
Editorial: Digital technologies, innovation and competitiveness: shaping the future of economies and societies

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Introduction

Governments, companies and citizens need to get a better understanding of the huge potential of advanced digital technologies to accelerate the transition towards a green and digital economy and society. These innovative technologies can lay the foundations for a more resilient and inclusive society.

After COVID-19 pandemic, nations and companies recognise the increasing importance of strategic knowledge-based resources (intellectual capital) to accelerate the economic recovery and build long-term sustainable competitive advantages. The investment in human capital, relational capital and structural capital, together with the use of emerging digital technologies, will foster the creation of more resilient economies and societies. To navigate in the digital age, it is vital to develop scientific networks where relevant stakeholders (academics, researchers, entrepreneurs, policymakers, etc.) can converge to discuss and shape the roadmap for the green and digital transition ([Almunawar and Anshari, 2024](#); [Broccardo et al., 2024](#); [European Commission, 2024a, 2024b](#); [Li and Lin, 2024](#); [Ordóñez de Pablos, 2004a, 2004b, 2004c, 2005](#); [Lytras and Ordóñez de Pablos, 2008](#); [Naseem et al., 2024](#); [Sharma et al., 2022](#); [Zhao et al., 2014](#); [Zhang et al., 2015](#); 2023, 2024).

In the European Union, Horizon Europe (the EU's research and innovation programme for 2021–2027) “supports creating and better dispersing of excellent knowledge and technologies”. With a budget of €95.5 billion, Horizon Europe is structured into three main pillars:

- (1) Pillar I: Excellent Science.
- (2) Pillar II: Global Challenges and European Industrial Competitiveness.
- (3) Pillar III: Innovative Europe ([European Commission, 2024c](#)).

Other initiatives supported by the EU are the EU4Health programme (budget of €5.3bn), LIFE Climate Change Mitigation and Adaptation (LIFE programme 2021–2027) ([European Commission, 2024c, 2024d](#)).

What are other regions, nations and companies doing to successfully transition towards the green economy? How can we build more resilient and inclusive economies and societies? Could new and emerging digital technologies consume more energy than they aim to save? How can we address these global challenges?

We hope this issue of *Journal of Science and Technology Policy Management* stimulates lively debate about the future of digital innovation and contributes to lay the foundations for more resilient and inclusive economies and societies in the digital age. It endeavours to inspire actions, strategies, policies, and recommendations that pave the way for the digital future in Asia, Gulf Region and beyond.

Contents of the issue

The fourth issue (2024) of *Journal of Science and Technology Policy Management* presents a collection of 10 papers that address key issues for companies and governments, like digital



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health, higher education, information technologies, machine learning and mobile banking, among others. Among them, there is a special section discussing advanced digital technologies in health care sector to address global emergencies like COVID-19. Discussions include empirical evidence from India, Indonesia, Sri Lanka and UAE, among others.

Our special section of the issue titled “Information technologies applications in healthcare sector in COVID-19 landscape: New strategies for disruptive scenarios” includes four papers that address some experiences of innovative digital health solutions during COVID-19 pandemic.

The paper titled “Mental health innovative solutions in the context of the COVID-19 pandemic” (by Rocha and Almeida) discusses:

Worldwide innovative solutions that have been proposed to mitigate the effects of COVID-19 pandemic on people's mental health. A qualitative methodology is adopted, which performs an exploratory study considering the innovative projects identified by the Observatory for Public Sector Innovation framework. Additionally, the analysis of the relevance and characteristics of these projects are explored considering a multidimensional framework composed of five dimensions: novelty level; social need; improvement of society; sector neutrality; and level of emergence. The findings reveal that the number of projects in the field of mental health is low, despite their strong relevance to their communities. These projects arise from a strong social need to protect especially the most vulnerable groups in this pandemic and involve a large number of partners in the public sector, business and civil society. The role of volunteering in the revitalization and growth of these initiatives is also recognized.

