Editorial

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Digital innovation, entrepreneurship and sustainability: lessons for post-pandemic scenarios

Introduction
Research and innovation can provide solutions to major global challenges like the acceleration of post-pandemic economic recovery, the transition towards a more circular economy and the green growth. Companies, governments and societies need to work more on circular, digital and green economy initiatives, policies and strategies (European Commission, 2021a; Ordóñez de Pablos *et al.*, 2021).

An agenda for action to spur digital transformation and green growth in the coming years needs to be laid out urgently. It is important to develop international collaborations to accelerate the transition towards a more circular and climate-neutral economy and society and create new jobs opportunities in a more inclusive society. For example, according to the European Commission (2021a, 2021b), "eco-design, eco-innovation, waste prevention and the reuse of raw materials can bring net savings for EU businesses of up to EUR 600 billion". Furthermore, "turning the Union into a resource-efficient, green and competitive low-carbon economy is one of the three objectives of the 7th Environment Action Programme" (European Commission, 2021b).

International collaborations between national research centres, universities and companies will benefit from knowledge sharing that will contribute to replicate innovative solutions in the field of digital innovation (European Commission, 2021a, 2021b; Moazzez *et al.*, 2020; Ordóñez de Pablos, 2004a, 2004b, 2005; Vaska *et al.*, 2021; Zhang *et al.*, 2016). Moreover, companies and countries need to invest in their human capital, re-skill and upskill and develop new competencies that support the transition towards a circular and green economy (Lytras *et al.*, 2018; Ordóñez and Edvinsson, 2020; Zahedi and Naghdi Khanachah, 2021).

Although we are looking forward to 2022, I would like to highlight some important news of the *Journal of Science and Technology Policy Management* in 2021. Our journal published papers on relevant topics like blockchain, Covid-19, financial technology, green issues, knowledge-based economy, novelty innovation and sustainability and with a geographical focus on a wide variety of countries such as Argentine, Bangladesh, Borneo, China, Indonesia, Iran, Kazakhstan, Malaysia, Myanmar and Pakistan.

Additionally, the journal published a special issue titled "Management of Policy and Technological Innovation in Indonesia "that attracted the attention of many academics, researchers and policymakers from around the world.

We hope that the issues of 2022 continue to be useful for our readers and a source of inspiration for future research and policymaking. The journal provides evidence and discussion of innovation and research practices and strategies around the world, with a focus on green economy and sustainability, as well as analysis of main trends.

Contents of the first issue of 2022
The first issue of 2022 presents a collection of nine papers that provide solid discussion of major challenges and trends for companies and economies nowadays.

The first paper of this issue, titled "ANN model for users perception on IOT based smart healthcare monitoring devices and its impact with the effect of COVID 19" (by Kashmira Ganji and Sashikala Parimi) affirms that "COVID-19 was indeed a global epidemic that

revolutionized the way of life, especially health-care services. The way health care will be delivered will undergo a dramatic change in the future. The aim is to analyse the increasing usage of health care systems along with digital technology and IoT especially during pandemic. This research paper deals with users' perception and their recommendation status of IoT-based smart health-care monitoring devices based on their perception, experience and level of importance to enhance the quality of life. An effective artificial neural networking (ANN)-based predictive model is designed to classify the user's perception of usage of IoT-based smart health-care monitoring wearables based on their experience and knowledge. The model developed has 96.7% accuracy. Among the various predictors chosen as inputs for the model, the findings indicate that self-comfort and trusted data from the device are of high priority. The present study focused only on some common factors derived from previous studies".

The paper titled "Feedback effects of economic growth on innovation: A country-level empirical study" (by Senthilkumar Thangavelu, Sangeetha Gunasekar and Amalendu Jyotishi) aims to "understand the nature of the feedback effects of economic growth on innovation. The question is whether the economies with higher levels of endowments have a declining feedback effect of income on innovation and contribute to the development of effective innovation policies are raised. This study hypothesizes that innovation input's response to economic growth in terms of income is an inverted "U" shaped path, whereas the innovation output's response to income is positive and asymptotic. This paper uses the global innovation index data of 154 countries over the period 2013–2017 on innovation and gross domestic product for the analysis using the fixed-effect regression models. The results confirmed the inverted U shaped relationship in the line of Kuznets's curve for innovation input and that of negative slope and asymptotic behaviour for innovation output".

