
Editorial: “Digital economy, innovation, and science and technology”

Introduction

Governments have to design policies and actions to support the digitalisation of companies and public administrations, as well as determine which digital skills will be key for the new labour market, design educational policies and actions and reduce the digital skills gaps.

Digital tools and solutions open up new opportunities for businesses, public administrations and citizens in the post-pandemic scenario. Enabling digital tools have the potential to create a more inclusive and resilient economy, generate jobs, boost competitiveness and foster the green transition.

The Digital Education Action Plan (2021–2027) of the European Union has two priorities: the development of a high-performing digital educational ecosystem and the enhancement of digital skills and competences (European Commission, 2023a, 2023b, 2023c, 2023d). They need to reap the potential of digitalization to increase the collaboration between academia and businesses and strengthen the creation of strategic research networks and knowledge transfer among relevant stakeholders (Ordóñez de Pablos, 2004a, 2004b; Zhang *et al.*, 2015; Webb and Layton, 2023).

In the EU, the European Commission proposed the 2021–2027 multi-annual financial framework. With a budget of €1.21tn, it includes instruments and funding programmes such as the Digital Europe Programme, the Connecting Europe Facility, Creative Europe and Horizon Europe. Additionally, the European Commission has a new instrument called Next Generation EU (2021–2024), which will support the digital transition. Among the main EU budget programmes, there is a funding programme for research and innovation called Horizon Europe (2021–2027) – with a budget of €95.5bn – which will fund strategic research in areas like digital and green transitions and health. It will foster the development of research and innovation in artificial intelligence, big data, next-generation internet or 6G, for example (European Commission, 2023a, 2023b, 2023c, 2023d).

Businesses, governments and citizens must tackle the challenges and opportunities of the digital and green transition, reap the benefits of digitalization and boost the economies.

Contents of the issue

The second issue of 2023 presents a collection of nine papers that address key issues for companies and governments, like 3D printing technology, entrepreneurship, electronic payments, mobile banking, science and technology policy and supply change management, among others. The discussion covers countries like Costa Rica, Greece, Iran, Iraq and Pakistan.

The paper titled “User Trends of Electronic Payment Systems Adoption in Developing Countries: An Empirical Analysis” (by Al-Sabaawi *et al.*, 2021) states that “electronic payment (e-payment) systems literature analysis reveals that they are growing in developing countries; however, they are limited in the Arab countries and, more importantly, scarce in Iraq in particular. Therefore, this paper aims to investigate the factors influencing the intention of users to use e-payment systems in Iraq. Additionally, this study proposes an e-payment adoption model based on technology usage models to identify user



trends toward e-payment systems. A quantitative approach is adopted to test the proposed model. The proposed model is based on the Unified Theory of Acceptance and Usage of Technology theory. The proposed model is validated using survey data from 339 e-payment system users. Using Amos software, this study used structural equation modeling (SEM), a statistical technique for analyzing factor relationships. The findings of the study indicate that performance expectancy, effort expectancy, social influence, facilitating conditions and price saving orientation influence Intention to accept the e-payment system. Similarly, habit, technology security, trust, innovation resistance, psychological empowerment also affect intention to accept an e-payment system. However, hedonic motivation and perceived risk do not affect e-payment system adoption”.

The paper titled “Study of Deployment of ‘Low Code No Code’ Applications Towards Improving Digitization of Supply Chain Management” (by Bhattacharyya and Kumar) aims to “understand the concept of ‘Low Code No Code’ applications and study its scope of application for web designing, rapid application development (RAD) and supply chain digitization (SCD). A qualitative exploratory study was conducted for this exploratory study. A semi-structured open-ended questionnaire was prepared by the authors. Based on the questionnaire in-depth interviews were conducted with subject matter experts having more than 10 years of experience in the domain of supply chain management and digitization. The study questionnaire focused on the current reach and future potential of ‘Low Code No Code’ platforms. A total of 20 responses were collected from experts as post this point thematic saturation was reached. A non-probabilistic convenience sampling was applied to identify the experts. The major findings that emerged from the study was that ‘Low Code No Code’ platforms applications could be used across end-to-end SCD. The study also revealed that RAD through ‘Low Code No Code’ platforms could reduce organizations dependency on coders. In the case of procurement, ‘Low Code No Code’ applications could improve vendor and supplier management by streamlining processes. The cost-effective and easy-to-maintain ‘Low Code No Code’ application development could help Medium and Small-Scale Enterprises level the playing field against large organizations. The lack of adoption strategy and low perceived usefulness was identified as major barriers to the adoption of ‘Low Code No Code’ applications by organizations”.

