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“Artificial intelligence (AI) – key to solve tomorrow's challenges - Digitalization in a Global Context”

16th November 2023, AGH University, Crakow, Poland

BOOK OF ABSTRACTS

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Foreword

The development of the digital technologies created the digital divide that needs to be overcome. This volume provides an overview of scholarly contributions presented at the International Scientific Conference titled “Artificial Intelligence (AI) – A Key to Solve Tomorrow's Challenges - Digitalization in a Global Context.” Hosted on the 16th of November 2023 at AGH University in Krakow, Poland, this conference was one of the events organized within the project Overcoming Digital Divide in Europe and Southeast Asia (ODDEA).

This publication aims to provide diverse perspectives that have a common goal: to understand, analyze, and strategize the role of AI and digitalization within a global context. The work presented here provides an interdisciplinary perspective reflecting the views from economics, social sciences, cybersecurity, education, and other fields and provides insights from both European and South-East Asian institutions.

This volume provides diverse perspectives including such topics as the study of Thailand's public sector digitalization strategies, a sentiment study on the broader aspects of digitalization, and an in-depth exploration of the role of Foreign Direct Investment (FDI) in digital readiness across Central and Eastern Europe and the Balkan region. Each abstract illuminates the multifaceted nature of digitalization and its deep impact on our societies.

A bibliometric analysis illuminates the comparative developments of digitalization of SMEs in Malaysia and Poland, in such contexts as the state of digital workplaces, broadband connectivity, and digital economies across countries like Indonesia, Hungary, Montenegro, and Thailand. These comparative studies not only highlight the similarities and differences but also identify the factors that influence digitalization's trajectory in these regions.

The volume also places a spotlight on the digital divide, which is a critical issue that the ODDEA project seeks to address. From the assessment of the impact of digital e-learning to the examination of banking app trust in the EU and Southeast Asia, each contribution represents a piece, which allows to provide a comprehensive view on the problem. The studies on cybersecurity in Montenegro and e-wallet payments in Malaysia represent examples of studies, which reflect the interplay between technological advancement and societal trust.

Moreover, the strategic index comparisons provide an analytical framework for understanding the positioning of countries like Thailand within the broader context of Europe and South-East Asia. As we consider the human aspect of digitalization, we look e.g., into its influence on human capital and sports and assess how these domains adapt and evolve in the environment of ongoing digital transformation.

The journey toward digital inclusivity is ongoing and complex. It requires a concentrated effort that is both local and international in scope. The abstracts contained in this volume can also serve as catalysts of change, which are aimed to inform policymakers, educators, and industry leaders on how to build a more inclusive digital future.

We would like to invite you to immerse in the content of this volume not only as a reader, but also as a person, who is a member of the digitalization process. We hope that by the end of this volume, you will have gained a richer understanding of the digital landscape and the collective efforts required to ensure that no one is left behind in the digitalization process.

Also, let this volume provide a record of state of research on bridging the digital divide addressed by the ODDEA project and sharing our vision and sharing undergoing research for a more connected and inclusive tomorrow.

Anetta Čaplánová
ODDEA project coordinator



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Decrypting Thailand’s Public Sector Digitalization Strategy

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Abstract

This research evaluates the current state of digitalization in the public sector across Southeast Asian countries with specific focus on Thailand taking into account key objectives such as social considerations, economic implications, and technological facets.

Against the global backdrop of rapid digital proliferation, Southeast Asia emerges as one of the world's fastest-growing regions in digital device adoption. Governments in the region are increasingly leveraging digitalization to optimize public service delivery, streamline administrative processes, and catalyse economic growth.

Digitalization stands as a transformative force reshaping societies, economies, and political landscapes. The potential for enhanced citizen interaction, inclusivity, and accountability in public services is particularly promising. However, bridging the gap between intentions and outcomes remains a challenge, as evidenced by empirical studies highlighting disparities in effectiveness, efficiency, transparency, and responsiveness.