The paper titled "An Indicator-Based Integrated Methodology for Evaluating Sustainability in Transportation Systems Using Multivariate Statistics and Fuzzy Logic" (by Ubaid Illahi and Mohammad Shafi Mir) aims to "quantify and evaluate transport sustainability from an integrated perspective. It is argued that transportation systems being interdisciplinary and complex, the integrated approach towards quantification and evaluation would present its sustainability goals' attainment in a much better way. The proposed integrated methodology is divided into five major steps that are sub-divided. It adopts a three-tier classification system i.e. pillar, sub-division and indicator. In total, 116 sustainable transportation indicators (STIs) were classified into 10 subdivisions corresponding to three sustainability pillars. The weighting and aggregation of STIs were done using a combination of a statistical tool called principal component analysis/factor analysis, a machine learning tool called fuzzy logic and equal weighting method. The final output that the proposed integrated methodology generates is a new composite index called the integrated sustainable transportation index (IIST). To check the credibility of the proposed integrated methodology, it was applied to 26 states and the National Capital Territory (NCT) of Delhi, India. Based on the computed IIST, 27 study zones were ranked and mapped. The results showed that while Tamil Nadu (0.643), Telangana (0.574) and Maharashtra (0.564) were the best-performing states, Goa (0.347), Chhattisgarh (0.436) and Meghalaya (0.439) were the worst-performing states, as far as the relative transportation sustainability is concerned".

The paper titled "Building entrepreneurial ecosystems: the case of Coimbra" (by Domingos Santos) has three goals. "The first objective is to contextualize and clarify the concepts of regional innovation systems and entrepreneurship, addressing their differences and complementarities and suggesting an analytical filter to enhance their understanding. The second aim is to question and analyse the challenges this renewed approach brings to

the domain of territorial policy, namely, the role it may bring to local and regional development strategies, opening up the way for a set of public policy interventions on the fields of entrepreneurship and innovation promotion. Finally, the paper presents and analyses the example of Coimbra, a medium-sized city in Portugal, underlining both the role of academia and the Instituto Pedro Nunes-Incubator have had on these domains. The paper is based on a case study approach, with an in-depth descriptive and exploratory analysis of the Coimbra entrepreneurial ecosystem. The paper acknowledged the role entrepreneurial stakeholders have on the fertilization of the innovation and entrepreneurial Coimbra ecosystem. The Instituto Pedro Nunes-Incubator, with a new generation of startups, mostly born on its infrastructure as university spin-offs, gradually introduced a more business-oriented perspective on the local innovation system which, alongside the creation of a thicker networking and more profound cooperation culture, with the growing involvement of other local stakeholders such as science parks (Coimbra iParque), has had a decisive role on upgrading urban competitiveness. These new knowledge-based startups also have important spill-over effects that are beneficial to the growth of other firms in the same locality. There is evidence that they also provide an important Schumpeterian stimulus within economies by increasing competition, promoting innovation and augmenting the efficient allocation of resources within economies. Besides the more traditional transactional forms of support (tax incentives, grants, etc.), there is now the recognition that relational forms of support such as network building, developing connections between entrepreneurial actors, institutional alignment of priorities, fostering peer-based interactions have been strategic to improve both the efficiency and the effectiveness of the entrepreneurial ecosystem".

The paper titled "An internet of things-based smart warehouse infrastructure: design and application" (by Ifadhila Affia and Ammar Aamer) states that "real-time visibility and traceability in warehousing could be accomplished by implementing the internet-of-things (IoT) technology. The purpose of this paper is to develop a roadmap for designing an IoT-based smart warehouse infrastructure and, respectively, design and apply the IoT-based smart warehouse infrastructure using a developed roadmap. More specifically, this study first identifies critical components to design an IoT-based smart warehouse infrastructure. Second, the study at hand identifies essential factors that contribute to the successful implementation of IoT-based smart warehouse infrastructure. A qualitative-descriptive method, through a comprehensive review of the relevant studies, was used in this study to develop a roadmap. A prototype system was then designed to simulate a case company's actual warehouse operations in one of the manufacturing companies in Indonesia. A framework was proposed which is viable for designing an IoT-based smart warehouse infrastructure. Based on the data collected from a case company, the proposed smart warehouse infrastructure design successfully implemented real-time visibility and traceability and improved overall warehouse efficiency".

