

Varazdin Development and Entrepreneurship Agency and University North  
in cooperation with:  
Faculty of Management University of Warsaw  
Faculty of Law, Economics and Social Sciences Sale - Mohammed V University in Rabat



## Economic and Social Development

83rd International Scientific Conference on Economic and Social Development –  
"Green Marketing"

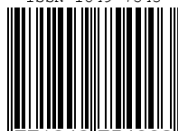
### Book of Abstracts

Editors:

Ljerka Luic, Ivana Martincevic, Vesna Sesar



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Varazdin, 2-3 June, 2022

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## **Economic and Social Development**

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## **IMPACT OF COVID 19 ON RAKUTEN BUSINESS RESULT**

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### ***ABSTRACT***

*Purpose - the aim of this paper is to analyse the business efficiency of the Rakuten platform at the beginning and during the Covid 19 crisis. Methodology / Design - research and analysis are based on secondary research published in Annual Report Corporation as well as in other relevant scientific sources. The research is divided into three basic parts that can be individually compared with the results of research on other platforms in the pandemic period. The results - the results of the research proved the strong impact of the Covid 19 pandemic on the overall business result. The analysis of financial items, as a quantitative part of the research, needs to be compared with the results that the platform achieves in the development of business activities in order to obtain a complete picture of the business. Conclusion - the platform has achieved negative financial results in the last two years, but the number of users is still growing, which leaves room for financial recovery. In addition, the platform develops new technologies and business models from which it expects revenue in the future.*

**Keywords:** *hybrid platform, multi-sided platform, online retail, platform economy, Rakuten*

## ENTREPRENEURIAL ACTIVITIES OF UNIVERSITIES – CASE OF SLOVAKIA

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### **ABSTRACT**

*The roles of universities have long been limited to research and education, but their role is increasingly understood in various areas. One such area is the entrepreneurial activity of universities. While in many countries, especially in the United States, this concept is close to universities, in the countries of the former socialist bloc, where universities were primarily focused on education, their activities towards entrepreneurship are still in their infancy. The aim of our article was to analyse the development and structure of income from entrepreneurial activities of universities in the context of overall university funding in the case study of the Slovak Republic. The article analyses the 10-year development of financial income of universities from business activities in Slovakia. The data were drawn from the financial statements of individual universities as well as their annual reports. These data were statistically evaluated by comparative analysis. The research results show that despite the relatively significant changes and support of business activities of universities by the government in the recent period, so far there is only an improvement in the available inputs needed for these activities but is not reflected in the financial income from these activities. The results point to the need for further changes and finances that would lead to higher commercialization of the institutions' own activities. The key activities on the part of the government can be considered taking into account existing business activities in the breakdown of direct subsidies and project support more strongly directed to the outputs of the commercialization of research, not only to finance inputs.*

**Keywords:** *Entrepreneurship, Universities funding, Slovak Republic, Budget of universities, Higher Education*

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## **THE ACRONYM AS A BRAND NAME: WHY CHOOSE IT FOR THE NAMING OF THE BRAND AND WHY NOT CHOOSE IT IN ANY CASE?**

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### **ABSTRACT**

*Initials are used extensively in branding to shorten long company names. Marketing literature often highlights the need for memorable and distinctive brand names that can convey meaning successfully and are also easy to pronounce. But how well do initials serve these purposes? Are they the right solution to name brands? As the paper shows, they do not serve the abovementioned purposes very well – actually, almost not at all. Yet, many companies use acronyms as brand names, and start-ups also often choose to use them. But what are the possible reasons and motivations for this? What are the pros and cons of using acronyms as brand names? When should brand owners use such brand names and when should they avoid this solution? It is worth examining this from a broader perspective. Therefore, in addition to discussing the relevant marketing and branding literature, the paper also presents several examples that shed light on the advantages and disadvantages of acronyms used in brand naming.*

**Keywords:** *Brand name, brand naming, acronyms, initials, branding strategy, marketing strategy*

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## INTERPERSONAL RELATIONS AND THE IMPORTANCE OF INTELLECTUAL CAPITAL AS A COMPETITIVE ADVANTAGE OF THE ORGANIZATION

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### **ABSTRACT**

*In the conditions of globalization, the availability of information from all parts of the world is almost unlimited and at the reach of everyone. Competition and the struggle for good employees is stronger than ever. Brain drain is a major threat to organizations and nations. An important task for organizations is to find new approaches to retaining and attracting competitive employees. One of the main criteria is to create a pleasant working environment and encourage quality and harmonious interpersonal relationships in organizations. For this reason, the focus of organizations is on creating interpersonal relationships through various joint events such as team building and a fair reward system. The paper analyzes the concepts of intellectual capital, interpersonal relations, socially responsible business. The paper shows how important interpersonal relationships are for employees in doing their job. How do organizations invest in intellectual capital? The results of the research, presented in this paper, show the level of informing the Croatian public about intellectual capital and the impact of interpersonal relationships on employee loyalty to stay in the organization.*

