance the sustainability of economic organizations undergoing audits.*

Steps involving continuous collaboration with business partners in the region reflect the need to provide essential information before issuing an auditor's opinion. By considering various options that audits collect to assess environmental changes, which, through business development, redefine the future of audit reports and professional relationships, new opportunities are created to generate greater long-term value for management, clients, and the selected country within the region.

Auditing is evolving and therefore must adapt to new security requirements through the application of certain accounting standards, which will be outlined in this paper, to continue advancing and realizing its full potential in meeting the needs of all audit users. All stakeholders are considered in improving the organization of clients, their investors, members of management, supervisory and audit boards, as well as regulatory authorities overseeing their operations. To further advance cooperation on strategy and in all matters covered by the sustainable development report.

Keywords: *Audit, Auditing standards, Western Balkans, Sustainable development, EU*

Analysis of Financial Statements Fraud Risk in the Case of Romanian Companies

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Abstract: *This study aims to investigate the fraud of Romanian trading companies' financial statements. To analyse the manipulation level of financial statements, we use the Roxas model with 5-factor, which is derived from the 8-factor Beneish model. The fraud risk detection is based on the financial statements of 3 375 Romanian trading companies between 2019 and 2022. The sample included companies whose operating profit reached 1 million euros between 2021-2022. The main aim is to investigate the trends in financial statement manipulation in the above-mentioned period. We also establish the similarities and differences between investigated trading companies according to sub-sectors and regions where they operate. The fraud risk detection model is based on a five-variable regression model. The 5 variables consist of 5 financial ratios, which are inspired by the Beneish 8 variables model. The Beneish model assumes that some factors encourage companies to manipulate their profits. These could include high revenue growth, increased operating costs, decreased gross margin, and increased leverage. Based on these, model includes ratios as Sales Growth Index (SGI), Gross Margin Index (GMI), Assets Quality Index (AQI), Receivables Turnover in Day Index (DSRI), Depreciation Index (DEPI), Leverage Index (LVGI), Sales, General, and Administrative (SG&A) Expense Index (SGAI), Total Accruals to Total Assets (TATA). Compared with the Beneish model, the modified Roxas model considers that some variables (SGAI, LVGI, TATA) are less relevant, so it uses only 5 variables. In the Roxas model, the standard M-Score value is -2.76. Below this limit, the financial statements are unlikely to be manipulated (UM); between -1.78 and 2.76, the financial statements are probably manipulated (PM), and above -1.78, the financial statements are likely manipulated (LM). The preliminary results of our research suggest that a significant part of the investigated trading companies' (80%) financial statements is unlikely manipulated (UM).*

Keywords: *Financial manipulation, Beneish model, Roxas model, Trading companies, Financial statements*

Optimizing Institutional Banking Efficiency: The Strategic Separation of Client Relationship Management and Sales Management

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Abstract: *In today's fast-evolving financial landscape, investment managers are increasingly facing challenges in balancing client relationship management with sales management. While these two functions have traditionally been intertwined, recent shifts in client expectations, regulatory demands, and technological advancements suggest the need for a clearer demarcation between client relationship managers and sales roles. This paper explores the importance and benefits of separating these functions in institutional banking, highlighting its impact on operational efficiency, client satisfaction, and overall profitability. This research employs qualitative methods to examine the implications of separating client relationship management from sales management. A focus group consisting of five banking professionals was conducted to gather insights. The participants represent a range of different financial companies to provide a client perspective but also a client relationship manager and sales manager perspective in order to allow a holistic discussion on the topic. Preliminary findings suggest that the separation of client relationship management and sales management can lead to better outcomes for both clients and the institution. Client relationship professionals who are not burdened with sales targets are able to foster deeper, more authentic relationships with clients, which in turn enhances client retention and long-term value. Meanwhile, sales teams can adopt a more focused, data-driven approach to targeting potential opportunities, leading to higher success rates and increased revenue.*

This study concludes that, although the separation of client relationship management and sales management may not be universally applicable across all institutions, it presents a promising model for banks seeking to optimize their operational efficiency and client service. Future research is recommended to further explore the long-term effects of this separation on client loyalty, satisfaction, and institutional profitability compared to a unified approach where sales management and client relationship management are not separated or explore the wholesales side of the investment management business instead of the institutional client side.

