The Impact of Digitalisation Capability on SMEs Performance in the context of Digital Economy

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Abstract: In the context of the digital economy, enhancing digitalisation capability has become a strategic imperative for small and medium-sized enterprises (SMEs). This study investigates the impact of organisational digitalisation capability on SME performance, with a particular focus on the moderating roles of environmental turbulence and the definition of the capability hierarchy (i.e., dynamic vs. operational capabilities). A quantitative research design was employed, and survey data were collected from 238 SMEs across eastern and western regions of China. The results reveal that digitalisation capabilities significantly improve SME performance. Moreover, environmental turbulence amplifies this relationship, especially when dynamic digital capabilities are emphasised. This study contributes to digital transformation literature by introducing a dual-level digital capability framework and clarifying the conditions under which digitalisation most effectively enhances firm performance. The findings offer theoretical and practical implications for SME strategy and capability development in volatile environments. This article mainly elaborates on the construction of the research framework.

Keywords: Business Schools, Curricula, Collaboration, Research, Nonprofit, Change Management

Introduction

The world has fully entered the era of digital economy, and the widespread application of digital technology has profoundly affected the transformation and upgrading of traditional industries, giving birth to numerous new industries, formats, and models (Xia et al., 2023). The digital economy has become a key force in restructuring global factor resources, reshaping the global economic structure, and changing the global competitive landscape (Shi, 2022). The term digital economy appeared at the beginning of the 21st century. According to the definition of China Ministry of Industry and Information Technology(CMIIT), it refers to a new economic form with digital knowledge and information as key production factors, digital technology as the core driving force, modern information network as an important carrier, and through the deep integration of digital technology and real economy, constantly improving the digitalization, networking and intelligence level of economic society and accelerating the reconstruction of economic development and governance mode (CMIIT, 2023a).

Vigorously developing digital infrastructure has become the material basis for countries to activate new applications, expand new formats and create new models. The inclusive development policy of digital economy has been continuously enriched. Digital entrepreneurship and digital literacy cultivation have become the key points of inclusive policy layout (CMIIT, 2022). The construction of destiny community has achieved initial results. Multilateral cooperation framework and multi-field deepening cooperation have become typical forms of international cooperation in digital economy. By 2022, the estimated digital economic added value of 51 countries will be US $41.4 trillion, up 7.4% year-on-year in nominal terms, accounting for 46.1% of GDP (CMIIT, 2023b).

Small and medium-sized enterprises (SMEs) play an important role in the economies of both developed and developing countries, and are even a major component of enterprises in developing countries. They have made significant contributions to creating employment opportunities and the overall development of the global economy, accounting for approximately 90% of corporate entities and over 50% of global employment. In emerging economies alone, the contribution of officially registered SMEs to national income (GDP) is close to 40%, and the impact is even

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greater when informal SMEs are included (TheWorldBank, 2023). Addressing the estimated demand for 600 million job opportunities by 2030 is the top priority for governments around the world, emphasizing the importance of SMEs development.

In emerging markets, SMEs provide the majority of job positions and employment opportunities, accounting for 7/10 of the market. By recognizing the crucial role of SMEs in modern economy, their contribution to economic development has been widely recognized. Therefore, economic policies that support competitiveness are crucial for promoting healthy, sustainable, and inclusive growth, especially for SMEs operating in the global economy (BIAC, 2016). These policies enable SMEs to participate in the global value chain, promoting world trade, investment, productivity, and innovation. Although SMEs account for 90% of global enterprises and contribute over 50% of total employment (Drucker, 2009), approximately 200 million companies worldwide lack the financing needed for investment and job creation (TheWorldBank, 2023).

China's State Council (CSC) (2023) said it will continue to pay attention to the development of SMEs. At the press conference in June 2022, the CMIIT spoke highly of the ten-year development of China's SMEs and summarised three characteristics of rapid growth, high contribution and strong vitality (CMIIT, 2022). According to the official statistics of the press conference of "Innovation and Development of SMEs" of CMIIT in August 2022, the number of SMEs in China reached 480 million. As of December 2021, it has reached 1 billion yuan, an increase of 2.7 times in ten years (CMIIT, 2022). SMEs are the largest and most dynamic part of the market entities and have become one of the main economic entities in China's economic and social development (CSC, 2022). From the perspective of contribution, the proportion of SMEs in China accounts for 99.8% of the total number of enterprises, and the proportion of employment absorbed accounts for 79.4% of all enterprise employment (CMIIT, 2022). SMEs not only provide a large number of material goods and services, but also serve as a "reservoir" for employment absorption and regulation (CSC, 2022).