**Keywords:** *Intellectual Capital, Interpersonal Relationships, Socially Responsible Business*

## **GREEN PUBLIC PROCUREMENT**

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### **ABSTRACT**

*The public procurement system is based on ensuring transparent and non-discriminatory participation of all interested parties, for which the contracting authority is responsible. Public procurement is known for a set of rules, procedures and principles that must be strictly adhered to by both contracting authorities and all interested economic operators. In this, the contracting authority is the one that determines the type of public procurement procedure, specifies, and conducts the procurement of works, goods or services. Green public procurement is mentioned as one of the terms that is important because it is through it that contracting authorities seek to order goods, services or works that have less impact on the environment during their life cycle, but with the same basic function and quality that would otherwise be ordered. Green public procurement is a voluntary instrument that encourages environmental protection and sustainable consumption as well as production, and its importance is emphasized in international and European strategic documents. The main goal of this paper is to present the concept of green public procurement, its importance and benefits, key determinants and benchmarks of this type of goods, works or services and to compare the current application of public*

*procurement procedures that included the selection of "green" products and services as just one part of sustainable public procurement.*

**Keywords:** *public procurement, green public procurement, environmental protection, sustainable public procurement*

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## **INTERDEPENDENCE OF STAKEHOLDERS IN A TOURIST DESTINATION ACCORDING TO "ZERO" ENVIRONMENTAL IMPACT**

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### **ABSTRACT**

*The sharp increase in tourism in the Republic of Croatia has resulted in the emergence of mass tourism that has negative effects on the natural, social and cultural environment. As a reaction to mass tourism, there was a need to apply the principles of sustainable tourism. Today, due to the rising economic standard of citizens of developed countries, the trend of traveling throughout the year is growing, and the travel period in the pre- and post-season is becoming increasingly popular. Tourists are increasingly environmentally aware, and seek authentic experiences, contact and connection with the local community, and appreciate the ecological preservation and cleanliness of the*

*environment, and the delivery of integrated tourism products involved a larger number of stakeholders to achieve consistency of green marketing goals. The main goal of the paper is to point out the need to apply a systematic approach to stakeholder involvement in achieving sustainability of the tourist destination.*  
**Keywords:** *green marketing, tourism, sustainable development, stakeholders, stakeholder interconnection*

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## **BITCOIN AS A SUBSTITUTE FOR CURRENT CURRENCIES**

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### **ABSTRACT**

*The purpose of this study is to examine the hypothesis whether Bitcoin, this decentralized digital currency, can become a successful alternative to other currencies that are currently consolidated in the market as well as regulated through legislation. For this purpose, we will use descriptive analysis based on standard deviation which is used to analyze Bitcoin volatility by calculating daily logarithmic returns as well as monthly logarithmic returns, expressed as a percentage. To test this hypothesis, a comparison is made between the volatility of Bitcoin with the volatility of gold and the euro currency, while the base currency for comparison is the US dollar, which is considered a global base currency.*

**Keywords:** *Bitcoin, digital currency, virtual currency, cryptocurrency*

## **HYDROGEN UTILISATION AS A KEY FACTOR FOR ACHIEVING ENERGY SYSTEM DECARBONISATION**

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### **ABSTRACT**

*In addition to renewable energy sources, large-scale production and utilisation of hydrogen are key prerequisites for the “green” energy system that should be implemented in the EU by 2050. The paper describes the role of hydrogen used as an energy carrier and presents different types of hydrogen with respect to its origin. A review of the EU's regulation relevant for decarbonisation and hydrogen utilisation is given in the paper. The Croatian Hydrogen Strategy until 2050 adopted by the Croatian Parliament on 25 March 2022 is described. Furthermore, the European Hydrogen Backbone, which is of crucial importance for future hydrogen supply in Europe, is elaborated. A complete realisation of the EU's plan of an intensive hydrogen utilisation, with the achieved cost-effectiveness of the renewable hydrogen production, implies that the hydrogen network could become the most relevant gas network in the future.*

**Keywords:** *Croatian Hydrogen Strategy, decarbonisation, hydrogen, hydrogen infrastructure, natural gas, renewable energy sources*