Keywords: *Client Relationship Management, Sales management, Investment management, Strategy, Banking*

Market Competitiveness After the 2008 Global Financial Crisis: A History of European Trends

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Abstract:

Purpose of the research. *Market competitiveness has been profoundly affected by the international financial crisis that hit all economies in almost the entire world in 2008. More than fifteen years have passed and the scenarios have changed. The 2008 crisis was followed by the pandemic crisis; the pandemic crisis was followed by the energy crisis and the Russian-Ukrainian war; and the latter was followed by the conflict in the Middle East. All these events have affected the competitiveness of companies, generally in a negative sense, causing increases in costs (energy, transport, raw materials, etc.) as well as contractions in demand. In light of these premises, the research aims to reconstruct the trend assumed in the last twenty years by some variables, representative of the competitiveness of companies, with particular regard to the European Union.*

Methodology. *As representative variables of competitiveness, the research has assumed those that, as generally recognized in literature, are most suitable to indicate the economic solidity of a nation or a group of nations. To this end, the variables considered are: GDP per capita, final consumption expenditure, gross national income per capita, population, and employment. The geopolitical area analyzed is the European Union and the observation covers the twenty years 2004-2023. The choice of such a long period was determined by several factors. First of all, the research considered significant to take into account the situation existing before the 2008 crisis in order to understand if there were ongoing trends that had already begun and their type. In fact, only through a term of comparison is it possible to perceive the extent of the decline that occurred after the aforementioned crisis. Secondly, the research aimed to analyze a large number of years after the start of the crisis to understand whether or not there was a return to the levels before the global financial collapse. To this end, it is necessary to remember that the recovery of the subsequent period was interrupted by the further crises - the pandemic and the wars - mentioned above.*

Findings. *First, the study shows that not all variables were equally affected by the crisis. GDP per capita suffered a collapse in 2009, just when the effects of the crisis were fully manifested. However, the recovery occurred quite quickly and was complete from 2011 onwards. A further fall occurred in 2020 but by 2021 the recovery had already taken place completely. Final consumption expenditure, on the other hand, did not show contractions due to the 2008 crisis but instead remained stable and slightly increasing, showing a real surge after the pandemic. The population trend has not suffered any repercussions either from the 2008 crisis or from the pandemic. The employment level has fluctuated more than the population but has not shown drastic drops. Finally, as regards gross national income per capita, due to the lack of data, the analysis considered only the period 2019-2023, during which the variable showed a significant drop, coinciding with the pandemic, then gradually but slowly recovered. Aimed benefits for a reader. The study can contribute to the analysis of European economic trends over the last twenty years, i.e. over a period that has been affected by three international crises.*

Keywords: *Competitiveness, Economic crises, Europe, Consumption, GDP, Employment, Gross national income, Population*

Role of Intangible Trade In Global Value Chains: Firm-Level Evidence

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Abstract: *This paper deals with GVC participation at firm-level and analyses the role of intangible trade (i.e. services) on a firm's technological sophistication and more broadly on its performance, whereby the latter is proxied by the unit value of a firm's exports. Services play an outsized role in international trade – more specifically, as per traditional trade statistics, around a fifth of world gross trade consists of services trade, whereas in terms of gross value-added trade, services account for around a half; with both shares increasing with time. Furthermore, services can be described as the glue holding value chains together, as they enable the connection of different manufacturing stages across countries through means such as transport and telecommunications, which in turn enables GVCs to endure. Hence, this paper delves deeper than the existing firm-level GVC literature, as the vast majority of the field's research focuses solely on trade in goods. Conceptually, this paper argues that services can be considered analogously to goods in both the analysis and measurement of GVCs. For an articulation of the status of a firm's GVC participation, this paper follows the approach as proposed in Stemberger & Zajc Kejžar (forthcoming), which includes a novel numerical measurement of a firm's GVC participation at firm-level, encompassing both backward and forward linkages, akin to the macro-level measure. Focusing on the Slovenian economy during the 2013-2022 period, the study includes the entire population of firms. The paper benefits from access to the following databases: (i) transaction-level trade data at the 8-digit level of the European Combined Nomenclature classification provided by the Statistical Office of the Republic of Slovenia (SORS), (ii) detailed transaction level trade in services data for a sample of Slovenian firms by Bank of Slovenia and (iii) information on firms' cross-border direct investment (FDI) inflows and outflows provided by the Bank of Slovenia. Methodologically, the paper utilises the GMM method to assess the effects of trade in services on the firm's unit value of exports. The coefficients of interest are those that represent the effects of both country-specific and general dummies that have value 1 when a firm showcases trade in services – whereby the paper differs for exports and imports – in the same year as for the trade in goods (and to the same market for the case of country-specific dummies) and those that correspond to the inward or outward FDI (both in general and country-specific). Preliminary findings indicate that trade in services (both import and export transactions) has a significant effect on the firm's unit value of exports, however, whereas the import of services has a largely positive effect, the export of services can have negative effects.*