Preliminary findings from Thailand highlight the government's encouragement for digital service adoption, with over 80 public services available online. However, barriers persist, including limited internet access, insufficient ICT skills across generations, and concerns about the maturity and quality of online service delivery. The research emphasizes the importance of addressing these barriers through encouragement rather than force, recognizing channel choice as a political priority and a citizen's right. The study aims to identify best practices and present recommendations to enhance the effectiveness of digitalization policies in the Southeast Asian public sector.

JEL classification: O 14, O 33, Z 18, H 76

Keywords: Digitalization, Public sector, Public policy

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Sentiment study of the digitalization

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Abstract

In March 2021, the European Commission presented the Digital Compass for 2030, with targets in the areas of digital skills, infrastructure, businesses and public services. However, while digital transformation often makes life and work easier, it doesn't always match the skills of individuals. Some people may feel excluded due to low skill levels. Others may fear digitalization because of job loss or the risks associated with new technologies.

The purpose of the study is to construct a sentiment factor based on the level of fear and satisfaction with digital transformation. To measure the level of sentiment toward transformation among individuals, we constructed a survey and conducted a pilot study.

The survey questions explore possible factors that influence the level of satisfaction and fear associated with digital transformation. When respondents complete questions about positive and negative areas of digitalization, they are somewhat prepared to assess their fear and satisfaction levels.

The pilot study included approximately 100 respondents for Poland. The respondents varied in age, education, and place of residence. Using machine learning tools, we found that online services provided by the government have the greatest impact on satisfaction with digitalization, while fear of the development of artificial intelligence has the greatest impact on fear of digitalization. The pilot study results are promising, so the next step is to clarify the survey questions and expand the study to other countries. Knowing the sentiments of individuals is important for the European Commission's actions regarding digitization development plans in specific countries.

JEL classification: B55, E44

Keywords: sentiment indicator, survey study, digital transformation

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The role of FDI in digital readiness of CEE and Balkan countries

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Abstract

The paper deals with the role of the foreign direct investment in enhancing technology and digitalization in central and southeast European countries. Frontier technology readiness index is the variable, the investment would affect by increasing its score. Apart from the foreign direct investment, 12 variables are used in panel regression analysis. The variables represent different fields as the performance of the economy, international trade, labour, education, research and digital infrastructure. The data used consist of 17 cross-sectional units – countries from central and southeast Europe and 12 time series – period 2008-2019 for which is the Index available. Result indicates that the foreign direct investment inflow has positive and statistically significant effect on the score of the Index. It means that the higher the FDI inflows to a country, the higher score in the Index is achieved. Following the result, foreign direct investment might be considered as the factor enhancing the digitalization, technology improvement and country readiness to use, adopt or adapt advanced technologies. The result confirms the technological spill-over effect of foreign direct investment to host economy.

JEL classification: F 21, O33, O 52

Keywords: digitalization, Frontier Technology Readiness Index, foreign direct investment, central and southeast Europe

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Bibliometric analysis on digitalization of SME: a comparison of research between Malaysia and Poland

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Abstract

In the rapidly evolving world of digitalization, small and medium-sized enterprises (SMEs) play a crucial role in driving economic growth and competitiveness. This bibliometric analysis scrutinizes the investigation encompassing SMEs digitalization in Malaysia and Poland, offering a comprehensive comparative outlook on research patterns and contributions in these two countries. The investigation underscores the critical significance of digital technologies, in fostering innovation and augmenting organizational performance. It accentuates the necessity for SMEs to acknowledge strategic opportunities and exploit digitalization for sustainable firm performance. Moreover, this study provides an in-depth analysis of the research landscape in Malaysia and Poland, shedding light on the unique approaches, methodologies, and areas of focus in each country. It delves into the specific challenges and opportunities faced by SMEs in these two distinct regions in their digitalization journeys. By comparing and contrasting research trends, this analysis aims to identify the convergences and divergences in strategies and outcomes, thus offering a richer understanding of the global SMEs digitalization landscape. These findings furnish valuable insights for policymakers, researchers, and industry practitioners in designing strategies and initiatives to fortify SMEs in their digitalization campaigns, with a keen awareness of the regional variations. As digital technologies persist in shaping the business landscape, understanding these investigation patterns is of crucial

importance for fostering sustained growth and innovation in SMEs and facilitating cross-border knowledge exchange and collaboration.