\*\*\*\*\*

## EVIDENCE ON PRE-PANDEMIC OUTBOUND TOURISM DEMAND DETERMINANTS IN OECD COUNTRIES

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### **ABSTRACT**

*This paper examines how origin country socio-economic factors determine outbound tourism demand. The analysis is performed within a panel of 32 Organisation for Economic Co-operation and Development (OECD) countries throughout the 2010–2019 period. The dynamic panel data estimation technique is employed. Besides the income and price as mostly present pull factors of outbound tourism demand in empirical research, this paper analyses the effects of former outbound tourism demand and the socio-economic uncertainty on outbound tourism demand. The international departures and expenditures proved to be positively affected by the net income level, while the loss in international competitiveness has negative effects on the number of departures, while, consequently, expenditures are rising. A particular implication of the results would be that regardless the rise in the economic uncertainty in the origin country, its tourism departure levels show growth persistence, while the expenditure levels drop. This shows that the influence of previous tourism experience is higher than the influence of negative expectations in the economy. This could be of unambiguous importance for origin country's policy makers and domestic tourism development as well as for destinations that seek new tourism source markets.*

**Keywords:** *tourism demand, expectations, net national income, price competitiveness, propensity to travel*

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## **IMPACT ASSESMENT OF DIGITAL SKILLS ON R&D INVESTMENT**

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### **ABSTRACT**

*In nowadays society, especially in the world affected by the pandemic, the need to digitalize all aspects of the economy and society has grown tremendously in a relatively short period of time. Digital transformation, digital economy, digital intelligence and all other aspects of digital society are topical issues nowadays. In order for the digital transformation to be successful, one of the preconditions is the development of society's digital skills. Therefore, we are faced with a situation where digital skills are one of the basic skills sought in the modern society, supported by the fact that in recent years digitalisation is increasingly being measured by various indicators to more accurately identify society's development needs in digitalization. On the other hand, investing in research and development is mentioned in all strategic documents and plans as a basis for global competitiveness, business and growth. The digital economy is mentioned in the context of the innovation market and innovators, and as a bridge that should eliminate certain sore spots in social and economic interactions. In this regard, investment in research, development and innovation should increase in terms of R&D expenditure in GDP, which currently stands at around 1% in Croatia according to the World Bank collection.*



*Numerous indicators have been developed on the state level, but also at the European and global level, that should measure the success of such ventures. From all this it is clear that digital skills and investment in research, development and innovation are imperatives for the European Union and the Republic of Croatia regarding the economic growth and development and achieving competitive advantage, and that their connection and continuous growth and development are both key to Croatia's success but also to the society as a whole. Given the interconnectedness and interdependence of these two concepts and the fact that all economic and social goals concern investment in research, development and innovation, and digitalization and digital skills at the same time, this study was conducted through a comparison of different data sets connected to these two terms, seeking to identify the level and source of their interdependence and suggest possible improvements.*

**Keywords:** *digitalization, digital skills, R&D investment, business intelligence tools*

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## **INFLUENCE OF FANS ON RESULT EFFICIENCY IN FOOTBALL**

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### **ABSTRACT**

*Some previous studies suggest that fans have a positive influence on the home teams and the result of competition. The primary goal of this paper is to test the hypothesis of the positive influence of fans on players and referees on the football field. We used the term "home field advantage", meaning that the fans bring the home team an advantage at the game. The study sample consists of seasons 2019/2020 and 2020/2021 in the 1st Croatian league. The variables in the study are points won, shots on target, yellow cards, red cards, fouls and fans attendance. Due to the situation with the COVID-19 pandemic during the 2019/2020 season, almost all matches were played without spectators, which allowed us to test the hypothesis of the connection between the "home field advantage" and the presence of fans on the stands. Statistically significant differences were detected in the variable's points won by the host, free kicks by hosts and guests and shots on target by hosts. Statistical analysis indicated that with the presence of spectators, the home team won 1.76 points, while in the period without the fans it was 1.44 per game.*

*The results of this study confirm that audience contributes to the performance of the home team and inferior performance of visiting team, also on performance and decision-making of referees.*