Keywords: *GVC participation, Intangible trade, Services, FDI*

The Role of Environmental Disaster Risk Management in the Prevention of Environmental Crime and Endangerment of International Security

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Abstract: *Modern conditions of material production in various enterprises require a special environmental approach, which will enable: (a) successful implementation of the production process; (b) security in all stages of the production in question; and (c) environmental security for the environment, ecosystems, people and material goods. Depending on the complexity of the technological process, a specific scope and structure of the risk assessment must be performed: (a) of the production process; (b) enterprise operations; and (c) environmental accidents and especially potential disasters. In the analytical set of risks from an environmental point of view, the third part is particularly significant, which is specific, multidisciplinary complex and particularly sensitive for risk analysis. Risk management is a continuation of other management functions in the enterprise, which include: (a) strategic; (b) operational; and (c) quality management. According to the basic and operational principles of management, successful risk management should ensure the implementation of the appropriate business policy of the enterprise aimed at targeted and modern risk management, with a special analysis of environmental aspects. In doing so, it is necessary to identify risks, measure the frequency and impact of risks, monitor risks, reduce risks and diversify risks, in order to provide a reliable business environment for carrying out material production and business processes for preventive reasons, with special minimization of the risk of accidents and environmental disasters. Environmental crime represents one of the very pronounced negative impacts of modern man and enterprises as economic subjects on the environment, living and working environment of man and society. Environmental crime as a complex socio-legal phenomenon is a reflection of modern social relations, and its existence is based on two types of assumptions: (a) Omission of a certain activity or its incorrect implementation, which causes damage to the environment in the form of pollution, degradation, accidents or disasters; (b) Existence of positive legal regulation as a basic condition for determining responsibility for environmental crime. Hence, the separation and analysis of environmental factors is very important in the overall concept of security, risk assessment and risk management for preventive reasons. Consideration of this relation is particularly related to issues of environmental criminology and environmental justice as part of the analysis of the impact of material production in question in the enterprise on the environment, issues of crimes against nature, as well as various accompanying security aspects. Modern endangerment and change in the dynamism of environmental problems, environmental security and environmental risks, especially in the part with changes in conditions and causes and environmental destabilization, have led to changes in the dynamics and structure of environmental crime, which has caused changes in the original approach to risk identification, risk assessment and risk management. Environmental crime is becoming a modern type of crime, which represents a growing international problem and thus a very big problem of international security. Apart from classic analyses of environmental risks of accidents and disasters, in recent times special analytical attention has been paid to green criminology and the links between green crime, environmental destruction and the consequent issue of environmental refugees. This analysis also includes the economic aspects of the impact on the environment and especially the economics of climate change, in which risk management can make a very large analytical and preventive contribution and enable a significant improvement of the environmental condition and aspects of material production in enterprises.*

Keywords: *Risk management, Prevention, Environmental disasters, Environmental security, Environmental crime, International security*

Redefining Humanist Management in the Digital Era: Towards an Ethical Human-Technology Symbiosis in Organizational Practice

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Abstract: *The proposal in this study, based on a review of specialized literature, aims to outline a model of Augmented Humanist Management (AHM). Drawing on humanist principles, the potential of emerging technologies, and various models describing human-technology interaction, we attempt to provide a theoretical framework for addressing challenges in organizational management within the context of technological progress. The proposed integrative approach aims not only at operational optimization but also at enhancing human capabilities. AHM is based on the hypothesis that technology, when implemented within a framework that leverages the humanist perspective, can facilitate human development and augment human potential. According to this perspective, the employee is viewed as an active agent in a complex technological system, capable of engaging in creative and collaborative activities with high added value. AHM principles materialize in adaptive and responsible organizational practices that promote synergy between human competencies and technological capabilities. The operationalization of AHM involves reconfiguring work processes, developing augmented leadership competencies, and creating new organizational learning systems, among others. This transformation generates significant opportunities for innovation, but also challenges, especially of an ethical nature. From a methodological standpoint, a systematic literature review approach was adopted. The selection and systematization of the specialized literature were structured in successive stages: selecting bibliographic resource databases, searching by keywords, eliminating studies that were not consistently focused on the topic based on abstract analysis, and, finally, highlighting key aspects of the presented models. In essence, AHM provides a conceptual and applicative framework for managing technological complexity, promoting a vision where technological progress and humanist values mutually enhance each other. The benefits would consist of organizations much more centered on the human dimension and, through this, resilient and innovative.*