JEL classification: O32, O33, L26

Keywords: digitalization, SMEs, Malaysia, Poland, bibliometric analysis

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Impact of digitalization on the Workplace - a comparison review between Indonesia and Hungary

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Abstract

The aim of this paper is to identify the possible similarities and differences regarding globalization and digital trends about future workspace models in the case of Indonesian and Hungarian managers and decision makers in private sector companies.

Based on the literature review, the full impact of globalization in the workplace has yet to be realized, but as more companies embrace this trend and become more diverse, certain changes are emerging. Digitalization has changed many aspects of the workplace and how people operate. Most of these have improved work life, created new opportunities, and given employees better tools to handle daily responsibilities. The workplace has benefited from digitalization thanks to new tools for collaboration and communication, data processing and analysis, and workflow orchestration and automation.

Our research questions is when a 'fashion wave' such workplace digitalization starts, does it find acceptance in different places at the same time? As part of our research, we will conduct a questionnaire for decision makers and managers in companies from the private sector both in Indonesia and in Hungary to compare the results.

We expect that the research will give us clear results about the background of the digital and modern new workspace trends and their adaptability and acceptance in the case of Indonesia and Hungarian companies' decision makers and managers.

JEL classification: R3, F6

Keywords: workplace, green, digitalization, office buildings

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A Comparative Analysis of Broadband Connectivity in Montenegro, Thailand, and Malaysia: Similarities and Differences

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Abstract

This paper presents a comparative study of broadband connectivity in two distinct geographical regions, Montenegro (Western Balkan region of Europe) and Malaysia and Thailand (South-East Asia). While all three nations represent emerging economies with unique challenges and opportunities in Information and Communication Technology (ICT), the analysis aims to shed light on the similarities and differences in their broadband infrastructure and emerging technology adoption. The methodological approach for this study primarily involves a comprehensive review of existing literature, government reports, and available statistical data on broadband connectivity, digital infrastructure investments, and Internet usage trends in Montenegro, Thailand, and Malaysia. Key aspects to be examined in this paper will be the comparison of the existing broadband infrastructure, access, and adoption rates of the new technologies, employed regulatory framework, digital inclusion activities of both governments and affordability of the broadband services.

JEL classification: L 86, O 33, C 81

Keywords: DESI index, broadband connectivity, broadband services, ICT

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SWOT Analysis of the Digital Economy in Indonesia

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Abstract

Digitalization is the process of transforming analog information into digital form. This process is occurring rapidly around the world, and it is essential for global economic competitiveness, innovation, and improved quality of life. Countries that do not embrace digitalization will be at a disadvantage in the global economy (Wade, 2015). Indonesia is one of the largest economies in Southeast Asia and its economy has grown rapidly in recent years (The World Bank, 2023). The country is predicted to emerge as ASEAN's largest digital economy (Das, 2016). To know Indonesia's readiness to become the largest digital economy country, this research studies the state of the digital economy in Indonesia, covering its strengths, weaknesses, opportunities and threats (SWOT). Digitalization significantly influences a country's economic growth and competitiveness. While growth and development in Indonesia's digitalization state have been rapid, there are still significant challenges and inequalities. As can be seen from the above study, Indonesia's most dominant weakness related to the digital economy is its low of DiGiX score, GDP per capita, Human Development Index, digital infrastructure, and digital skills or literacy. Countries with high DiGiX scores, such as Denmark and Singapore, also have high scores for those components. Thus, GDP per capita, Human Development Index, digital infrastructure, and digital skills or literacy are all indirectly correlated with the DiGiX score. On the other hand, Indonesia has strengths in GDP, population, and Business environment. To become the largest digital economy country, Indonesia needs to be able to capitalize on its strengths to overcome its weaknesses without ignoring the threats posed by the digital economy. As Indonesia's digitalization index rises, we can expect to see positive impacts on the economy, human development, and social inclusion.

