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ENSURING THE ECONOMIC STABILITY OF ENTERPRISES IN THE CONTEXT OF THE DEVELOPMENT OF THE DIGITAL ECONOMY

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Abstract:

Ensuring the economic stability of enterprises in the context of the development of the digital economy is covered in this article, the problems that arise in the application of digital economy in entrepreneurial activity, and the ways to address them in detail.

Keywords: Digital economy, modernization, small business and entrepreneurship, innovative development, technology platforms, information and communication technologies

INTRODUCTION

The digital economy has recently attracted much attention from enterprises worldwide. More specifically, the digital economy is fostered and booming with the positive promotion of the manufacturing industry and network. The Digital Economy Report 2021 published by UNCTAD (2021) explained that the data-driven digital economy is core to all fast-evolving digital technologies, such as data analytics, artificial intelligence (AI), blockchain, Internet of Things (IoT), cloud computing and other Internet-based services. The gradual interrelation between digital technology and business operations has led to the convergence of management disciplines, equipment, and applications. The Internet, big data, AI, and other new information and communication technologies have been applied to the real economy on a broader and more profound level. Consequently, the pace of digital transformation and intelligent upgrading of the manufacturing industry is accelerating. On the one hand, the digital economy has become an important part of the Chinese national economy. The digitalization of China's manufacturing industry has achieved remarkable results. Its scale of added value has grown from 17.4 trillion Yuan in 2016 to 28.7 trillion Yuan in 2019, accounting for 29% of GDP (CAICT, 2021). According to the statistics published by China's Ministry of Industry and Information Technology, the scale of China's digital economy reached 45.5 trillion Yuan in 2021, accounting for 39.8% of the GDP and ranking second in the world. With the escalating growth of the digital economy, it has become significant to China's manufacturing industry to promote technological innovations by integrating digital technology (Wu, 1996; Zhao, Zhang & Liang, 2020). In preventing and controlling the COVID-19 pandemic in China, the digital economy has contributed significantly to the resumption of the manufacturing industry and stimulated the vitality of enterprise innovativeness.

On the other hand, the digital economy and industry development have increasingly become the academic hotspot. The research on the digital transformation of enterprises can be traced back to the "*Solow paradox*" or "*productivity paradox*," discovered by Solow (1987). Some scholars have regarded information technology investment as an unimportant variable that other factors can replace, especially in banking, non-agricultural sectors, and other industries (Gordon, 2003; Parsons, Gotlieb & Denny, 1993). Some researchers have theoretically explained the reasons for the "Solow Paradox," including the problem of measurement, the lag effect of information technology, the lack of other complementary factors, and so on (e.g., Brynjolfsson & Hitt, 2003; David, 1990; Griliches, 2009). In the mid-1990s, information superhighway construction in the United States created a significant impact, and as a result, the total factor productivity of the non-agricultural business sector improved substantially (Oliner & Sichel, 2000). Consequently, many studies published in the early 2000s have demonstrated that much of the contribution comes from information technology-related investment (Oliner & Sichel, 2000; Oliner, Sichel & Stiroh, 2008). The extant literature has continued the discussion on the "Solow paradox" by examining the effect of the innovation-driven digital economy on firm productivity (Hartmann, Waubke & Gebhardt, 2021; Pan, Xie, Wang & Ma, 2022). Most scholars have studied the impact of digitization on regional innovation from a macro level (Baslandze, 2016; Thomas, 2020). The findings indicate that widespread Internet and digital infrastructure use have increased regional innovation (Han, Song & Li, 2019; Thomas, 2020). Many quantitative research studies have used traditional research tools and methodologies to measure the impact of the digital economy from national or regional perspectives (Curran, 2018; Huang, Yu & Zhang, 2019; Li, Chen, Chen & He, 2022). Some qualitative research studies have also argued the micro-level influence of digital technology on enterprise technological innovations (Baslandze, 2016; Boland, Lyytinen & Yoo,

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2007; Brynjolfsson & Saunders, 2009; Cui, Ye, Teo & Li, 2015; Han et al., 2019; Paunov & Rollo, 2016). Further, the literature reveals that digital transformation efforts will have an impact on enterprise product innovation (Ghasemaghaei & Calic, 2020), process innovation (Nambisan, 2017), organizational innovation (Ciriello, Richter & Schwabe, 2018), and business model innovation (Autio, Nambisan, Thomas & Wright, 2018). Integrating digital systems is one of the most preferred ways to promote effective workflows and business processes (Thomas, 2020). Further, Verhoef et al. (2021) emphasized that resultant business model innovation has challenged existing firms, disrupted several sectors, and radically changed customer expectations and behavior.