The paper titled "Teenagers' behavioural intention towards wearable technologies and intention to recommend others: An empirical study in Bangladesh" (by Md. Shahinur Rahman, Samir Das, Gazi Md. Shakhawat Hossain and Tajia Tajrin) studies "the factors which drive teenagers' behavioural intention to adopt wearable technologies and their behavioural intention to recommend others. This study proposes a new adoption model combining two different models including the extended unified theory of acceptance and use of technology and the theory of planned behaviour, which provided relevant contributions for understanding the adoption of wearable technologies. A structural equation modelling approach using analysis of a moment structures 23 software was used to analyse the data collected from 318 respondents. In this study, the understanding of the determinants

contributing to teenagers' behavioural intention to use wearable technologies and driving their intention to recommend others to adopt these devices will provide insights to practitioners and decision makers to customize the features of wearable devices to promote sustainable use of these technologies. This study is among the first to investigate wearable technologies from behavioural perspectives especially on teenagers in Bangladesh. Hence, the findings of this study will help to comprehensively explain teenagers' behavioural intention to adopt wearable technologies and their intention to recommend others".

The paper titled "An empirical investigation of Maintenance Practices for enhancing manufacturing performance in Small and Medium Enterprises of Northern India" (by Simranjit Singh Sidhu, Kanwarpreet Singh and Inderpreet Singh Ahuja) analyses the "contributions of maintenance practices and extract various significant factors that influence the implementation of maintenance practices in northern Indian small and medium-sized enterprises' (SMEs) business performance. In the current study, 216 north Indian SMEs have been extensively surveyed to assess the contributions of different maintenance practices implementation dimensions and manufacturing performance attributes through different statistical techniques. Analysis of variance (ANOVA) was used to statistically validate the hypotheses, while Levene's experiment and Wilk–Shapiro tests were used to confirm ANOVA's assumptions. Finally, the discriminating validity test extracts highly successful and moderately successful organizations. The present research aims to evaluate the contributions of different maintenance practices implementation dimensions on SMEs' manufacturing performance attributes. The study highlights that strategic maintenance practices such as corrective maintenance (CM), general maintenance issues, preventive maintenance (PM) issues and predictive maintenance (Pd.M) initiatives have enhanced overall equipment effectiveness, overall business performance, quality, cost optimization, safety, delivery and morale in SMEs".

Next paper, titled "Development of Innovation Ecosystem Framework for Successful Adoption of Industry 4.0 Enabling Technologies in Indian Manufacturing Industries" (by Bhaveshkumar Nandanram Pasi, Subhash K. Mahajan and Santosh B. Rane) aims to "develop an industry 4.0 (I4.0) innovation ecosystem framework by exploring the essential components of the same to ensure the collaborative efforts of different stakeholders. In this research work, important perspectives and their sub-components for the I4.0 innovation ecosystem framework are identified by performing a systematic literature survey of peer-reviewed journal articles. Then, I4.0 challenges among higher education (HE) institutions students and industries in India are explored by adopting the questionnaire-based research approach. Finally, the importance of the identified perspectives and their sub-components and causal relations among components are analyzed by using the decision-making trial and evaluation laboratory method. From the literature survey, three perspectives and their 45 sub-components are identified for the I4.0 innovation ecosystem framework. The outcomes show that the industry has a direct impact on HE institutions and the government. While HE institutions are most influenced by the industry and government. This research work will facilitate policy formulation by the government. It will also help the managers to develop strategies for the adoption of I4.0 enabling technologies in their business".

Finally, the last paper of this issue, titled "Can technological innovation spur economic development? The case of Indonesia" (by Eddy Junarsin, Mamduh Mahmadah Hanafi, Nofie Iman, Usman Arief, Ahmad Maulin Naufa, Linda Mahastanti and Jordan Kristanto) proposes that "innovation in digital technologies has been the main force in promoting growth and inclusion. However, the impact of such innovations remains ambiguous. Within this context, this study aims to analyze the distribution of digitally empowered peer-to-peer (P2P) lending in Indonesia. This study uses a quantitative approach to estimate the impact

of technological innovation in promoting economic development. In particular, this study employs empirical panel data from 135 financial technology (FinTech) companies from 2015 to 2019 and use the dynamic panel threshold regression approach. This study collects secondary data to build the estimated model".

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Further reading

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