
Editorial: Digital innovation, competitiveness and governments: insights from Oman and other countries in the digital era

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Introduction

The coronavirus outbreak in 2020 represented a major unprecedented challenge for citizens and economies around the world. Countries and regions took measures to slow down the spread of the coronavirus, increase the capacity of health systems, reinforce their education systems and institutions and save lives across the world. But social and economic issues cannot be forgotten, providing protection for workers and economic sectors, implementing strategies and plans to boost the economy and helping firms to be more resilient and inclusive (Abdelfattah *et al.*, 2023; Al-Busaidi, 2020; Al-Youbi *et al.*, 2020; European Commission, 2023a, 2023b; Lytras and Ordóñez de Pablos, 2008; Ordóñez de Pablos, 2004; Rahman *et al.*, 2022; Tawfik and Elmaasrawy, 2023).

Issue 5 of *Journal of Science and Technology Policy Management* includes a special section titled “Digital innovation, entrepreneurship and green issues in Omani society and economy: Towards the Oman 2040 Vision”. In addition, our readers will find four regular papers discussing digital innovation and ecosystem, competitiveness and digital government too.

Oman 2040 Vision is “the Sultanate’s gateway to overcome challenges, keep pace with regional and global changes, generate and seize opportunities to foster economic competitiveness and social well-being, stimulate growth, and build confidence in all economic, social and developmental relations nationwide” (Oman 2040 Document, p. 8). It is the vision for the transition of Oman from an oil-based economy towards a more diversified and sustainable economy and an innovation and knowledge-based economy. Oman 2040 includes national priorities, strategic directions and objectives, policies and five-year development plans. The national priorities of Oman are as follows:

- education, learning, scientific research and national capabilities;
- health;
- citizenship, identity and national heritage and culture;
- well-being and social protection;
- economic, leadership and management;
- economic diversification and fiscal sustainability;
- labour market and employment;
- the private sector, investment and international cooperation;
- development of governorates and sustainable cities;



This paper forms part of a special section “Digital innovation, entrepreneurship and green issues in Omani society and economy: towards the Oman 2040 Vision”, guest edited by Patricia Ordóñez de Pablos.

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- environment and natural resources;
- legislative, judicial and oversight system; and
- governance of state's administrative bodies, resources and projects (Oman 2040).

The special section on Oman explores how game-changing digital innovations and technologies, as well as entrepreneurial activities, can help the Sultanate of Oman to achieve its national priorities, modernize Omani economy, transform services and industries to provide innovative solutions, achieve SDGs, generate new jobs, boost the economy and achieve more prosperity for the Sultanate and region. This section analyzes the impact of digital innovation, green technologies and entrepreneurship in the Sultanate of Oman. It proposes solutions for a digital, greener and more inclusive society and economy in the country.

Special section on “Digital innovation, entrepreneurship and green issues in Omani society and economy: Towards the Oman 2040 Vision”

The first paper of the special section titled “Can government financial support enhance job creations: Insights from Oman” (by Al Shukaili, Al Kindi, Kassim, Ahmed and Al Hosni) states that “promoting and supporting entrepreneurship is a critical pillar of Oman’s vision 2040. The need to understand to what extent the effectiveness of public funds given to micro and small enterprises in Oman as well as to understand the characteristics of the funds that can drive the impact of such government financial support programs on those enterprises motivated us to conduct this study. Therefore, the purpose of this study is to investigate the impact of the government loan support programs on job creation in micro and small enterprises in Oman. Hypotheses were tested using data collected from 1,127 micro and small enterprises that received loan supports from the Government of Oman. The authors explored the impact of a set of predictors on a dependent variable (job creation) to understand to what extent do the supported micro and small enterprise characteristics significantly influence job creations in the enterprises. Multiple regression and General Linear Model Multivariate Analysis statistical techniques were used to test the hypotheses. There is a positive relationship between government supported firms’ characteristics and job creation for both nationals and expatriates’ employment. The empirical results suggest that, when compared with the micro enterprises, the small enterprises were able to create more jobs for nationals than for expatriates, although the effect of the support program on job creation was significant for both groups”.