Although it has been noted that the digital transformation efforts of an enterprise can contribute to enterprise technological innovation, there are still some research gaps concerning investigating the relationship between the digital economy and enterprise innovativeness. First, although the digital economy is booming, empirical research on examining the effect of an enterprise's degree of attention to the digital economy on its innovativeness in the context of Chinese enterprises is insufficient. In most instances, the existing literature is focused on measuring the effect of the digital economy. Most studies have measured the digital economy index from a macro-level perspective (e.g., Pan et al., 2022; Wang, Chen & Li, 2022). More specifically, some have focused more on the macro digital economy than the internal application of digital technology within enterprises (Bertani, Ponta, Raberto, Teglio & Cincotti, 2021; Watanabe, Tou & Neittaanmäki, 2018). Such studies cannot deeply reflect how micro-enterprises can foster technological innovations in the digital economy (Ayres & Williams, 2004).To address this void in prior literature, this study measures how much attention enterprises give to the digital economy using data mining and text analysis methods. By doing so, it broadens the attempts made by the previous literature on measuring the indicators of the digital economy.Second, the digital economy includes many aspects, while innovation can be divided into different processes. However, both the digital economy and enterprise innovativeness have heterogeneity. Some studies have discussed the impacts of various digital technologies, such as information technology (Gordon, 2003; Parsons et al., 1993), the Internet, blockchain, and big data on enterprise innovativeness (Claster et al., 2013; Javaid et al., 2021). Nevertheless, existing studies have not considered all digital technologies and business models in understanding how enterprise's degree of attention to the digital economy influences its innovativeness. This paper examines the impacts of two aspects of the digital economy on different innovation processes of enterprises, including the innovation of invention, utility model, and appearance design, to address this gap in the existing literature.Third, the internal changes of enterprises under the influence of the digital economy have not been adequately researched yet. The existing research has mainly demonstrated a positive impact of the digital economy on firm productivity. The digital economy's influence on enterprises' innovation activities and the internal mechanism is a new topic worthy of in-depth study, as transaction costs have been greatly reduced with the emergence of the digital economy. Further, the model of operation and source competitive advantage of enterprises have also changed. Consequently, the impact of cost control decisions on innovation activities must be further studied.

This paper contributes to the existing literature in the following vital ways. The first is measuring the degree of firm-level attention to the digital economy by applying Python technology. Using listed manufacturing enterprises in China's A-stock market and collating firm-level data from 2011 to 2018 as the research sample, this paper conducts data mining and text analysis on the annual reports. By doing so, this study makes a descriptive analysis of the trends and sectoral differences in enterprises' attention to the digital economy. The second contribution is testing the effects of Chinese enterprises' attention to the digital economy on innovation with heterogeneity. Employing the two-way fixed effects (TWFE) model indicates that the more enterprises pay attention to the digital economy, the more patents are applied. The attention to the digital economy has a significantly positive relationship with invention patents and design patent applications. Both effects of digital technology deployment and business models on different innovation processes are comprehensively considered. The findings reveal that digital technology brings a complementary perspective to enterprise innovativeness, while business model brings design innovation to create customer value. The third contribution is uncovering that the digital economy helps enterprises effectively control costs and save money in business activities. The research shows that attention to the digital economy increases expenditure on R&D while reducing sales expenses and finance expenses.

Digital innovation

Digital innovation refers to the application of digital technology during the innovation process of an enterprise (Nambisan, 2017). Digital technology has altered the fundamental nature of original products, the

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new product development process, business models, and organization types, and even subverted the primary hypotheses of many innovation theories. Ciriello et al. (2018) have defined that innovating digitally means innovating products, processes, or business models using digital technology platforms as a means or end within and across organizations. Digital technology both results from and serves as the foundation for digital innovation. It has excellent scalability and low entry barriers, encouraging widespread participation and democratizing invention (Yoo, Henfridsson & Lyytinen, 2010; Tajeddini, 2016). The existing literature has reached a consensus and believes digital innovation has the following two characteristics.