Keywords: *Augmented Humanist Management, Systematic literature review, Human-technology interaction*

A Gendered Analysis of Decision-Making in Earnings Management Strategies

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Abstract: *In the ever-evolving landscape of corporate governance, the role of women in leadership positions has emerged as a central force reshaping the contours of decision-making and financial management within organizations. The 21st century has witnessed a paradigm shift in recognizing and promoting gender diversity on corporate boards, a move driven not only by principles of equality but also by the potential economic and strategic benefits it promises. Given the fact that gender diversity on corporate boards and the earnings reporting quality are highly argumentative topics in the corporate environment and have been the focus of numerous prior research with mixed findings, this study investigates the impact of female participation in the board of directors as well as the impact of female CEOs on practices of accrual-based earnings management. Using panel data regression on the sample of 9,984 Balkan firms operating during the period from 2020 to 2022, we found that having a significant number of women on the board has a measurable impact on the explanation of earnings-management activities. Additionally, the findings indicate that female CEOs do not have a significant impact on conservative earnings management. This investigation adds to the ongoing discussion over gender diversity on corporate governance boards and its influence on the utilization of accounting judgment and flexibility in financial disclosure and decisions. By shedding light on this critical aspect of corporate governance, we aspire to inform corporate governance practices by highlighting the potential benefits of gender diversity in top leadership positions. Also, investors, particularly those with a focus on environmental, social, and governance (ESG) factors, can use the study's insights to make more informed investment decisions. Companies with diverse leadership teams may be perceived as having lower risks associated with earnings management. Policymakers and advocacy groups could leverage the study's results to advocate for policies promoting gender diversity in corporate leadership. Understanding the potential impact on financial practices could strengthen the case for implementing and supporting initiatives aimed at increasing female representation. At the end, organizations could develop targeted professional development programs to nurture and support female talent, fostering their advancement into leadership roles.*

Keywords: *Gender diversity, Female participation, Earnings management, Board of directors, CEOs, Balkan states, Panel data*

The Inter-Conditionality of the Managerial Power of the Organizational Structures in the Public Sector with the Existing Social Relations and the Beneficiaries of the Services Provided and Ensured to Them

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Abstract: *The evolution of a society is achieved through the relationship system and the existing authority system in the macro- and micro- environment of institutional power with the citizens of the community served. The awareness of belonging to the organizational structure and belonging to the related collective, impose a mutual conditioning and inter-conditioning that triggers the mechanisms and forms of manifestation of the institutional framework and conduct towards the institutional framework. The collective action possibilities are imposed by the measures of the institutional framework whose authority is legitimized by the public sector, implicitly by the state power. The community, seen as the set of direct and indirect beneficiaries of some public services, has a determining role in its compliance or lack thereof with the rules of the public sector. The organizational structures in the public sector have the power to orient the collective of beneficiaries of public services, towards certain legitimate goals to ensure the maintenance of the functioning of society and the normality of social relations, thus determining the capacity of the managerial power of the organizational structures in the public sector. The creation and application of institutional managerial norms is manifested in front of the beneficiaries of public services as the action-reaction to the needs and requirements of the collective and they have the role of ensuring a balance in the functioning of an authentic system of managerial power of organizational structures in the public sector. Thus, a mutual influence is ensured, through which public sector managers ensure the management of activities in society and receive the interests of the beneficiaries of public services, channeled towards ensuring the general interest, in optimal conditions and a positive economy.*

Keywords: *Public management, Managers, Public services, Collectivity*

How to Achieve Full Employment?: Functional Finance as a Modern Monetary Theory Approach