The paper titled “Assessing patient readiness for a patient portal implementation in the UAE” (by Razmak) develops a:

Web-based patient portal based on the electronic medical record. Such a portal can allow patients to manage their own health care, reduce health-care visits and significantly improve the quality of their health care. A patient portal prototype and an accompanying online survey were distributed to assess the adoption readiness among a group of people in the United Arab Emirates (UAE). The results from 470 survey participants demonstrated an enhanced awareness of this technology, and support the study hypotheses indicating that both intrinsic and extrinsic factors are important when considering the implementation of a patient portal in the UAE. This study adds value to the few research studies undertaken in the Middle East discussing online health information technology and its adoption and usage among the population at large. The extended technology acceptance model, which contains two additional constructs, had not been previously validated in terms of a patient portal in the UAE, according to the author's knowledge, adding more value. The UAE's health-care system must use the benefits from the available IT infrastructure to provide a user-friendly online portal to encourage patients to manage their health care and health information.

The paper titled “A review of telehealth during the COVID-19 emergency situation in the public health sector: challenges and opportunities” (by Maleka and Matli) discusses the:

Current state of knowledge on how the COVID-19 emergency situation necessitated the behaviour influencing use and acceptance of telehealth. This study interlinks the health belief model (HBM) and the unified theory of acceptance and use of technology (UTAUT) to highlight the challenges and opportunities as a result of the COVID-19 pandemic in the public health sector. This study used three online databases (Emerald publishing, Science Direct and Taylor and Francis) that enabled the authors to access electronic journal articles. Search strategy was used to extract articles based on the relevance of this study. The key findings from this study suggested that the COVID-19 emergency forced health-care workers and their patients to rapidly use and rely on telehealth to reduce the rate of COVID-19 transmissions. The key benefits of telehealth use highlighted an expansive cost effective and convenient access to health-care services irrespective of geographical local and levels of physical impairment. Moreover, telehealth inhibited in person

human interaction, which was perceived as impersonal and not ideal for new patient consultations. The barriers outweighed the benefits; as a result, it is unlikely that there will be a wide use of telehealth beyond the COVID-19 emergency situation.

Finally, the last paper of this special section, titled “A machine learning approach on analysing the sentiments in the adoption of telemedicine application during COVID-19” (by Dhanya and Sanjana), explores:

Customers’ sentiment towards telemedicine apps and also to apply machine learning algorithms to analyse the sentiments in the adoption during the COVID-19 pandemic. Text mining that uses natural language processing to extract insights from unstructured text is used to find out the customer sentiment towards the telemedicine apps during the COVID-19 pandemic. Machine learning algorithms like support vector machine (SVM) and Naïve Bayes classifier are used for classification, and their sensitivity and specificity are found using a confusion matrix. The paper explores the customer sentiment towards telemedicine apps and their adoption during the COVID-19 pandemic. Text mining that uses natural language processing to extract insights from unstructured text is used to find out the customer sentiment towards the telemedicine apps during the COVID-19 pandemic. Machine learning algorithms like SVM and Naïve Bayes classifier are used for classification, and their sensitivity and specificity are found using a confusion matrix. The customers who used telemedicine apps have positive sentiment as well as negative sentiment towards the telemedicine apps. Some of the customers have concerns about the medicines delivered, their delivery time, the quality of service and other technical difficulties. Even a small percentage of doctors feel uncomfortable in online consultation through the application.

The rest of the issue of *Journal of Science and Technology Policy Management* contains six regular papers.

The paper titled “Idiosyncrasies, isomorphic pressures and decoupling in technology platform business” (by Iman) studies:

The ways and contexts in which fintech firms are being developed, operated in the market and responds to competitive pressures and technological changes through isomorphism and decoupling mechanism. How can new technology platform business successfully distinguish themselves from competitors while also ensuring that they are seen as legitimate and appropriate? This paper draws on a case study of fintech start-ups in Indonesia. This study shows that managing market pressures for distinctiveness (customer-appealing) versus business pressures for profits (investor returns) drives firms’ quest for optimal distinctiveness. It is evident that fintech firms increase their control by consolidating themselves through their industrial association and by forming a close relationship with regulators. However, to escape the iron cage of the field, they increasingly control the coupling of profitability and compliance.