JEL classification: O33, O53, L86

Keywords: Digital Economy, Indonesia, SWOT

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Automated Performance Evaluation of Language Models – Machine Translation from English to Montenegrin and English to Thai

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Abstract

The objective of the research is to evaluate the performance of contemporary language models in text generation in the Montenegrin and Thai language. The study aims to address the evolving challenges associated with assessing language model quality in the context of deep learning methodologies, considering the complexity and diverse applications of modern language models. The research emphasizes the use of context-agnostic metrics to comprehensively evaluate the capabilities of these language models, taking into account the varying criteria that different users may prioritize based on specific Natural Language Processing (NLP) applications. The goal of the research is to address language models performances on specific languages which may cause digital divide between regions. The chosen metrics, unconstrained by context and the role of the language model in an application, contribute to a comprehensive evaluation of the models' capabilities. Performance of 5 most popular language models were tested on 2 validated parallel corpora (en-mne; en-th) in terms of machine translation, using 3 well established metrics.

JEL classification: C55

Keywords: NLP, Data Science, Artificial Intelligence

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The impact of digitalization on economic growth in Balkan countries "theoretical review"

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Abstract

The Internet revolution and the dramatic development of technology have made most developed countries so digital that digitization has become a factor in countries' prosperity and progress, this study inquiries into the transformative impact brought by digitization on economic growth in the Balkan States. Employing the Panel Quantile Regressions (M.M.Q.R.), the data of different economic indicators is taken from the Mkiyes and Prívarva database 2023, of six Balkan countries from 2018 until 2022. This paper seeks prominently to analyze the relationship, if any, of “Full-Time Equivalent Telecommunication employees, telecommunication services annual investments, and ICT” on economic indicators like “GDP, GDP per capita, FDI, inflation, and unemployment” The results revealed the robust positive associations between digitization-related factors and economic growth metrics, emphasizing the significant roles of Full-Time Equivalent Telecommunication employees, annual investment, and regulatory frameworks in propelling GDP and FDI expansion. However, notable adverse relationship with inflation prompted precise interventions of policy to ensure enduring economic stability. This study hence contributes to the theoretical understanding and practical insights of highlighting for the progress in digital literacy, encouragement of technology infrastructure investments, and creation of transparent regulatory frameworks. The contribution provides a foundational guide for policymakers and practitioners. It elucidates modalities for fostering continued economic growth in the Balkan States in an era of an increasingly digital-oriented global space. Further research is recommended to investigate the detailed factors mediating its impact on inflation and even delve into temporal perspectives of dynamism on the digital transformation within this regional block.

JEL classification: O33, O57, C21

Keywords: Digitization, Economic Growth, Balkan Countries, Panel Quantile Regressions.

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Digitalization, Market Concentration, and Labor Dynamics: Evidence from CEE Countries

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Abstract

This paper examines the relationship between market concentration, digitalization, and labor outcomes in Central and Eastern European (CEE) countries, using aggregated firm-level data from CompNet and EU-KLEMS from 2000 to 2019. We find that in the CEE region, industries characterized by higher market concentration tend to have higher labor productivity and wages, while also having a lower labor share, in line with the superstar firms hypothesis. However, there are differences across CEE countries, highlighting the complexity of labor market dynamics in the region. Moreover, our study underlines the important role of digitalization, which contributes positively to productivity and wage growth, especially in more concentrated industries. Increased investment in digitalization does not mitigate the decline in labor share caused by increasing market concentration, with the exception of investment in communication technologies.

JEL classification: J23; J24; J30.

Keywords: Market concentrations; Digitalization; Productivity; Wages; Labor Share.

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The State of Digitalization in Montenegro and Indonesia: A Comparative Study

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Abstract

The primary objective of this research is to conduct a comparative analysis of the state of digitalization in Montenegro and Indonesia. Therefore, the aim of this research is to analyze the current status of digitalization in these two countries, the effects of COVID-19 on the process of digitalization, as well as other potential factors that have affected the process of digitalization in Montenegro and Indonesia.