Convergence: Digital technologies combine previously separate components. Industry barriers, organizational boundaries, departmental boundaries, and even product boundaries are dissolved by digital innovation, which promotes new business models.

Generativity: Digital technologies are inherently dynamic, extensible, and malleable. So digital innovation can be continuously improved and self-growth (Yoo, Boland, Lyytinen & Majchrzak, 2012). The most typical example is that digital products such as APP can innovate iteratively in time according to user feedback and various problems in the operation process.

ANALYSIS AND RESULTS

"Digital economy" is the provision of digital space for all spheres of the country's life. The main objective of the program is to create legal, technical, organizational and financial conditions for the development of the digital economy in the country and its subsequent integration with the digital economies of foreign countries. The digital economy will ensure gross domestic product growth of at least 30 percent and dramatically reduce corruption. This is confirmed by analytical studies of reputable international organizations. In his address to Parliament of the Republic of Uzbekistan dated January 25, 2020, President Shavkat Mirziyoev emphasized the need to develop a national concept of digital economy, which provides for the modernization of all sectors of the economy based on digital technologies". On this basis, we need to implement the program "Digital Uzbekistan-2030". The digital economy will increase gross domestic product by at least 30%, reducing corruption. An analysis by reputable international organizations confirms this. The main task of paramount importance in the formation and implementation of a strategy for the development of the digital economy in Uzbekistan is the prioritization of information innovation policy regarding stakeholders, industry and innovation market entities and target social groups, as well as an interdisciplinary approach to managing content and activities that combines modern communication technologies, management and social engineering. The digital economy continues to grow at an incredible speed due to its ability to collect, use and analyze the vast volumes of machine-readable information (digital data) about almost everything. Such digital data is collected based on the analysis of "digital footprints" that remain on various digital platforms because of the activity of individuals, social groups or enterprises.

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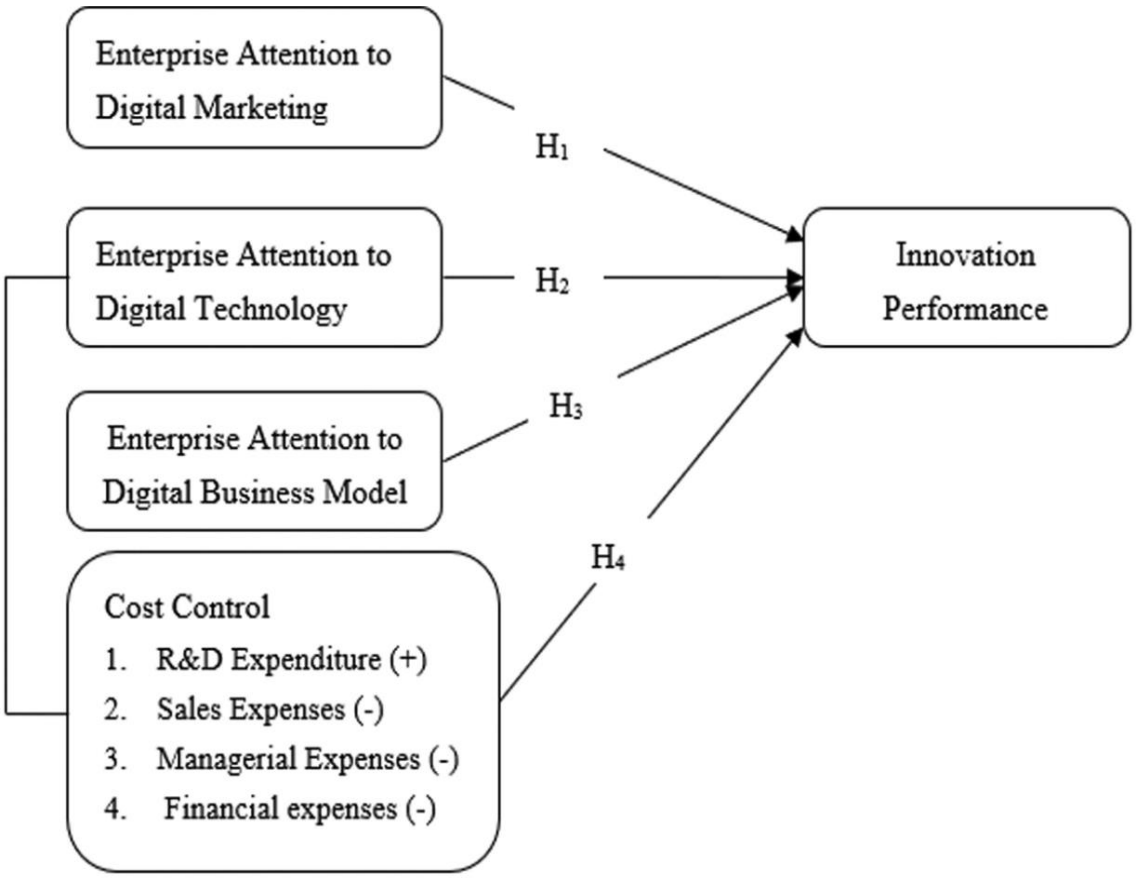