The paper titled “A systematic review of UTAUT2 constructs’ analysis among MSMEs in non-OECD countries” (by Lee, Lim and Eng) studies:

The unified theory of acceptance and use of technology (UTAUT) and UTAUT2 constructs used in research on information and communication technology (ICT) adoption and use among micro, small and medium enterprises (MSMEs) in non-organisation for economic co-operation and development (OECD) countries. It also investigates the areas of ICT adoption along the value chain in studies using these constructs. Systematic literature review (SLR) was conducted, where 910 studies were retrieved manually in five academic databases. Forty-eight studies were finalised after four filtration levels. Majority of the studies were published within the past six years, and 85.42% were studies in the form of journal papers. UTAUT constructs more researched compared to UTAUT2 constructs. More than half of the studies investigated ICT application in value chain boundaries, while 16 studies were organisation-wide studies.

The paper titled “Cold supply chain of leafy green vegetables: a social network analysis approach” (by Shaharudin and Fernando) states that:

Cold supply chain technology is critical for extending the shelf life of perishable leafy green vegetables. This study aims to investigate the concept of managing leafy green products using cold supply chain technology and visualise the findings. Using expert interviews and data visualisation approaches, this study examines how organisations deal with the complexity of cold supply chain processes and networks. Thematic data analysis was conducted. Two types of software were used to accomplish the research objectives. The first software used AntConc version 3.5.8 with word frequency (*N*-gram) analysis, whereas the second software, VOSViewer offered co-occurrence network visualisation and cluster analysis. The findings show that the appropriate design of cold chain technology is critical in ensuring the freshness and quality of leafy green vegetables. The primary goal of managing the complexity of the cold supply chain is to achieve product freshness and energy efficiency. Regardless of the importance of energy efficiency, cold supply chains require warehouse management solutions for transportation and storage.

The paper titled “Higher education research performance parameters classified by systems theory: antecedents for the development of assessment models” (by Hermanu, Sari, Sondari and Dimiyati) seeks to:

Identify and classify the parameters that construct the input, processes, output, productivity and outcome variables that affect performance. These parameters are used in the evaluation model to measure research performance in universities so that they can be used as the basis for making leadership policies both at the national and institutional levels. The design of this research is a quantitative research method using a survey questionnaire that was sent to the heads of research institutions at universities in Indonesia. To obtain these parameters, a test for determining the value of the loading factor was used. The authors found that input variable parameters consisted of 10 parameters; process variable consisted of 22 parameters; output variable parameters consisted of 8 parameters; productivity variable consisted of 4 parameters; and outcome variable parameters consisted of 10 parameters.

The paper titled “The work in progress of a developing nation’s triple helix and its impact on patent commercialization. The case of Sri Lanka” (by Ferdinands, Azam and Khatibi) addresses the topic of:

The innovation environment of a developing nation through the Triple Helix model, revealing the existing inter-relationships between the three Helixes of Academia–Industry–Government. It sets out to find out the relationship and impact of the three Helixes on the most crucial stage of the innovation process: the commercialisation of patents, and to ascertain if there is a varying impact determined by patent ownership. This cross-sectional study uses the survey method based on the views expressed by 220 Sri Lankan registered patent holders and categorised by organisational and individual ownership. The sample is drawn from the database of the National Intellectual Property Office of Sri Lanka and patents registered through the Patent Cooperation Treaty, extracted from the World Intellectual Property Organisation Patent Scope database. The survey was carried out in 2019 and limited to patents registered during the period 2010–2014. The empirical findings indicate weak inter-relationship between Academia support, Industry support and patent commercial success, while the support of the Government Helix is non-significant in the commercial stage. The findings also indicate two different support standards existing in each Helix for the two ownership groups.

Finally, the paper titled “Customers’ positive WOM toward m-banking: a standpoint of extended fairness theory and value-in-use” (by Le) explores:

A mechanism of positive word of mouth (PWOM) toward mobile banking (m-banking) by extending the fairness theory (FAT) with satisfaction (SAT) and value-in-use (VIU). A research model is

examined by obtaining data from a web-based survey of 398 respondents who have used m-banking in Vietnam. AMOS 21.0 software is applied to analyze the hypothetical model with covariance-based structural equation modeling. The results reveal that price fairness (PRI) is of primary importance of fairness perception (FAI) in m-banking, followed by informative fairness, procedural fairness, interactional fairness and distributive fairness. Furthermore, SAT and VIU play a vital role in developing PWOM. In addition, FAI exerts a positive influence on SAT and VIU.

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