The research is based on methodology which includes review of existing scientific literature and various reports, government reports, strategies and other relevant documents, as well as data analysis in Montenegro and Indonesia. The results show that there are a number of concrete positive consequences of the coronavirus crisis when it comes to the process of digitalization, and that the role of governments is getting bigger in that regard. The mindset of people has changed in the past several years, which led to new needs, as well as new and faster ways of doing business, or life in general. However, several factors are identified that could hinder the process of digitalization in Montenegro and Indonesia. Therefore, due to poverty and digital illiteracy, especially in rural areas, it is questionable if the whole population of these two countries have enough knowledge, skills, sufficient technology and equipment to be able to adapt to new digital procedures.

JEL classification: O 57, O 33

Keywords: Digitalization, COVID-19, digital illiteracy, government, Internet

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A comparative review of digitization in V4 countries and Montenegro

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Abstract

Currently, the transformation of economies through digitalization is a global trend, and it has become imperative for governments to invest in innovation to maintain competitiveness in the contemporary world. Nonetheless, a substantial disparity exists in digital advancement between numerous countries worldwide, including the European Union. The ongoing digital divide is also mirrored in the economic circumstances of these countries, resulting in varying levels of economic growth based on individual cases. The current analysis aims to examine the current state of individual dimensions of the digitalization indicators in V4 countries and Montenegro. The results of the comparative analysis show that despite all the government efforts, the countries under review are still behind many EU member states. The existing digital divide also impacts these countries' most important macroeconomic indicators. It is manifested, in particular, in different levels of economic growth. The results show that Montenegro lags behind V4 countries and the EU average in most digitization indices under consideration. One of the most significant gaps we can observe in the case of the governance digitization and digitization of public services.

JEL classification: O33, O52

Keywords: digitization, economic growth, digital divide

Acknowledgment

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Assessing Digital Divide in e-Learning: An Insight from Malaysian States

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Abstract

E-learning gained significant traction during the COVID-19 pandemic, prompting a global shift toward digital platforms. This shift emphasized the prevailing digital divide, bringing to the fore disparities in access and use of digital resources. This study aims to assess the extent of the digital divide among e-learners across states in Malaysia and provide valuable insights into states experiencing a digital divide that hinders e-learning. Descriptive and correlation analysis are conducted using secondary data derived from the Department of Statistics Malaysia (DOSM) and the Ministry of Communication and Digital (KKD) to evaluate economic, technological, and ICT skills variables. The findings highlight that Internet access, particularly fixed broadband, significantly impacts e-learning engagement, yet infrastructure challenges persist among states. Additionally, varied access to digital devices and ICT skills also plays pivotal roles in e-learning. This study contributes to the existing knowledge by illuminating the digital divide’s impact on e-learning across Malaysian states, emphasizing the need for targeted interventions by authorities and policymakers to foster inclusive and equitable e-learning opportunities for all learners in Malaysia. Further research is recommended in affected states to gain a deeper understanding of the underlying factors contributing to the digital divide.

JEL classification: I 24

Keywords: Digital Divide, e-Learning, Malaysia

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Building Trust and Confidence in the use of Banking Apps: A Study on EU and Southeast Asia

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Abstract

As banking apps continue to play a pivotal role in the global economy, establishing and maintaining user trust and confidence is paramount. This study investigates the factors influencing trust and confidence in the usage of these apps within the European Union (EU) and Southeast Asia. Employing a machine learning approach, specifically text analytics-based methods, and the study utilizes Latent Dirichlet Allocation (LDA) models to analyse user reviews from HSBC Bank Google Apps. The research aims to uncover latent topics and sentiments expressed in user reviews, providing insights into user perceptions, concerns, and preferences regarding banking applications. By employing LDA, the study identifies key themes within the textual data, shedding light on the most discussed aspects of these apps, and their impact on user trust and confidence. Data for this study is collected from diverse Google Apps reviews, reflecting the experiences of users across different countries in the EU and Southeast Asia. The analysis focuses on identifying patterns and trends in user sentiments, allowing for a nuanced understanding of the factors influencing trust and confidence in the context of banking. The findings of this research contribute to a deeper understanding of user perceptions towards banking apps, facilitating the development of strategies to enhance trust and confidence in their usage. This study also provides a comparative analysis between the EU and Southeast Asia, offering insights into regional variations in user sentiments and concerns. The implications of this research extend to industry stakeholders, policymakers, and app developers, offering actionable insights to improve user experience and foster greater trust in the rapidly evolving landscape of banking.