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Abstract: *The economic consequences of the recent COVID-19 pandemic have revived discussions of alternative policies aimed at increasing aggregate demand and achieving full employment. In this context, according to the functional finance approach (functional approach to fiscal policy), policymakers should focus on the functional output of the policies implemented; that is, the real effects they create in the economy, rather than their impact on the budget. The state has the power to achieve full employment and price stability and should use its power in this direction. This study aims to examine the functional finance approach within the Post-Keynesian theory, which advocates that full employment can be achieved through the state's role as the employer of last resort, and to discuss the applicability of these policies in developing countries.*

Keywords: *Modern Monetary Theory, Functional finance, Employer of last resort*

The Impact of Intellectual Capital on Productivity in Transportation and Storage Firms

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Abstract: *This study conducts a systematic literature review and quantitative analysis to investigate the influence of intellectual capital on firms' productivity in the NACE H – Transportation and Storage industry. The analysis is based on panel data obtained from the Thomson Reuters database in Refinitiv workspace. The study examines the impact of intellectual capital components such as human capital, relation capital, structural capital, and innovation capital, which are calculated using the MVAIC method. This research provides original insights by offering a comprehensive overview of the role of intellectual capital components and their effect on productivity in the transportation industry.*

Keywords: *Intellectual capital, Productivity, MVAIC*

Enhancing Strategic Business Development Through Digital Marketing and Paid Advertising Strategies

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Abstract: *The paper explores how digital tools and platforms can enhance the growth and competitiveness of business entities. In today's fast-paced business environment, where digital transformation is critical, the paper focuses on the strategic implementation of digital marketing to achieve long-term business objectives. The primary goal of this research is to identify the key success factors that enable faster and more efficient acquisition of new customers, increased brand awareness, and the enhancement of customer loyalty, specifically through the use of paid advertising campaigns.*

The research places particular emphasis on the vacation rental sector, a growing industry with a highly competitive market. The paper presents both quantitative and qualitative analyses. The quantitative analysis examines key metrics such as the number of bookings and overall revenue, providing data-driven insights into how paid advertisements impact business growth. In contrast, the qualitative analysis is based on in-depth interviews with vacation rental property owners, shedding light on their perceptions of different marketing strategies, including paid advertisements and organic growth.

The results of the research are clear: businesses that incorporate paid advertisements into their marketing strategies achieve significantly better results in terms of bookings and revenue compared to those that rely solely on organic growth and customer referrals. This can be attributed to the increased visibility and audience reach that paid ads offer, especially on popular digital platforms such as Google Ads, Facebook, and Instagram. Paid ads allow businesses to target specific demographics, which significantly improves the chances of converting leads into customers.

Key aspects of the research highlight the importance of understanding the behavior and needs of the target audience. The ability to tailor marketing messages based on user data and preferences plays a pivotal role in campaign success. Additionally, the use of advanced analytical tools to track campaign performance and make data-driven adjustments ensures that businesses are not only reaching their intended audience but also doing so efficiently. The research emphasizes that strategic use of analytics allows businesses to optimize their marketing spend and achieve a higher return on investment (ROI).

The paper also focuses on the importance of branding through digital channels. Consistent communication, engaging content, and active social media presence enable businesses to build a recognizable and trustworthy brand. This is particularly crucial in the vacation rental sector, where customer trust is a key driver of bookings. Engaging directly with customers through social media platforms helps create a sense of loyalty, encouraging repeat business and positive word-of-mouth.

Another important finding of the research is the role of continuous testing and optimization in digital marketing campaigns. The study highlights the effectiveness of A/B testing in refining ad content, visuals, and calls to action. By testing different versions of advertisements, businesses can identify which approach resonates best with their target audience, leading to higher conversion rates. This iterative process of testing, learning, and adapting is vital for staying competitive in a crowded market.

Moreover, the research underscores the importance of proper audience segmentation. By dividing the target market into smaller, more specific groups based on demographics, behavior, or purchasing habits, businesses can craft personalized messages that speak directly to the needs of each segment. Personalization is a proven strategy for increasing customer engagement and driving sales.

In conclusion, the paper argues that digital marketing, when properly integrated into a company's strategic development plan, provides numerous advantages. These include increased visibility, higher revenue, and improved customer loyalty. The implementation of paid advertisements plays a key role in achieving faster growth and sustaining long-term business success. By following the guidelines and best practices outlined in the research, companies can optimize their digital marketing strategies and gain a competitive edge in their respective markets.