Problem Statement

Over the past two decades, SMEs from emerging economies, particularly China, have increasingly participated in international markets and become part of the global economy (Deng, 2023). However, in the process of operation and development, SMEs inevitably face challenges such as increased competition, adaptation to market demand, technological change, and capacity constraints. Despite their enormous potential, many SMEs face barriers associated with their small size, such as resource shortages, lack of economies of scale and high transaction costs (ADB Institute, 2016).

During the global crisis, especially in China, the COVID-19 pandemic had a significant impact on SMEs. They face delays in resuming operations. The impact of the epidemic is reflected in the challenges faced by SMEs, 67.1% of which can last for two months and 85.01% for up to three months. Ensuring the survival and sustainable development of China's SMEs is crucial to the country's future economic health and social stability (Xinhua Agency, 2019). The vulnerability of SMEs was amplified during the pandemic, affecting their financing, innovation and overall operations (Du, 2021; Ding, 2020). Due to limited financial resources, SMEs need to strengthen technological innovation and innovation in management mechanisms. The challenges faced by SMEs are further exacerbated by their short development time, weak solvency and poor credit standing.

In short, SMEs shut down, sales difficulties, investment declines, and expenditure pressure continued to increase, triggering survival pressure. The China Association of Small and Medium Enterprises (CASME) reported that the SME Development Index (SMEDI) dropped significantly in 2020. Despite this, the normal life cycle of SMEs in China is around 3.5 years, but the mortality rate may increase by 50% due to the global crisis (Lu & Xu, 2020). The Chinese government has adopted a number of inclusive fiscal and financial policies to support SMEs, emphasizing their role in the economy. However, in this digital age, these SMEs must also cope with and adapt to technological advances in order to survive and maintain their market presence.

In the digital economy era, the widespread application of information technology and the popularity of the Internet have broken the boundaries of traditional economic models (Wang, 2023). SMEs face unprecedented opportunities and challenges for development (Yang, 2023). With the acceleration of digital transformation in global markets, SMEs must actively or passively

cultivate and upgrade their organisational digitalisation capabilities, whether to adapt to market changes or survive and develop in fierce competition. This ability improvement can help enterprises improve operational efficiency, reduce operating costs, enhance market response speed and ultimately increase revenue in the short term. In the medium term, digitalisation capabilities will give companies greater flexibility and innovation potential to remain competitive in a changing market. In the long run, a deep understanding of digital trends and effective adaptation will determine whether SMEs can achieve long-term sustainable development. By optimizing resource allocation, innovating business models, and strengthening linkages with global markets, they can gain an advantageous position in the global economy (Li et al., 2022). Therefore, many traditional enterprises actively embrace digital technology, improve digital operation capability and digital dynamic capability, and promote enterprise digital transformation (Vial, 2019), while more natural digital enterprises deeply embed digital technology, use digital technology as a tool to develop digitalisation capability, and quickly occupy competitive heights (Mihailova, 2023). Under the background that traditional enterprises and digital-born enterprises are building digitalisation capabilities one after another, the relationship between digitalisation capabilities and enterprise performance has become an urgent question to be answered, especially for SMEs.

The impact of digitalisation capabilities on enterprise performance has gradually become a hot topic, which has attracted extensive attention from academia and industry. However, existing studies differ greatly in the direction and intensity of the relationship, and more importantly, scholars have not revealed the boundary conditions that lead to the above differences (Ma & Wang, 2024). Although most studies show a positive correlation between digitalisation capabilities and corporate performance (Savastano et al., 2022; Wiesbock et al., 2020). However, the results of different studies vary greatly. Some scholars found that the correlation coefficient between digitalisation ability and enterprise performance is negative (Hautala-Kankaanpaa, 2022; Usai et al., 2021). There is even a moderate negative correlation (Dubey et al. 2021). In conclusion, due to the limitations of study design, the results of various studies are quite divergent and the conclusions lack universality. At present, there is no consensus on the direction and strength of the relationship between the two (Ma & Wang, 2024). At the same time, previous studies have focused on large enterprises, and there is a gap in research on the relationship between digitalisation capability and SME performance (Shane & Venkataraman, 2000). To bridge the gaps, this paper attempts to answer: How does digitalisation capability affect SME performance?