The paper titled “COVID-19 Complications and Entrepreneurial Intention Among the Entrepreneurs of Pakistan: Evidence from the Second Wave of the Pandemic” (by Soomro and Shah) affirms that “at present, nearly the whole globe is facing a severe threat of COVID-19. This study aims to examine the COVID-19 complications and entrepreneurial intention among the entrepreneurs of Pakistan. The study used a deductive approach. An online survey is conducted to collect cross-sectional data from entrepreneurs of Pakistan. Convenience sampling is applied to target the respondents. In total, 278 usable answers proceed for final analysis. The structural equation model (SEM) is used to infer the results. The findings of the study highlight a significant negative effect of fear of COVID-19 (FO19), perceived susceptibility (PSU) and perceived severity (PSE) on entrepreneurial intention (EI) among the entrepreneurs”.

The paper titled “Service Quality and Self-Determination Theory Towards Continuance Usage Intention of Mobile Banking” (by Inan, Hidayanto, Juita, Soemawilaga, Melinda, Puspacinantya and Amalia) explores “the quality service and self-determination theory (SDT) that contributes to the continuance usage of m-banking. A valid of 310 respondents who experienced and intensified using the m-banking is collected. The proposed research model is empirically tested using structural equation modelling. The result informs that the service quality can not only be significantly mediated by the SDT, but it also has a direct effect to the satisfaction. It also informs that the satisfaction and the perceived usefulness

indeed have a significant effect to the continuance usage intention of the m-banking. In addition, it also demonstrates that the perceived competence and perceived relatedness of the SDT significantly influence satisfaction and perceived usefulness towards the continuance usage intention of the m-banking”.

The paper titled “The Determinants of Bank Selection Criteria of SMEs: A Fuzzy Analytic Hierarchy Approach” (by Kaur and Gupta) affirms that “small and medium enterprises (SMEs) have been reported as a credit-constrained sector in the earlier literature. Amidst the available external financing options, SMEs are dependent upon banks for their financial needs, hence they offer an important profitable segment for banks. Commercial banks need to develop effective targeting strategies for this segment and ranking the priorities of SMEs in selecting commercial banks will be of great help to them. The purpose of this paper is to implement a fuzzy analytic hierarchy process (FAHP) multi-criteria decision model for commercial bank’s selection by SMEs. The research process was carried out in two phases. In Phase I, a self-structured scale was developed to measure bank selection criteria of SMEs after an extensive review of the literature of relevant studies on the topic. A sample of 600 SMEs was selected through non-proportionate quota sampling and only 313 valid responses were received. Phase II was conducted to prioritize the extracted factors through FAHP, a multi-criteria decision-making technique. For this purpose, another questionnaire was designed in the form of pair-wise evaluation and the response was taken on the same from those 313 SMEs again. The results showed that SMEs bank selection criteria can be categorized under six heads, namely, bank attributes, accommodation of credit needs (AC), bank personnel, financial factors (FF), service quality (SQ) and business knowledge. The research study produced a reliable and valid instrument for studying the bank selection criteria of SMEs. The results further revealed that AC is the most important factor considered by SMEs followed by FF and SQ. Going further, global weights were also calculated through the FAHP which revealed that the most important consideration (variable) viewed upon by SMEs is willingness to accommodate credit needs followed by flexible collateral requirements and absence of hidden charges”.