Keywords: *Digital marketing, Key success factors, Paid advertisements, Revenue growth, Vacation rental business*

Applying the 7Ps of Services Marketing for Religions

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Abstract: *Religious marketing has become an area of research only recently. Probably this is one of the reasons why there is no exact marketing model for this segment. However, with the emergence of new religious movements and religious pluralism, there is an increased need for marketing strategies for religions too. Many categorizations have happened, which include the areas of social marketing. In this study, Krishna Consciousness was taken as an example since this religious community has achieved great results in spreading knowledge in the Western world. Observations in communities devoted to Krishna Consciousness, content analyses and a survey with the participation of 667 visitors of the above-mentioned communities were carried out to analyze the marketing activities of Krishna Consciousness in Europe. The study has shown that promoting Krishna Consciousness has a strong focus on tourist destinations and, therefore has a lot in common with tourism marketing. In the case of Krishna Consciousness in Europe, there are two steps of the model, the first one focusing on touristic destinations related to the religion, and only the latter focusing on the religion itself. In the case of marketing touristic destinations, the 7Ps of services marketing are often applied, and this study has shown that they can be relevant in the case of Krishna Consciousness as well.*

Keywords: *Marketing mix, Religious marketing, Religious tourism, 7P*

An Empirical Examination of Customer Repurchase Behavior in E-commerce

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Abstract: *As e-commerce continues to grow at an accelerated pace, gaining insights into customer purchasing patterns is essential for businesses aiming to stay competitive and cultivate loyalty. Repurchase behavior forms a key component of customer lifecycle management, especially in highly competitive markets where consumers have numerous alternatives. This study investigates online customer repurchase behavior, leveraging 26 months of transactional data from the biggest Albanian e-commerce company. It analyzes the frequency and intervals between purchases, providing a comprehensive look at repurchase patterns. Using data preprocessing techniques, exploratory data analysis (EDA) and Cohort Analysis by making use of Python programming language, this research identifies temporal patterns and trends in customer behavior. These methods offer a robust framework for analyzing purchasing dynamics, helping to uncover insights about consumer habits over time. Compared to e-commerce industry benchmarks, the results reveal a lower-than-expected customer retention rate and similar purchasing behavior across different cohorts in terms of frequency and inter-purchase intervals. The findings provide actionable insights for e-commerce firms and marketers, enabling them to fine-tune their marketing efforts, improve campaign timing, and ultimately boost ROI and revenues through better customer engagement.*

Keywords: *Customer repurchase behaviour, Interpurchase time, Exploratory data analysis, Cohort analysis, E-commerce*

Comparative Analysis of the Efficiency of the Education System in the Republic of Croatia and Selected OECD Countries

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Abstract: *The paper analyses the Croatian education system and provides an overview of the cycle of preschool education, the structure of the elementary school system, secondary school education, and university and professional studies in higher education. The importance of access to education under equal conditions through legal regulations and obligations is emphasized. The demographic context of education in the Republic of Croatia was also investigated, with a focus on population data according to different educational structures. The growth of education over the years is analyzed, as well as the changes in the educational structure between the 2001 and 2011 censuses. Additionally, the paper explores the concept of human capital, emphasizing the importance of higher education in its development. Special attention is paid to the importance of investing in human capital through education, training and healthcare, and monetary indicators of investing in human capital are also provided. The purpose of the research is to deepen the understanding of the education system in Croatia and OECD members, with special emphasis on the key importance of investing in Croatian education. The objectives include a detailed explanation of the Croatian education system, the identification of key factors that influence its performance, and an assessment of the efficiency and quality of the system in comparison with individual OECD members. Through the analysis of the demographic context, legal regulations and the cycle of education, the research emphasizes the principle of equal access to education. The main goal is to evaluate the level of efficiency of the Croatian education system, especially by investigating the connection between investment in education and the development of human capital, with a focus on economic results and the prosperity of society. The research results indicate that Croatia invests significantly in higher education, similar to Norway and Sweden, less than Switzerland, but more than France. Nevertheless, it is important to further monitor and compare investments in order to ensure the continuous efficiency of the Croatian education system.*

Keywords: *Croatian educational system, Education demographics, Human capital, Higher education, OECD*