Literature Review

SMEs Performance

Successful businesses are often seen as engines of economic, social and political progress, making significant contributions to progress in developing countries. In today's competitive business environment, companies must navigate environments that promote optimal performance. The exploration of corporate performance is a prominent focus in the strategic management literature and is often used as a dependent variable for research (Taouab & Issor, 2019). Given its widespread use, it is difficult to agree on the concept and measurement of business performance in the academic literature, leading to different interpretations of individual views.

In previous studies, there were many ways to conceptualise the concept of corporate performance. Daft (2000) defines corporate performance as the ability to achieve specific goals with limited resources. According to Richard, Divenney, Yip and Johnson (2009), Kaluthanthri Thompsons and Strickland (2012), Wheelen, Hunger, Hoffman and Bamford (2014) and Osmadi (2020), business performance refers to tangible results and results achieved through strategic management activities aimed at achieving organisational goals. The ability to create value for customers and other stakeholders has been defined by a group of academics as corporate performance (Toauabs & Issar, 2019; Okeyo et al., 2016).

Corporate performance can also be viewed as the ability to become effective and efficient by providing high-quality goods and services (Neely et al., 1995; Frank& Rollermel, 2013). The concept of corporate performance can be based on the idea that organisations possess productive assets, such as capital, human, and material resources, to achieve corporate performance (Barney, 1991). Researchers Richard, Mureithi, and Ismael (2009) defined organisational success as financial and non-financial metrics that provide information about corporate goals. Many scholars

recommend using both monetary and non-monetary metrics in performance evaluation because they provide a more comprehensive and equitable approach (Mashovic, 2018; Wandongo et al., 2010; Kaplan and Norton, 2001). In this paper, financial performance and non-financial performance will be used as two dimensions of SMEs performance considerations. The former includes profit margin, return on assets, etc., while the latter includes the number of new products or services, customer satisfaction, etc.

Digitalisation Capability

The concept of digitalisation capability originates from the development of digital technology and its application in enterprises. Due to the issues of context and language conversion, there are many terms for digitalisation capability, including digital transformation capability (Sousa-Zomer et al., 2020), digital platform capability (Karimi & Walter, 2015), digital process capability (Zhu et al., 2022), digital procurement capability (Hallikas et al., 2021), digital manufacturing capability (Savastano et al., 2022), digital marketing capability (Homburg & Wielgos, 2022), etc. As an emerging concept in the digital economy era, the definition of digitalisation capability has not yet reached a consensus (Ma & Wang, 2024).

In the current ever-changing environment, companies are forced to adopt digital technologies that bring profound and permanent changes to their operational procedures and workflows (Lyytinen & Rose, 2003). This transformation affects product and service transformation and competitiveness (Porter & Heppelmann, 2014; Yoo et al., 2012). Therefore, some scholars have proposed that a company's digitalisation competence is an integrated organisational capability of a company to use new generation digital technologies for rapid problem solving, value creation, management efficiency, and maintaining competitive advantage (Khin & Ho, 2019), or it is called digital operational capability (Ritter&Pedersen, 2020). Other scholars study digitalisation capability from the perspective of resource value release, which they view as the ability to identify and utilize various types of complementary resources (Wu et al., 2021; Verhoef et al., 2021). This perspective definition highlights the integration and allocation of digitalisation capabilities to various resource elements within the digital ecology. Another group of scholars, considering the increasing volatility, complexity, and uncertainty of the environment in the digital context, considers digitalisation capability as a higher-order capability with the characteristics of dynamic capability in the face of rapid response to environmental changes (Li et al., 2022; Annarelli et al., 2021). This perspective emphasizes that digitalisation capabilities are dynamic adaptive capabilities constructed by firms in response to dynamic environmental changes. In sum, scholars generally agree that possessing digitalisation capabilities becomes an important prerequisite for firms to ensure their growth and maintain a sustainable competitive advantage. Based on the existing research, this paper regards digitalisation capability as a collection of digital dynamic capability and digital operation capability, and integrates and reconstructs digital resources and traditional resources to adapt to the changing environment by using digital technology, and improves the operational efficiency of enterprises in procurement, manufacturing and marketing, so as to obtain and maintain competitive advantage.