**Keywords:** *Covid-19, football, home field advantage, spectators*

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## INVITED SESSION

### **Digital Intelligence: The Driving Force of the Digital Economy and Innovation**

Invited Session Editor:  
**Ljerka Luic, University North, Croatia**

## **IMPLICATIONS OF DIGITAL WORK ON EMPLOYEE PRODUCTIVITY AND THEIR DIGITAL EMPATHY**

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### **ABSTRACT**

*Digital empathy is a concept that did not originate during the Covid-19 pandemic, but as such existed several years ago and reached its peak during the Covid-19 pandemic, when millions of people around the world communicated exclusively electronically. The purpose of this paper is to determine the level of understanding other people when mutual communication takes place on-line. Digital empathy is a new segment of the business world that needs to be continuously built and developed. The aim of the research is to establish that electronic communication affects the lack of empathy, which is primarily built through physical contact with verbal and non-verbal communication. The extent to which frequent electronic communication affects reduced productivity, coldness, and lack of empathy. Is the necessary business information provided on time, to what extent is there a lack of face-to-face communication and did the employees of the regional self-government cope with the feeling of loneliness and isolation? Employees of the regional self-government who worked from home during the pandemic were selected for the research sample. The research was conducted using the questionnaire method in a way that explores the opinion of self-assessment of regional self-government employees who worked from home, and related to their productivity, flexibility in working from home, and digital empathy. Based on the results of the survey questionnaires, it was determined that electronic*

*communication affects reduced productivity, coldness and lack of empathy. This paper provides an overview of the disadvantages of electronic communication, which is impossible to avoid in the digital age. Building digital empathy is important in creating the competencies of digital citizens and contributes to increasing digital intelligence. The pandemic catalyzed the digitalization of society and the implications of digital empathy will be further explored in future periods.*

**Keywords:** *Digital empathy, Digital work, Pandemic, Productivity*

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## **THE ROLE OF PERSONAL DIGITAL COMPETITIVENESS IN THE DIGITAL ECONOMY: ATTITUDES AND VALUES OF DOCTORAL (PHD) STUDENTS**

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### **ABSTRACT**

*Digital Intelligence (DQ) is a global standard model related to digital literacy, digital skills and readiness for contemporary digital challenges. Furthermore, DQ is a set of capabilities which acts as a key driver for digital competitiveness and digital economic growth. In this paper the authors will research relationship between selected digital competencies and digital competitiveness in digital economy. Digital economy is defined as a part of economic activity that primarily derives from digital technologies with a special focus on advancing the business*

*model based on digital products or services. Such a business model is defined by the hyperconnectivity among people, organisations and machines primarily through mobile technology and the Internet of Things. In the digital economy, all business-to-business and business-to-consumer stakeholders have their business interactions where and when they want, according to their preference. The aim of this research paper is to examine the attitudes and values related to a personal digital competitiveness within the target audience – doctoral (PhD) students – who can play an active role in the further development and application of digital competencies in digital economy and society. The perception of the DQ monetarization possibilities (personal income, working conditions) in the market-digital competition, as well as DQ capitalization possibilities in the so-called “social status” sphere, (quality of life and reputation) are topics which determine the framework of the research problem. The research will be conducted using a quantitative method through the collection of empirical data in the form of a structured questionnaire with closed questions. The research results aim to indirectly contribute to raising awareness of digital competitiveness and at the same time to directly contribute to the harmonization of public educational policies aimed at enhancing the digital competencies of both educators and students within the context of the current highly dynamic digital economy development.*

**Keywords:** *Digital competitiveness, Digital economy, Digital intelligence, Socioeconomic status*

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## **DIFFERENTIATION OF DIGITAL PUBLIC RELATION TOOLS ANALYSED FROM A DIGITAL LITERACY PERSPECTIVE**

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### **ABSTRACT**

*The use of digital tools in both personal but also working life has become a daily reality and, as regards the public relations aspect, it is necessary to explore whether the frequency with which digital tools are used has an impact on the digital literacy of professionals. The purpose of the work is to explore digital tools and to identify whether they enhance the digital literacy of PR professionals, PR experts, and the aim of working to detect which digital tools significantly improve public relations, viewed from a digital literacy perspective. The research question on which this work is based, which determines its character, questions the frequency with which public relations experts use digital tools and examines whether their use, has an impact on the development of digital literacy. The survey was carried out in Croatia, using a deliberate sample of public relations companies, selected on the basis of the number of employees, geographical area and sector of activity, in order to understand which digital PR tools are the most commonly used by PR professionals and whether, use of these tools is correlated with their level of digital literacy. Following the data collected, a comparison of the tools used by public relations companies was carried out and an analysis of the functionality content of the most commonly used tools was carried out using a quantitative and qualitative method. The Analytical Matrix specifies the frequency with which individual tools are used, as well as their impact on development of the digital literacy. The commutation of results concludes that the use of a specific set of PR tools has a direct impact on digital literacy if professionals use them, and indirectly on the advancement of their digital intelligence, which provides an*



*incentive for further related research. To what extent and how the use of only one digital tool facilitates the development of digital literacy of PR professionals in relation to the use of other tools is one possible route to continue research.)*

**Keywords:** *Digital tools, Digital Literacy, Public Relations, PR experts*

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## **THE IMPORTANCE OF HARMONIZATION OF EDUCATIONAL PROGRAMS IN DIGITAL TRANSFORMATION**