Artificial Intelligence for Academic Entrepreneurship Encouraging

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Abstract: *Economic theory once again addresses the role of the entrepreneur. The differences observed are rooted in on evolving changing role of universities and the anticipated expected transition to Industry 5.0. Focusing on the role of the "entrepreneur" and the process of entrepreneurship with/within the university/academia support we could find stages of understanding the common "academic entrepreneurship". Thus, the focus of this paper is on successful "produced" entrepreneurship, specifically entrepreneurial businesses, mindsets, and behaviors at universities. In light of social and economic trends, the main hypothesis is that technological changes necessitate a new approach to academic entrepreneurship and entrepreneurial systems. However, universities are not fully adapted to these changes, particularly in developing countries such as Bulgaria. Accordingly, the paper focuses on entrepreneurial skills and their training at universities. The primary aim of the paper is to explore how to adapt conventional economic training to foster an academic entrepreneurial mindset. Utilizing the methodology outlined in the European Entrepreneurial Framework, the author presents results from a study conducted before and after training on developing an entrepreneurial mindset. The paper is structured as follows: The first part analyzes the evolving role of universities in fostering business-academic collaboration. The second part presents essential entrepreneurial knowledge that is relevant in today's world. The third part discusses the results of contemporary entrepreneurial education at UNWE-Sofia. Finally, several recommendations are provided for organizing virtual co-creation and co-working clubs for academic entrepreneurs.*

Keywords: *Academic entrepreneurship, Entrepreneurship profile, Entrepreneurial potential*

Entrepreneurship Education – How a Dedicated Entrepreneurship Hub Could Enhance the Entrepreneurial Mindsets, Attitudes and Competencies Among Students

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Abstract: *The purpose of this paper - The purpose of this paper is to identify key areas where universities could take action to improve entrepreneurial programmes, especially extracurricular activities. Of course, since business faculties aim to develop professional competencies, knowledge, and skills related to management and entrepreneurship, other faculties (in the domain of science, especially) do not place on the priorities list entrepreneurial education. At least, these are the findings of a short investigation performed by the author among Romanian universities. At the same time, they intend to develop students' entrepreneurial competencies and intentions through extracurricular activities. This case study intends to present this path of entrepreneurial education in Romania, by extracurricular activities. This study aimed to investigate the way a university could develop efficient entrepreneurial programmes and activities. To better comprehend this process of competency development, we focus on the University of Bucharest, which offers a very suitable context for such an investigation. Design/methodology/approach – This paper provides some views based on the extensive experience of developing students' activities around the Entrepreneurial UB (UNIHUB), between 2017-2024. Student Entrepreneurial Schools (SAS – the abbreviation in Romanian) are important stepping stones toward the development of an entrepreneurial society. In this paper, we will present a particular project conducted by the University of Bucharest, to develop an entrepreneurial hub for the students who are part of the University of Bucharest (UB) to benefit from. This type of project is an inevitable part of the ongoing transition process toward an innovative economy, one that has a strong digital component. One cannot act on their own anymore, as there are strong links between stakeholders, not only on a local level but on the global scene as well. The university should play an active role in this transformation through supporting research, innovation, and entrepreneurial spirit build-up in its members. Any university should include, in its strategic and operational plan, a focus on educating and cultivating those relevant values, attitudes and competencies concerning excellence in research, education and employability. The relationship with the business environment should be a priority and through examples of good practices (such as UNIHUB) the higher education institution can stimulate active partnerships and the development of curricular and extracurricular activities in alignment with nowadays cognitive society. Findings and impact – This paper offers some examples of the development of entrepreneurial university hubs. The findings could be helpful for practitioners, researchers, and teachers to consider in overcoming possible challenges faced by academia in developing entrepreneurial mindsets and competencies. As the University of Bucharest supports an entrepreneurial ecosystem based on an interdisciplinary approach and innovation, UNIHUB is a perfect network node that connects stakeholders, facilitates communication between them, improves entrepreneurial culture and supports entrepreneurial initiatives, all for easier integration of its students in the labour market and their professional competencies development.*

Keywords: *Entrepreneurship, Education, Innovation HUB, Entrepreneurial competencies, Mindset*