The Impact of Digitalisation Capability on SMEs Performance

In the wave of digital economy, digitalisation capability becomes the key for enterprises to improve response speed, meet customer needs and increase revenue (Jiang & Jin, 2022). Firms with greater digitalisation capabilities can demonstrate competitive advantages in the following areas: First, rapid orchestration of resources and accelerated product innovation: Companies with digitalisation capabilities can leverage digital technologies to rapidly orchestrate resources, generate solutions, and accelerate product innovation processes (Hallikas, 2021). Second, organizational process innovation and business model innovation: enterprises with stronger digitalisation capabilities value the synergy between digital resources and traditional culture (Ma et al., 2024), re-engineering existing organisational processes through digital technology to achieve process innovation (Zhu et al., 2022), and developing platform business models to improve organisational agility and adaptability (Karimi & Walter, 2015). Third, adapt to changes in the external environment: enterprises with digitalisation capabilities can use digital technology to collect industry data, analyze laws, predict market trends, and help enterprises adapt to the rapidly changing external environment of the digital age (Savastano et al., 2022) and then improve business performance with a faster response than competitors.

A possible conclusion from extensive reading of previous literature is that digitalisation capability is a double-edged sword for corporate performance. Effective utilization of digital resources is a key factor for enterprises to gain advantages in fierce market competition (Li et al., 2023). Businesses' digitalisation capabilities can significantly reduce operating costs and expenses, including but not limited to reducing labor costs, waste of materials, shortening product lead times, reducing transaction costs, and reducing the cost of personalization (Xiao, 2020). In these ways, digitalisation capabilities enhance business productivity and market responsiveness, thereby enhancing business competitiveness. However, investing in digitalisation capabilities is not without risk. Digital transformation involves not only the acquisition of software and hardware facilities, but also the training of employees' digital skills and the recruitment of professional digital talents, which require enterprises to invest a lot of money (Kohtamaki, 2020). For SMEs that are already short of capital, such investments can place a heavy financial burden on businesses. In addition, the resistance and lack of understanding that may exist within an organisation may also lead to digital investments not working as expected and may even reduce business performance (Ma, 2024).

Despite these challenges, most research and practice cases show that the benefits of digitalisation capabilities outweigh the costs. Enterprise capability is an important source of enterprise performance, and digitalisation capability, as one of them, plays an important role in improving enterprise performance in the digital economy (Karna et al., 2016). Based on the above analysis, this paper speculates that the overall effect of digitalisation capability on SME performance is positive. Therefore, this paper proposes:

H1: Digitalisation capabilities have a positive impact on SME performance.

Variable Definition and Possible Moderating Effect

Scholars have not yet reached a consensus on the level of digitalisation capabilities. A research sect focuses on the operational level of enterprises, defining digitalisation capabilities as operational capabilities that improve business performance by reducing operational costs and improving operational efficiency (Ritter & Pedersen, 2020; Karimi & Walter, 2015; Homburg & Wielgos, 2022). Another research sect focuses on the strategic level of enterprises, defining digitalisation capabilities as dynamic capabilities that gain competitive advantages through faster understanding of market demand, seizing opportunities, and fully utilizing and integrating internal and external resources, thereby improving enterprise performance (Li et al, 2022; Annarelli et al, 2021). Digital dynamic capabilities and digital operational capabilities enhance enterprise performance in different ways. In other words, the definition of the capability hierarchy to which digitalisation capabilities belong may affect the relationship between digitalisation capabilities and enterprise performance. However, due to the fragmentation of research between the two sects, there is no clear comparison between the impact of digital dynamic capabilities and digital operational capabilities on corporate performance. Therefore, this study proposes the hypothesis:

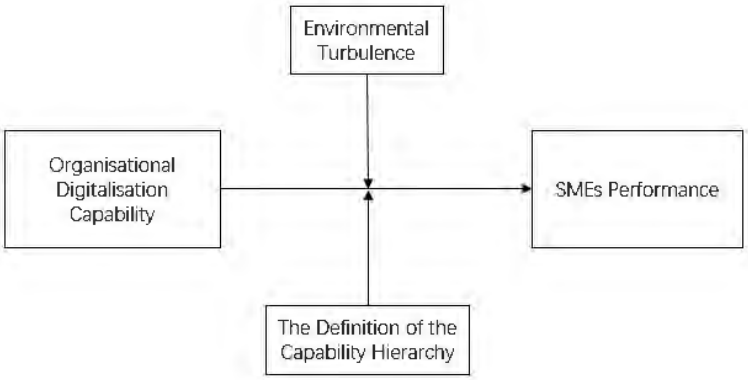
H2: The definition of the capability hierarchy to which digitalisation capabilities belong plays a moderating role in the relationship between digitalisation capabilities and SMEs performance.