JEL classification: O33; G2; L86; C88; C45

Keywords: Banking apps, Trust and confidence, Machine learning, Text analytics, Latent Dirichlet Allocation, Google Play reviews, EU, Southeast Asia

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Montenegrin Cybersecurity identification study

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Abstract

Digital transformation has become a key driver for economic growth and societal changes. The rapid evolution of the cyber domain has led to increased cyber threats and risks affecting both providers and users of digitalised services and hence brought a growing realisation that a digital society and digital services cannot safely exist without a solid cybersecurity framework. Subsequently, cybersecurity and resilience have become important targets for domestic reforms in the Montenegro and an aspect to be strengthened in international cooperation.

As expressed through public statements and adopted strategy documents, the majority of the political leadership in the Montenegro generally acknowledge the importance of cybersecurity. Even Montenegro adopted cybersecurity strategy 2022. general statements do not necessarily make it into the political agenda or practical deliveries, and the subject can be overshadowed by other political and economic priorities. A lack of political push on the implementation level has been commonly highlighted by the stakeholders interviewed and is expressed in the failure to draw up concrete action plans for cybersecurity strategies, a lack of decisions pertaining to investment in cybersecurity matters, and committing dedicated resources for monitoring and oversight of implementation, in inadequate mandates and resources for the authorities to whom cybersecurity responsibilities have been allocated, and in the lack of involvement of non- state actors in defining priorities and action plans, as further detailed in this report. Often, challenges affecting the cybersecurity posture stem from administrative or practical challenges beyond the cybersecurity domain, such as the central government and/or competent authorities lacking sufficient powers to enforce and follow through on legislative initiatives, or labour legislation limiting the availability of cybersecurity workforce due to limitations on public sector salaries. A lack of public discussion on digitalisation, e-government, and cybersecurity in essential sectors also impedes clear, measurable progress, as does the general shortage of cybersecurity know-how and skills among the workforce. These findings describe the varied reasons cited by experts for why political recognition of the topic in the Montenegro has not resulted in adequate prioritisation and support for improving cyber resilience.

The study was intended to support the design of corresponding capacity building action in response to existing needs. Assessments focused on six key areas of (1) national institutional framework and governance; (2) legal framework; (3) risk management in national cybersecurity; (4) cybersecurity of critical information infrastructure; (5) the capacities of cyber incident response teams (CSIRTs/CERTs); and (6) education and awareness raising.

JEL classification: O33, H12, K42

Keywords: Cybersecurity Framework, Political Prioritization, Capacity Building



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A Review on Digital Divide – Comparison Between Malaysia and Montenegro

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Abstract

The digital divide has become an increasingly pertinent issue in today’s globally interconnected world. As society becomes more dependent on digital technologies, the digital divide threatens to exacerbate existing inequalities and create new ones. This study presents a review of latest literature on digital divide focusing on the dimensions, determinants, and indicators. This article also highlights a comparison on the first-level of digital divide of two distinct geographical regions, Montenegro and Malaysia. Although both countries represent emerging economies with unique challenges and opportunities, the research aims to shed light on the similarities and differences of Information and Communication Technology (ICT) usage by household and individuals. The methodological approach for this study primarily involves a comprehensive review of existing literature, government reports, and available statistical data in Montenegro and Malaysia. Key findings revealed there is minimal digital divide by age, geographical and gender in Malaysia as compared to in Montenegro. Hence, it can be concluded that internet connectivity is widely accessible in both urban and rural among the young and old in Malaysia. This study contributes to the unexplored comparison study between the two countries and provides insights on the further development needed to reduce the gap of digital divide.