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### **ABSTRACT**

*Digital transformation is the process of integrating digital technologies into human action and continuous adaptation for its intelligent use. The subject of this paper is a comparison of the teacher study syllabus that prepares masters of primary education for the education of primary school students and a curriculum according to which teaching is conducted in primary schools. The goal is to determine whether student learning outcomes from the faculty are consistent with student learning outcomes in primary schools and whether the students of teacher education are trained for education according to the societal requirements. Comparison of the syllabus of the Integrated undergraduate and graduate university teacher study of the Faculty of Teacher Education, University of Zagreb and the Curriculum of the cross-curricular topic The Use of Information*

*and Communication Technology for primary and secondary schools was carried out by the desk method. The mentioned syllabuses were selected for sampling because the majority of students on teachers' faculties are educated at the mentioned faculty in Croatia. The aforementioned curriculum has the outcomes that in all teaching subjects determine the activities that encourage responsible, efficient and creative use of information and communication technologies. Based on the results, the differences between syllabus and curricula have been determined, by which it is possible to elaborate strategies for development of teacher education syllabus that will be more harmonized with primary school curricula and digital transformation needs. This paper provides an innovative approach in researching the differences between programs of different education levels, but also points to a key subject of public policy and harmonization of educational programs that prepare non-IT professionals while opening up space for further complementary research that would determine the level of digital competencies of students at the end of their studies.*

**Keywords:** *Digital competencies, Digital transformation, Formal education, Harmonization*

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## **THE INFLUENCE OF CITY ADMINISTRATION'S RESPONSIVENESS TO CITIZENS ATTITUDES TOWARDS CITY DIGITAL COMMUNICATION**

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### **ABSTRACT**

*New technologies today allow users, citizens, to connect with organizations and to seek answers to their questions and requests, using a variety of tools. Such digital capabilities have posed new challenges towards organizations, which imply adapting to more intensive, efficient, and faster communication. This paper focuses on the study of digital competence Media and Information Literacy and Digital Civic Identity within the Digital Intelligence Model (DQ) based on the example of digital communication of City of Varaždin City Administration with citizens. Previous analysis ranked the City of Varaždin very highly in Croatia in terms of the effective communication between the City Administration and its citizens, but no survey has yet been conducted on the citizen's satisfaction with the City Administration's communication. The aim of the research is to estimate the impact of the responsiveness of the City Administration on attitudes of citizens about the digital communication of the City of Varaždin, and the subject of this paper, on the example of the City of Varaždin, is to determine their correlation. In addition to the structural analysis of available tools and the responsiveness of the City Administration in communication with its citizens, the satisfaction of the citizens with the digital communication of the City Administration has been examined and answers to research questions are being*

*sought: Are the citizens satisfied with the digital communication of the City Administration? What is their attitude towards it? Does the responsiveness of the digital communication of the City Administration affect the satisfaction or the dissatisfaction of citizens with the digital communication? Qualitative and quantitative research methods have been applied in order to obtain adequate answers. Content analysis identified the digital communication tools of the City Administration, a Mystery Shopping method has tested the responsiveness of the City Administration on the identified tools and a survey on a representative cause of citizens has examined the attitudes of citizens to the digital communication of the City of Varaždin, the analysis of which the need for further development continuing the research necessary to design a validation model of the collaboration of the digitally competent citizen and Smart City has been identified.*

**Keywords:** *Digital Communication, Digital Intelligence, Information, Smart City, Varaždin*

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## **NETIQUETTE AND DIGITAL EMPATHY IN THE CONTEXT OF APPLYING CROSS- CURRICULAR TOPICS IN THE CONTEMPORARY EDUCATION**

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### **ABSTRACT**

*Digital empathy means being aware and sensitive to one's own and other people's feelings, needs and concerns in an online environment. To build good relations with others using digital media doesn't mean only to act in accordance with rules of polite behaviour on the internet (netiquette), but also to possess a*