Precision Agriculture in Croatia

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Abstract: *In recent decades, the use of technology in agriculture has expanded, leading to the concept of precision agriculture. Although technology has been in use since the mid-20th century, when the mechanization of agriculture gradually modernized the way soil is worked and harvested, the beginning of precision agriculture dates back to the beginning of the 21st century, when GPS technology and sensors were introduced. In the last 10 years, drones have been used all over the world and it became possible to collect data for later analysis. Over time, this technology became affordable for farmers and suitable for everyday use. Artificial intelligence (AI) and the Internet of Things (IoT) are now being used to collect data in real-time, enabling farmers to make better decisions with the help of AI. The appeal of the concept of precision agriculture lies in the opportunity to improve the efficiency and sustainability of agriculture. By using available technologies, the aim is to make optimal use of resources (such as water, pesticides and fertilizers), reduce costs, increase yields and reduce the negative impact on the environment. However, farmers face many obstacles. The initial cost of adopting precision agriculture technologies is high, as the introduction of the technology requires significant investment in equipment, software, sensors and training. Managing and using sophisticated technology is a major challenge for farmers as it requires technical expertise and ongoing training. Maintaining the equipment can significantly increase operating costs. A poor internet network in rural areas can make it difficult to use digital systems. Perhaps the biggest issue is matching the technology to the size of the business/operation so that the investment and use of the technology lead to improved efficiency.*

This study aims to investigate and analyze the advantages and disadvantages of using precision agriculture and to examine the use of precision agriculture technology and concepts in Croatia. Although precision agriculture is being used more and more in Croatia, it is expected that the results of the conducted analysis will show that it is not used to the same extent as in the more agriculturally developed countries of the European Union. This is due to the fact that Croatian farmers are, on average, small producers who cultivate less than 5 ha of land and have problems with accessing, training and financing the technology. Although the possibility of funding from EU funds exists, small farmers are not interested in applying for EU funds due to the complicated bureaucracy. After analyzing the current state of the use of precision agriculture in Croatia, recommendations are given for the further development and integration of precision agriculture in Croatia in order to increase the competitiveness of Croatian farmers.

Keywords: *Technology, Precision agriculture, Croatia, Competitiveness of Croatian farmers*

End Results of Clinoptilolite and Organic Compost Application on Vitis Vinifera L., San Miniato and Montalcino Vineyards

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Abstract: *Soil management has an important role in mitigating the effects of climate change on viticulture. Furthermore, optimizing the composting method in closed-loop chains can effectively address the problem of waste (i.e. pruning residues) in viticultural areas. This experiment was created to improve the quality of the grapes in the vineyard in terms of sustainability through the application of a new soil improver (ZeoWine; 30 t/ha), deriving from the process of composting industrial wine, waste, and zeolite. In two companies in the Tuscan area, more comparative treatments were applied with respect to the new by-product (i.e., Zeolite, Compost, and Control). Measurements of single-leaf gas exchange, midday leaf water potential, and chlorophyll fluorescence were performed. Furthermore, the parameters of plant yield, technological maturity, anthocyanin fractionation, and quercetin content in the grapes were analyzed. The new by-product showed less negative water potential, higher photosynthesis, and lower leaf temperature. Additionally, it showed lower levels of quercetin. Finally, the interaction of the beneficial results of Zeowine was highlighted by the increase in water efficiency, the improvement of the quality of the grapes, and the closure of the production cycle of waste material from the viticultural supply chain.*

Keywords: *Viticulture, Soil management, Zeolite, Grapes quality*

Labor Law Opportunities in Kosovo*: Raising Standards and Support for Workers

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Abstract: *Over the years, the labor law in Kosovo* has evolved as an essential instrument for the protection of workers' rights, offering new opportunities to raise labor standards and provide sustainable support for the development of a fairer labor market. This study examines Kosovo*'s labor laws, emphasizing the Labor Law's accomplishments and future prospects. Notwithstanding the difficulties, the legislation offers a solid basis for defending employees' rights, such as those related to working hours, vacations, and anti-discrimination. Both qualitative and quantitative analysis are employed in the technique, which also includes surveys of employers and employees, interviews with subject-matter experts, and a study of the body of research on labor law and its application. This method enables us to pinpoint both obstacles and areas in need of development. The study examines how workers may be better informed and educated, and how the labor inspectorate can be strengthened, to enhance the way this law is implemented. The study also investigates the advantages of formal employment and the significance of laws that force companies to abide by the law. This study presents a positive outlook on the future of labor in Kosovo*, viewing the legislation as a means of achieving improved working conditions and long-term economic growth.*

Keywords: *Labor Law, Workers' right, Informal employment, Labor standards, Development policy*

* Under the UN Resolution 1244.

ISBN 978-86-80194-88-2