JEL classification:

Keywords: Digital divide, ICT, internet connectivity, internet users, Malaysia, Montenegro

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E-wallets payment in Malaysia: A digitalization effort of payment method in Malaysia

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Abstract

This study investigates the impact of e-wallet usage on economic growth in Malaysia using Spearman's Rank Correlation to analyse relationships between various cashless payment instruments and the country's GDP. Data sourced from Bank Negara Malaysia and the Department of Statistics Malaysia for the years 2022 to 2023 include the volume and value of transactions for e-money, credit cards, and cheques, alongside annual GDP figures. The findings underscore a positive correlation between the volume of e-money transactions and GDP, highlighting the significant contribution of e-money to economic expansion. Negative correlations observed with traditional payment methods, particularly cheques, suggest a shift in payment preferences aligning with increased economic performance. This study contributes valuable insights into the evolving dynamics of financial transactions and their implications for economic indicators. The positive association between e-money transactions and GDP emphasises the potential role of digital transactions as drivers of economic development. The study recommends further exploration of these correlations for future policy considerations and underscores the broader benefits of e-money, including transparency, reduced printing costs, and mitigating the shadow economy. Additionally, it advocates for the creation of a cashless transaction index to comprehensively evaluate and monitor the adoption and impact of digital payment methods in an country's economy.

JEL classification: A10, E42, G23,

Keywords: cashless, digital payments, e-money, e-wallets, Malaysia

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Strategic Index Comparison and Analysis: Spotlight on Thailand within the Context of Europe and Southeast Asia

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Abstract

This research aims to conduct a comparative analysis of digitalization indexes, focusing on Europe and Southeast Asia, with Denmark and Thailand as case studies. The study systematically reviewed and analyzed various international indexes, including DiGix, ADII, DII, WDC, GCI 4.0, and others. It revealed five dimensions, including digital economy, societal development, workforce development, digital government, and trust and confidence in the use in digital technology, to analysis the digitalization gaps. Leveraging international datasets, the findings reveal substantial gaps in digitalization levels, with Denmark consistently outperforming Thailand across diverse indices, and four propositions were formulated for further examination. The study contributes to practice by formulating propositions linking corruption perceptions, human capital, online services, and telecommunication infrastructure with digitalization. It underscores the need for policymakers and practitioners to consider these factors in crafting strategies to enhance digital capabilities. Recommendations for future studies include further validation of the proposed propositions, potentially expanding the scope to include additional countries and regions for a more comprehensive understanding of the dynamics influencing digitalization.

JEL classification: O10, O33, O38

Keywords: digital economy, societal development, workforce capability, digital governance, trust in technology

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Digitalization in Sports and its Association with Athletes’ Performance - a comparison review between Indonesia and Hungary

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Abstract

The integration of digital technologies into sports is becoming increasingly popular nowadays, it effects athletic performance and the overall sport environment. For this reason, this study is aiming to identify the effects of digitalization in sports on the performance of the athletes, while also identifying the potential differences and similarities between Indonesia and Hungary. The study is using a multidisciplinary approach to explore the ways in which digital technologies, such as online coaching, performance monitoring systems, and data analytics may affect injury prevention, athletic performance, decision making during competitions and training plans.

The study examines through questionnaires the current state of digitalization in sports both in Indonesia and Hungary, considering the cultural and the technological differences, highlighting specific digital tools and platforms that affect athletic performance in both places. The research attempts to discover obstacles and successful paths of digitalization in sports, in these two countries, by using quantitative data, focusing on the experiences of athletes, coaches and sport managers, regarding the integration of digital technologies and its perceived effects on athletes’ performance.

We expect that the research will gives us an important insight into the international conversation of how digitization affects athletes' performance in various sports contexts.

JEL classification: O33, L83, M15

Keywords: digitalization, athletic performance, sports

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Digitalization of Human Capital: A Comparative Study of Montenegro and Malaysia

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Abstract

Human capital defined as the skills the labor force possesses and is regarded as a resource or asset (Oxford English Dictionary) is becoming the most competitive and unique resource in the modern context of the development of high-tech industries and the creation of the digital economy. This comparative study intends to give insight into the ongoing digitalization processes and an overview of the digital skills needed to take advantage of the possibilities offered by the digital society of Montenegro and Malaysia. This study's methodological approach involves a comprehensive review of digitalization found in literature, various statistical reports, and data analyses on human capital, digital skills, digital public services, and advanced digital technologies.



JEL classification: J24, O15, O33

Keywords: DESI index, human capital, digital skills, internet users, advanced digital technologies, ICT

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