*certain level of digital emotional intelligence, developed through the competence of digital empathy. Through the research of attitudes and values regarding the netiquette and digital empathy of participants of the educational process - teachers and students in senior years of secondary school - the starting point was a presumption that only teachers, who had been adequately educated on that specific topic, were able to adequately teach students through a sequence of cross-curricular topics, and in that way contribute to the development of their digital empathy. The aim of the research was focused on detecting attitudes and self-assessment of digital empathy of students and the influence of it on their success in their education and the choice of their future job. Through the method of content analysis, the cross-curricular curriculum "The Use of the Information and Communication Technology for Primary and Secondary Schools in Croatia" has been researched. Through the choice of key words, an analytical matrix has been determined. Through the method of a focus group, with seniors of Josip Slavenski Grammar School and The School of Economics and Trade in Čakovec, research has been carried out, involving three groups in each school. Moderators in each group were representatives of The Student Council. The interview has been done by the author of this thesis through the method of a structured interview. The results have shown a partial correspondence of attitudes and views of students and teachers, regarding the significance of teaching the topic of netiquette and digital empathy within the framework of cross-curricular topics. The teachers' views have shown an emphasised need for a lifelong education connected to digital competencies and literacy, as well as involving these topics in syllabi of formal contemporary education. Further research could be extended into studying of causal significance of digital competencies, digital communication and digital literacy, adopting and applying digital empathy in educational processes and programmes.*

**Keywords:** *Cross-curricular topics, Digital competencies, Digital empathy, Education, Netiquette*

## **SYNERGISTIC EFFECT OF BUSINESS SYNTHESIS AND INFORMAL EDUCATION ON THE DEVELOPMENT OF REGIONAL DIGITAL ECONOMY**

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### **ABSTRACT**

*Digital competencies in today's dynamic, technological world of business are acquired through a variety of formal and informal educational practices. Therefore, formal educational institutions must follow the pace of changing and upgrading technology and digital business. Informal sources of knowledge available through digital online communication channels and services are increasingly becoming available to the wider working population, and the degree of processing of this knowledge depends on the level of digital intelligence of the population. This paper presents a case study from the north of Croatia as an example of a business-initiated educational model oriented towards the local community. The research was conducted to examine the effectiveness of a new approach to education initiated by IT companies from the real sector. The research aims to determine the experience of participants in such training to answer the research question of whether such practices maintain a sufficient quality of formal education and whether such training has a direct impact on strengthening economic capacity in terms of employment, promotion, or raising the standard of work of already employed persons. The research also examines whether training launched by technology companies can help solve the problem of labor shortages in this industrial sector with an emphasis on regional development. The research sample includes participants from workshops and lectures held by IT companies in the north of Croatia. Based on the results obtained from the collected surveys, the statistical analysis determined the extent to which this type of education has an impact on their employment*

*or progress in existing jobs. The results will be a good guide for further planning of the digital development strategy of the north of the Republic of Croatia and can serve as a supplement or as a basis for further, more extensive research of this type, at the national level, but also as a conceptual framework for related international research.*

**Keywords:** *Digital economy, Digital intelligence, Education, IT industry, Entrepreneurship*

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## **A STEP CLOSER TO UNDERSTANDING RESEARCH TRENDS IN THE FIELD OF DIGITAL INCLUSION OF PERSONS WITH DISABILITIES IN HIGHER EDUCATION: A SYSTEMATIC LITERATURE REVIEW**

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### **ABSTRACT**

*Higher education institutions have a strong potential to encourage society to make significant changes, preparing individuals for active and responsible participation in society. As one of the tasks of the higher education system is to take an active role in overcoming the challenges that affect certain parts of society, especially vulnerable groups, it should be able to provide equal opportunities for all students. Digital competences in education are crucial today, so the question arises as to whether*

*sufficient investment is being made into research in this field. The aim of this paper is to offer a systematic literature review that focuses on two types of research currently conducted in the field of digital inclusion in education: (i) use and adaptation of digital educational tools for students with disabilities and (ii) digital competences of teachers. For the purposes of the research, the method of content analysis of recent scientific papers was used. The search analysis was conducted from March to April 2022, while the search of papers in Scopus and Web of Science databases was limited to the period from 2019 to 2022. Terms used in the search were as following: digital competencies, disabilities, higher education. This review includes an analysis of existing concepts of digital inclusion of persons with disabilities in the higher education process as well as proposed methods for assessing digital competencies of teachers in higher education and pursues three objectives: (i) to describe the concepts of digital inclusion, (ii) to provide an overview of trends and (iii) to identify challenges in assessing the digital competences of teachers in higher education related to digital inclusion. Through consideration of these goals, this paper presents an innovative approach to research in this field and emphasizes the need to conduct similar research to promote the development of higher education.*

**Keywords:** *Digital competences, Digital inclusion, Higher education, Students with disabilities, Teachers*

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## CAUSAL RELATIONSHIP BETWEEN DIGITAL INTELLIGENCE QUOTIENT AND THE DIGITAL ECONOMY AND SOCIETY INDEX