An important feature of digital economy is that the cost of information transmission and data sharing across time and space is close to zero (Min & Xu, 2022). The development of digital economy significantly reduces the transaction cost of the whole economic activity. With the decline of transaction costs, the natural and institutional barriers between economic markets will be broken to a certain extent, thus accelerating the rapid development of global markets (Min & Xu, 2022). What follows is more intense market competition, fast-changing market and technological change. In other words, environmental turbulence is unavoidable for all enterprises, especially SMEs, in the era of fast-developing digital economy. Environmental volatility is also referred to as the unfathomable changes, developments and uncertainties that occur in a company's target market, including market volatility, technological volatility and competitive intensity (Nashiruddin, 2018). This phenomenon leads to shorter product and company life cycles, changing customer needs, and rapid technological advances. Companies are grappling with the challenge of managing these external changes while traditional approaches lack control. In today's business environment, companies must reassess their strategic plans in light of environmental turbulence, emphasizing innovation as a survival strategy (Nashiruddin, 2018; Atalay et al., 2013). Some scholars have pointed out that environmental turbulence can significantly affect the competitive performance, strategy and capabilities of enterprises (Rai & Tang, 2010). Although a number of studies confirm

the impact of environmental turbulence on corporate performance, past studies have yielded inconsistent results. Some scholars believe that in stable environments, numerical correlation factors have a strong impact on company performance (Vijayasarathy, 2010; Wong et al., 2011). On the contrary, other scholars claim that digital technology and digital analysis ability have a more significant impact on economic performance in a highly dynamic environment (Li et al., 2020; Srinivasan & Swink, 2018). Also, in volatile environments, SMEs tend to rely on external partners for information on market changes (Alexiev et al., 2016). External pressures may prompt SMEs to adopt digital technologies to stay competitive (Li et al., 2020). Therefore, in a more volatile environment, SMEs face the challenge of leveraging digital technologies to interconnect supply chains and optimize operations to improve economic performance (Lietal., 2020). Therefore, this paper proposes that:

H3: Environmental turbulence moderates the relationship between digitalisation capabilities and SME performance.

Figure 2.1 Research Framework



Underpinning Theories

Figure 2.1 illustrates the conceptual framework of this study, grounded in the Dynamic Capability View (DCV) and the Resource-Based View (RBV). Organisational digitalisation capability is conceptualised as comprising two interrelated yet distinct components: dynamic digital capabilities and operational digital capabilities (Li et al., 2022; Ritter & Pedersen, 2020). Dynamic digital capabilities reflect a firm's ability to sense, seize, and reconfigure resources in response to changing environments, enabling strategic agility and innovation (Teece, 2007; Annarelli et al., 2021). In contrast, operational digital capabilities are embedded in routine business processes such as procurement, production, and marketing, aiming to improve efficiency, reduce costs, and enhance responsiveness (Zhu et al., 2022; Homburg & Wielgos, 2022).

Environmental turbulence, which characterised by high levels of market, technological, and competitive uncertainty, and serves as a contextual moderator that influences the relative effectiveness of each type of digital capability (Rai & Tang, 2010; Li et al., 2020). In stable environments, operational capabilities may suffice to maintain performance through process optimization. However, in turbulent conditions, dynamic capabilities become essential as they empower SMEs to adapt rapidly, reconfigure internal resources, and exploit external opportunities (Srinivasan & Swink, 2018; Savastano et al., 2022). This dual-role framework suggests that while both types of capabilities contribute to SME performance, their effectiveness is contingent on environmental dynamism. Therefore, this study positions environmental turbulence and capability hierarchy (dynamic vs. operational) as critical boundary conditions moderating the digitalisation–performance relationship in SMEs.

Research Hypotheses

Based on the literature and theoretical foundations, the following hypotheses are proposed:

H1: Digitalisation capabilities have a positive impact on SME performance.

H2: The definition of the capability hierarchy to which digitalisation capabilities belong plays a moderating role in the relationship between digitalisation capabilities and SMEs performance.

H3: Environmental turbulence moderates the relationship between digitalisation capabilities and SME performance.

Conclusion

In this article, the author attempts to propose a framework to explain the impact of an organisation's digitalisation capabilities on SMEs performance, and assumes two moderating variables that may affect the relationship between the two. Afterwards, the author will further select SMEs from two different regions in eastern and western China, and use quantitative analysis research methods to verify the research hypotheses and provide results.

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