The second paper, titled “The impact of the digital economy paradigm on the productivity and monetary system of Oman” (by ALshubiri, Almaashani and Thuaar) proposes that “digitalisation has become closely related to various economic sectors in terms of economic impact and discovery of new technologies. In this regard, this study aims to examine the relationship between the digital economy, as measured by four proxies (infrastructure, empowerment of society, technological economic growth and digitalisation development), and the productivity and monetary system of Oman from 1985 to 2019. The analysis showed significant positive long-run relationships between infrastructure (measured as the number of fixed telephone subscriptions), technological economic growth (measured as medium- and high-tech exports as a percentage of manufactured exports) and the monetary system. There was also a significant negative short-run relationship between digitalisation development, measured as the number of individuals (percentage of the population) using the internet, and the monetary system. Furthermore, there were significant positive short- and long-run relationships between digitalisation development and productivity. Only short-run relationships were identified between empowerment of

society, measured as the number of mobile cellular subscriptions, and productivity. The conclusions support the paradigm of diffusion of innovation theory, which aims to understand the use of modern technologies to obtain the maximum economic benefit, and show both the dark and bright sides of technology. Furthermore, the effect of the digitalisation economy paradigm on productivity should be determined by increasing logistical services. This will support the growth of foreign and domestic investments and promote cooperation between the public and private sectors, thereby achieving digitalisation in Oman and enabling reflection on the country's monetary policy development and economic growth".

The third paper, titled "Factors influencing the implementation of cloud accounting: evidence from small and medium enterprises in Oman" (by Tawfik, Durrah, Hussainey and Elmaasrawy) explores "the factors influencing the adoption of cloud accounting (CA) in Oman's small and medium enterprises (SMEs). The research model is developed based on relationships between technology, organisational and environmental contexts. This study used a questionnaire to collect data from a sample of SMEs in Oman's information and communication sector. In total, 300 enterprises were selected, and the questionnaire was distributed to the executives. The questionnaires valid for analysis were 159. The collected data were analysed using structural equation modelling through analysis of a moment structures software. This study tested seven factors, namely, support from top management, firm size, infrastructure (technology readiness), security and privacy, compatibility, competitive pressure and relative advantage. The results revealed that compatibility has a significant impact on the adoption of CA. This study suggests the managers in SMEs should play a more decisive role in identification of technological, organisational and environmental factors that affect the success of implementing CA in a comprehensive model".

The fourth paper of the Special Section on Oman, titled "Student and faculty perceptions on an entrepreneurship course: an exploratory study from Oman" (by Naqvi, Matriano and Alimi) states that "entrepreneurship-oriented courses are increasingly being offered in higher education institutions (HEIs) around the world. However, in the case of Oman, where this study was conducted, little or no research has been conducted, to date, to explore the perceptions of students and faculty members regarding the entrepreneurship-oriented courses they participate in, which is a serious gap in the literature. This study aims to fill this gap by examining the beliefs and conceptions that learners and faculty at a private HEI in Muscat, Oman, had about the course entitled Entrepreneurship and New Venture Creation (ENVC). The primary and secondary research questions are addressed using a mixed-methods approach that includes an online student questionnaire answered by 110 students who had studied the ENVC course, a focus group discussion with eight students facilitated by MS Teams and semi-structured interviews with two faculty members. The findings revealed that the study participants had a very positive view of the ENVC course discussed here as they pointed to several benefits, including improved knowledge of business and entrepreneurship concepts, increased familiarity with the local business environment, development of entrepreneurial intention and improvement of their critical thinking, creativity and innovation skills. In addition, the results revealed some concerns among the participating students, particularly regarding the lack of adequate training sessions on risk management and financial planning. The participants also requested hands-on experience through industrial entrepreneurship training and in-residence-entrepreneurship programs".

Rest of the issue

Apart from the special section on Oman, Issue 5 includes four regular papers addressing related topics in other countries (China, Indonesia and Zimbabwe) and regions (Gulf Region).

The paper titled “What Determines 3D Printing Adoption in the GCC Region?” (by Almahamid, Almurbati, Al-Alawi and Fataih) proposes “an integrated model for three-dimensional (3D) printing adoption in the Gulf Cooperation Council (GCC) context to form a baseline for more theoretical and empirical debate from emerging markets. A qualitative approach with a convenience sample is adopted since there is no formal body that has accurate data about the number of companies, governmental bodies, nongovernmental organizations, universities, labs, etc., that already have adopted 3D printing. The results indicate that the technological usefulness of 3D printing and its ease-of-use factor were found to be lacking among community members and governmental officials. Yet, these factors were the most influential factor affecting the spread of 3D printing technology adoption in the GCC countries. Nevertheless, the adaptation of 3D printing is not yet at the level of its global markets, nor is it used within leading companies’ assembly lines. In addition, the 3D printing awareness and use increased during the COVID-19 pandemic. Yet, the adaptation rate is still below expectations due to several challenges that face the growth of the 3D printing market in the GCC countries. The most vital challenge facing 3D printing growth is manifested in governmental policies and regulations”.