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### **ABSTRACT**

*By communicating the activities of the European Union (EU) to the community in which they operate, 424 EUROPE DIRECT centers are extended hand of European institutions in the 27 member states. These centers, although operating in different social contexts, transmit the same messages to local communities, using digital communication channels. The purpose of this paper is to investigate the causal relationship between the Digital Economy and Society Index (DESI) of the EU states and the level of digital intelligence of the managers of these centers. The aim of this paper is to present the cause-and-effect relationship of the country's position on the DESI and the level of digital intelligence of the managers through the analysis of digital competence "Public and mass communication". This competence was chosen because the main role of these centers is to communicate. Does a higher index of digitalization of society means a higher level of observed competence, which then affects a higher quotient of digital competences - is a question that defines the analyzed problem. The research was conducted using the online survey on a sample of 136 managers, based on which indicators of digital competences in the observed competence were obtained at the level of each of the states. The sample of research consists of the managers, because each center must have a manager. In accordance with the obtained results, a causal relationship was established between the position of the state on the DESI and the analyzed digital competencies of the managers. The conclusions of this paper are an indicator of the relationship of the analyzed digital intelligence competence of the sample with the position of*

*the state on the DESI, further research on digital intelligence of EUROPE DIRECT teams would provide a more comprehensive insight into the causal relationship.*

**Keywords:** *DESI, Digital competencies, Digital intelligence, Public and mass communication*

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## **EDUCATION LEVEL EFFECT OF URBAN DIGITAL IMMIGRANTS TOWARDS THE LEVEL OF THEIR DIGITAL LITERACY**

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### **ABSTRACT**

*Individuals born prior to the widespread use of digital technology and the digital era are faced with the adaptation challenge to the digital technologies-based tools used in everyday life. Named individuals, considering their forced transition to the digital era, are so called Digital Immigrants. Its members, living in the urban, city territories, are defined as Urban digital Immigrants. Subject of this paper is to consider and review the Urban Digital Immigrants adaptation differences to the digital era according to their education level. Research will establish if the educational level affects the level of digital literacy of those called Urban digital Immigrants. Research subject is the level of digital literacy*

*of the population with any knowledge and use of digital skills, that has lived a specific life span without the modern technology interference. For the research sample size Urban Digital Immigrants were chosen, persons born prior to 1985, currently in the working population, up to age of 65, living in four largest urban centres in the Republic of Croatia. Nationally representative probability samples were calculated according to the final population census, distributed in equal proportions men and women, and evenly distributed by the age. Research was conducted via an online questionnaire distributed to the targeted population via Facebook social network. Research results show the connection between the level of the education and the level of digital literacy of the Urban digital Immigrants in the process to the digital era adaptation. New contribution to scientific research has been given on the impact of knowledge, skills and experience gained through predefined educational systems to a future life of the individuals that can be used as a guideline for possible research into the national qualifications frame.*

**Keywords:** *Digital immigrants, Digital intelligence, Digital literacy, Education level*

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## **RESEARCH AND CRITICAL EVALUATION IN THE DIGITAL EDUCATIONAL ENVIRONMENT**

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### **ABSTRACT**

*Educators' attitudes towards their own research and critical evaluation in the digital environment influence information practices and the digital perspective in education as one of the*

*social contexts. Based on the "Decision on the adoption of the curriculum for the interdisciplinary topic of the use of information and communication technology for primary and secondary schools in the Republic of Croatia" in January 2019, educators teach students research and critical evaluation in the digital environment. It is one of the domains (C domain) of this curriculum and the basis for self-assessment of educators' attitudes about research and critical evaluation. The authors believe that these attitudes correlate with the implementation of this curriculum in direct work with students, but also that the educator's educational area influences the formation of these attitudes. The rapid development of technology and available information requires educators to have developed information management, research and critical evaluation skills, in order to appropriately teach students in the C domain, regarding research and critical evaluation in the digital environment. The research sample consists of randomly selected educators, and is conducted using a quantitative research method of a survey questionnaire aimed at anonymously examining attitudes through a survey questionnaire designed in Google form, while the results were analysed using SPSS software to determine correlation. By analysing the data collected by the research, hypotheses on the impact of the educational field on the attitudes of educators about their own research and critical evaluation in the digital environment were tested. In this sense, this paper classifies educators' attitudes towards their own digital literacy with regard to educational areas and recommends exploring educators' attitudes about research and critical evaluation in higher education due to the principle of vertical-spiral sequence and permanent development of digital competencies and digital intelligence.*

**Keywords:** *Critical evaluation, Digital competences, Digital intelligence, Digital environment, Education*

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## THE IMPACT OF DIGITAL LITERACY ON THE CYBER SECURITY OF DIGITAL CITIZENS