The paper titled “A Survey Analysis for the Adoption of 3D Printing Technology: Consumers’ Perspective” (by Mavri, Fronimaki and Kadrefi) states that “although the adoption of 3D printing technology in many sectors such as medicine, aerospace, jewelry and the food industry is remarkable, the adoption of 3D printing technology by hobbyists remains unknown. The purpose of this paper is to map the attitude of individuals toward this new technology, define critical factors that have an impact on hobbyists’ behavior and, finally, explore the impact of 3D printing on social, economic and environmental changes, as 3D printing technology redesigns manufacturing, thereby impacting many sectors of day-to-day life. A survey has been carried out on Greek hobbyists, and valuable conclusions have been drawn. Data were collected using a structured questionnaire survey performed on a sample of 344 Greek consumers in this sector. A questionnaire of 30 questions was distributed electronically. This paper contributes to the determination of the percentage of individuals that know about 3D printing, the factors that have a significant contribution to adoption of the technology and, finally, identifies the profile of those that use 3D printing technology either in their work or for their hobby. Using a factor analysis, the authors classified users into five categories based on their attitudes towards 3D printing adoption: ‘innovators’, ‘informed’, ‘ecologists’, ‘engineers’ and ‘re-users”.

The paper titled “Designing a Multi-Division Model of National Innovation Capability Promotion Based on Social Network Analysis” (by Torabandeh, Dorri, Rabieh and Motameni) studies “the design a national innovation capability appraisal model. This would indicate Iran’s competitiveness situation among regional countries and suggest factors

influencing Iran's performance promotion. The methodology included four sections: bibliometric analysis to discover intellectual evolution of innovation capability and related concepts; construction of a multi-division structure of national innovation capability according to the clusters extracted from bibliometric results, and experts' opinions; creating dynamic network data envelope analysis (DEA) according to designed structure, and analysis of Iran's performance among regional countries; identification and prioritization of the factors extracted from experts' opinions that improve Iran's performance in created network using Fuzzy decision-making trial and evaluation laboratory method. The contemporary bibliometric analysis by its extracted clusters proved the necessity of a multi-division for measuring national innovation capability performance that each division and indicators of each step were designed according to clusters concepts. In designed structure, dynamic network DEA results revealed the weakness of Iran's performance in the third division in the transformation of patents and high-tech imports to high-tech and creative exports, which led to proposing improving factors by getting experts' opinions to enhance Iran's performance in this division by prioritizing them".

The paper titled "Innovation Models and Interdisciplinarity in Science, Technology, and Innovation Policy in Costa Rica" (by Soto and Vienni Baptista) analyses "innovation models and interdisciplinarity in science, technology and innovation (STI) policy in Costa Rica between 2015 and 2021. The core focus is to evaluate the public policy in light of the groundwork that sustains the designed and proposed actions. The authors applied a qualitative approach to build a set of dimensions and conducted content-analysis of selected documents. The analysis encompasses all current STI public policy documents in Costa Rica, including the planning instruments of the Central Government and the National Policy on STI. The main findings show that STI policy in Costa Rica is based on different innovation models, but the projects and instruments themselves show the predominance of the reductionist model. Innovation receives a residual role. In turn, interdisciplinarity is based on the concept of convergence, which limits disciplinary collaboration to the natural, physical and engineering sciences, minimising contributions from other fields of knowledge to an instrumental role in innovation processes".

Finally the last paper of the issue is titled "Exploring the Experts' Perceptions of Barriers to Using Internet of Things for Chronic Disease Management in Iran" (by Dadkhah, Mehraeen, Rahimnia and Kimiafar). It discusses how "Internet of things (IoT) promises advantages in different sectors, especially the health-care sector. Due to its capabilities for chronic disease management, IoT has attracted the attention of researchers. Nowadays, there is research that focuses on the use of IoT for chronic disease management. However, the use of IoT in various contexts faces different barriers. This paper aims to explore Iranian experts' conceptions of the barriers to using IoT in Iran regarding its application for chronic disease management. This study follows a phenomenographic method to investigate Iranian experts' conceptions of the barriers to using IoT in Iran regarding its application for chronic disease management. The results show that there are four categories of description (governance, technical, economic and social barriers) that vary among experts' conceptions".

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