The paper “Creating digital ecosystem for small and medium enterprises: the role of dynamic capability, agile leadership, and change readiness” (by Adhiatma, Fachrunnisa and Rahayu) claims that “the digitization efforts for small and medium enterprises (SMEs) as a result of advances in information technology are challenging, with one of them being the creation of digital ecosystems for SMEs. This study aims to develop a model of the relationship between SMEs’ readiness to change, agile leadership and dynamic capability to implement a digital ecosystem for SMEs in the creative industry in Semarang, Central Java, Indonesia. A survey methodology was used in this study. Respondents in this study were creative industry SMEs in Semarang, Central Java, Indonesia. SMEs in the creative industry sector were chosen as samples as they require digital technology to manage their business development, production and distribution, customer relationships and to innovate in their businesses. In total, 250 creative SMEs, selected based on a purposive random sampling method, were included in this study. Data were analyzed using structural equation model-partial least square. This study provides current insights and future needs for implementing digital ecosystems in SMEs in Indonesia’s creative industries. It also identifies three critical conditions for dealing with Industry 4.0: organizational readiness to change, agile leadership and dynamic capability”.

The paper titled “Influence of digital government innovation on transformational government in resource-constrained contexts” (by Ndlovu, Ochara and Martin) investigates “the influence of digital government innovation on transformational government. Digital government innovation is ordinarily implemented as means for the creation of public value. However, realisation of benefits from the digital government platforms has proved to be a challenge, and great discrepancy has been observed in the extent of public value generated, pointing to lack of innovativeness in resource-constrained environments. This research investigates the influence of digital government ambidexterity as an innovation strategy in enhancing transformational government (T-Gov). The authors develop hypotheses relating to digital government ambidexterity with two factors of innovation for enhancing T-Gov: exploitation incremental digital innovation and exploration radical digital innovation. The hypotheses are tested using a sample size of 690 citizens interacting through digital government platforms. The authors identify exploitation incremental digital innovation and

exploration radical digital innovation as factors, and how these factors of digital government ambidexterity influence information quality for public value creation. The success of T-Gov is associated to the implementation of digital government policy which moderate the relationship between digital government ambidexterity and information quality. The empirical outcomes suggest that exploitation incremental digital innovation and exploration radical digital innovation positively influence information quality, thereby leading to public value, and this result become successful if there is implementation of digital government policy. Treating the two factors of digital government innovation as complementary leads to public value creation”.

Finally, the last paper of the issue, titled “Impact of innovation network on regional innovation performance: do network density, network openness and network strength have any influence?” (by Zhao and Li) proposes that “with the development of regional economy, innovation network plays an increasingly prominent role in reducing regional innovation cost and enabling information, knowledge and capital flow and diffusion. Building an efficient innovation network has become a feasible way to improve regional innovation capabilities and performance. Thus, under the background of Chinese special triple helix structure, the specific mechanism of innovation network characteristics on regional innovation performance is still an issue that needs to be studied urgently. This study conducts a multi-level regression analysis regional innovation panel data of China from the past four years to explore how the three dimensions of innovation network characteristics (i.e. network density, openness and strength) affect regional innovation performance. The results show that there is an inverted-U relationship exists between network density and regional innovation performance. The network openness and regional innovation performance show a significantly positive relationship and a U-shaped relationship exists between network strength and regional innovation performance. First, this study examines the relationship between network density, openness, strength and innovation ability in the network variable structure. However, this study does not analyze how absorptive capacity impacts the network structure and innovation performance of regional innovators. Second, innovation network intensity largely varies according to different types of enterprises or industries. Therefore, future studies can attempt to analyze the relationship between innovation network and innovation performance on the basis of the industry or the enterprise itself. Fourth, this study does not consider the change in the influence of innovation network structure on innovation ability”.

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Further reading

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