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### **ABSTRACT**

*Digital literacy focuses on individual's ability to understand multimedia texts and skills that help in searching the Internet, communicating through various online networks and provide a certain level of security in the digital space. The main subject of this paper is to determine the extent to which digital literacy affects the cyber security of an individual. The aim of the research was to examine whether there is a difference in the perception of the importance of digital literacy and how much its impact is on the cyber security of citizens. Furthermore, this paper presents the main features of digital literacy and cyber security in the digital age, their impact on the individual and potential fraud attempts, along with answering the research question - If age brings wisdom and experience, is it applicable when it comes to security in the digital space? The sample of participants was determined geographically, based on the total daily time spent on the Internet and divided into three age groups. Group A consists of younger participants between 18 - 40 years, group B consists of participants from 41 to 60 years, and group C participants older than 60 years. The research was conducted using the focus group method and structured type of interview that was recorded, in which the author encouraged participants to present their views, opinions and events in which they engaged, which are directly related to cyber security and to assess the impact of digital literacy on cyber security. The results were processed using descriptive analysis and it showed that the participants age is not the backbone of the level of digital literacy and cyber security knowledge and that there are differences between the research groups. The paper points out the importance of*

*developing cyber security awareness regardless of age and opens a new chapter for further in-depth research aimed at designing a causal model of the digital literacy impact on personal cyber security, an application that is possible in lifelong learning.*

**Keywords:** *Cyber security, Digital citizens, Digital intelligence, Digital literacy*

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## **DIGITAL COMMUNICATION AND DIGITAL COMPETENCIES - PREREQUISITES FOR BUILDING THE ORGANIZATION'S DIGITAL IDENTITY**

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### **ABSTRACT**

*Modern countries pay great attention to the development of digital communication of civil society organizations and the public, citizens, through various digital media and channels, of which social networks according to recent research are the most represented. For the purposes of this study, fire brigades were selected from a wide range of functionally different civil society organizations because of their presence in all societies, regardless of level of development and organization, and because of almost equal importance for the safety of citizens regardless of geographical and any other affiliation. Civil society organizations meet problems in communicating with the public on a daily basis: from up-to-date transmission of relevant information, how to transmit it and the selection of relevant media. The rapid development of digital technologies, and consequently the intensification of digital communication, has posed a challenge to civil society organizations on how to transmit relevant information to citizens through digital media*

*and how to build the digital identity of the organization. Whether digital communication and digital competencies of civil society executives influence the creation of their organization's digital identity is a research question on which this study is based, the aim of which is to assess which variable, digital communication or digital competences and consequently on their dissemination in public, some of the questions were asked to the respondents in the survey questionnaire submitted to the heads of fire organizations. The research was conducted on a sample of fire brigades from one county in the Republic of Croatia, the analysis of the results of which showed that the factors of digital communication and digital competencies significantly affect the creation of digital identity of fire brigades. How citizens perceive this identity and whether their perception is in line with strategic projections of the implementation of social media in public relations of fire brigades are questions that require further research.*

**Keywords:** *Civil society organizations, Digital communication, Digital competences, Digital identity, Fire brigade*

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## **PERSONAL CYBER SECURITY MANAGEMENT: BASED ON THE EXAMPLE OF MASTERS OF EDUCATION**

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### **ABSTRACT**

*The pandemic period of Covid-19 introduced numerous changes in the educational system almost overnight, and therefore, insufficiently prepared, the entire teaching process as well as communication among schools, teachers, and students has been transferred online. The extensive use of digital technology to meet the educational needs of students has exposed teachers to threats in cyberspace. Microsoft's Global Threat Activity Tracker recorded a significant increase in cyber attacks on the educational sector during this period, in an attempt to obtain personal data of students and teachers or to set up malware. The educational system is still the most exposed because the level of protection is not strong enough and the number of online users is constantly increasing. The importance of developing cyber security awareness has been emphasized in the Council of Europe document "The Digital Competence Framework for Citizens DigComp 2.2" as one of five areas of digital competence development through eight proficiency levels. The authors of this paper aimed to determine which data protection and storage procedures, device protection, and informed behavior when using social networks are used by masters of education in their free time and how these behaviors differ in their business environment. The research question the authors answer in the paper is which behaviors of masters of education in virtual space pose a threat to their cyber security. A questionnaire was used to conduct the*



*study, which was focused on masters of education in the primary education system from various parts of the Republic of Croatia. The results of the research show that two thirds of the respondents estimate that they pay more attention to cyber security when students' data is included than when it comes to their personal data. What raises major concerns in the results of the research is that one third of the respondents do not apply behaviors and actions in the virtual space that ensure the security of devices, personal data, and content. The findings of the study can be used to develop instructional programs for educators in the field of personal cyber security management.*

**Keywords:** *Cyber attacks, Cyber security, Masters of education, Pandemic, Personal data*

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