Fig. 1. Hypothesized Model.

Global Internet Protocol (IP) traffic, a proxy for data flows, grew from about 100 gigabytes(GB) per day in 1992 to more than 45,000 GB per sscond in 2017. And yet the world is only in the early days of the datadriven economy;by 2022 global IP traffic is projected to reach 150,700 GB per second, fueled by more and more people coming online for the first time and by the expansion of the internet of Things (IoT). As people, business and equipment become more closely connected in a single digital space format, digitalization offers ample opportunities for new decision-making models, becoming the basis of ongoing global economic and social transformations that are changing business and consumer models, models of social services and economic activities of the population. The potential of small innovative enterprises in the context of digitalization creates the prerequisites for the emergence of competitive advantages of science and business both at the national and global levels. Small innovative enterprises are the generator of ideas created in higher education institutions. Introducing into the real economy innovation universities small innovative enterprises have become an essential attribute for the modernization of national second economy, to create a "smart economy", to ensure the growth of highly competitive products, linking science, education and business together, creating new professionally trained staff, as well as involving young students in business. Small innovative entrepreneurship in the development of the digital economy is an essential structural element of new economic business models and a breeding ground for systemic changes in technology, digital infrastructure and social relations. Small innovative enterprises represented by their most dynamic and successful representatives act for the digital economy, on the one hand, as a testing business ground, and on the other, as an excellent "building material" from which national and global companies are obtained.

CONCLUSION

Under the current conditions of comprehensive digitalization, it is important to understand that properly organized financial and legal relations in the digital age can provide great opportunities for increasing the well-being of people only in a reliable legal field. In our opinion, such a low rating in terms of the global connectivity index, which determines the level of development of the digital economy in the country, is due to the following factors: -low level of use of

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information technologies in the business sector, including in the sector of small and medium innovative entrepreneurship, Comparison with more developed countries of the world; -the lack of appropriate, necessary infrastructure for the release of unique information products both on the world market and for introduction into the domestic market of the country, including in the sector of small and medium innovative entrepreneurship; -underestimation and fear of businessmen, including in the sector of small and medium-sized enterprises, of the possibilities of the digital economy and its impact on the efficiency, productivity and growth potential of the business, as well as increasing its competitiveness in the market (including in the sector small and medium enterprises). To overcome these problems in the framework of research and the development of the digital economy, including in the field of small and medium innovative entrepreneurship of the Republic, we propose the following measures; -creating conditions at the state level for training and further training of specialists in the field of digital economy and innovative technologies; -the formation of a stably functioning system of international cooperation in the field of innovative scientific and technological development of countries, including in the field of digital economy; -Creation and widespread introduction of a system of incentives for the use of digital and innovative technologies of entrepreneurs conducting small and medium-sized businesses in their economic (economic) activities through tax incentives, government orders and other events. Thus, based on the foregoing, we can conclude that the digital economy as one of the manifestations of the scientific and technological development of the Republic has a significant beneficial effect on the development of small and medium-sized innovative entrepreneurship. The use of innovative technologies in our sector of the country's economy increases the efficiency, productivity and growth potential of the business, as well as the level of its competitiveness in the market. There fore, in our opinion, despite the on current problems of development and formation of the digital economy in the sphere of small and medium innovative enterprises, the state policy of the introduction and development of the digital economy is the only possible way of strengthening the strategic position of the Republic, both in the domestic market Article p Ana, so in the global economy.

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